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MARKETING AND PROMOTION OF INFANT FORMULA IN THE DEVELOPING NATIONS, 1978

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HEARING

BEFORE THE

SUBCOMMITTEE ON HEALTH AND SCIENTIFIC RESEARCH

OF THE

COMMITTEE ON HUMAN RESOURCES UNITED STATES SENATE

NINETY-FIFTH CONGRESS

SECOND SESSION

ON

EXAMINATION ON THE ADVERTISING, MARKETING, PROMOTION, AND USE OF INFANT FORMULA IN DEVELOPING NATIONS

MAY 23, 1978

Printed for the use of the Committee on Human Resources

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MARKETING AND PROMOTION OF INFANT FORMULA IN THE DEVELOPING NATIONS, 1978

TUESDAY, MAY 23, 1978

U.S. SENATE,
SUBCOMMITTEE ON HEALTH AND SCIENTIFIC RESEARCH
OF THE COMMITTEE ON HUMAN RESOURCES,
Washington, D.C.

The subcommittee met, pursuant to notice, at 9:37 a.m., in room 4232, Dirksen Senate Office Building, Senator Edward M. Kennedy (chairman of the subcommittee) presiding.

Present: Senators Kennedy, Clark, Chafee, and Javits.

OPENING STATEMENT OF SENATOR KENNEDY

Senator KENNEDY. We will come to order.

The Bengali poet Tagore wrote that "every child comes with the message that God is not yet discouraged of man." Yet in one nation in Latin America, 80 percent of all deaths are accounted for by children under 5 years of age. Measles kills 10 percent or more of all children born in Africa before they reach age 5. Less than 10 percent of the 80 million children born each year in the world receives immunizations against preventable disease. Poverty, malnutrition and disease retain their suffocating hold on hundreds of millions of people around the world.

It is astonishing, and it is an enormous human tragedy, that one-fourth of the people on this earth—1 billion men, women and children—have no access to any health care whatsoever. Another billion have only the most rudimentary and ineffective care. In some nations, four out of five persons receive no health care at all throughout their lives.

And it is always the children who suffer most. Their suffering is the least excusable. They are the innocent victims. They are the victims of the negligence and unconcern—if not the outright unthinking inhumanity—of nations that could ease the burden, if only they understood the need.

Today, we will focus on one small element of their problems. We will focus on the use of a product intended to nourish life, to enable infants to thrive and grow, and see how it can have the unintended effects of fostering malnutrition and spreading disease. We will focus on the advertising, marketing, promotion and use of infant formula in developing nations.

Can a product which requires clean water, good sanitation, adequate family income, and a literate parent to follow printed instructions be

properly and safely used in areas where water is contaminated, sewage runs in the streets, poverty is severe and illiteracy is high?

Whose responsibility is it to see that the products are properly used—the manufacturer, the health professionals, or the government involved?

Whose responsibility is it to control the advertising, marketing and promotional activities which, in and of themselves, may create a market in spite of public health considerations?

When economic incentives are in conflict with public health requirements, how shall that conflict be resolved?

Is it enough to establish a code for product use and disown or turn away from the realities of product use?

The arguments over the relative merits of breast versus bottle feeding have raged for years, but surely they have an added dimension in considering the especially severe problems of developing nations.

The purpose of this hearing is not to find fault. If there is fault, then all civilized people share in it—for allowing the poverty, disease, and malnutrition to continue. If there is a moral equivalent of war, it is exemplified in addressing this tragedy. Our purpose today is to learn what the problems are in this narrow area—the use of infant formula in developing nations; to explore the questions of responsibility for improving conditions; and to develop an understanding of those steps the Congress and the U.S. Government can take to make things better.

This subject is a small component of an overwhelming problem. But if we can make progress here, at the beginning of life, it will be an important first step.

I want to welcome my distinguished colleague from the State of Iowa, Senator Clark, who is a member of the Foreign Relations Committee and has been enormously interested in the problems of nutrition, and I welcome whatever comments he would like to make at this time.

STATEMENT OF HON. DICK CLARK, A U.S. SENATOR FROM THE STATE OF IOWA

Senator Clark. Thank you very much, Mr. Chairman. I particularly thank you for inviting me to sit with the panel today. I also would like to join with you in expressing the interest in these hearings, and in affirming the value of this kind of inquiry.

The problem of infant formulas and their promotion under conditions of poverty has been identified as a major health hazard by many reputable and very concerned groups. Like you, I am deeply concerned by the allegations of misuse of infant formula in the Third World.

Some of the demonstrated instances of misuse, about which some of our witnesses today are going to be testifying, are very tragic. I have had occasion to discuss this problem with many of my own constituents, particularly church groups who have been interested in our State, and I am sure in other States across the country.

I have received an unusually large volume of mail regarding this matter. In fact, I am pleased to note that the national conference of INFAC, the Infant Formula Action Coalition, will be held on June 16 to June 18 at Iowa State University in Ames.

Certainly, it is a particularly fitting time for the Senate to look into this situation. We have what appears to be a problem related to trans-

fer of technology of our modern way of doing things from the industrial world to the developing countries.

Much has been written in recent years about the practicality of technology transfer and the need to reorient our thinking about what is appropriate for adoption by the Third World. In fact, that has been much of the debate over the issue of foreign assistance programs over the last several years.

In the case before us today, we find two types of technology being transferred from our industrial society to the developing countries. The first is artificial infant feeding; the use of manufactured nipples and bottles, of processed and modified formulas, of powdered and evaporated milk.

These techniques are being disseminated in the developing world, often as a substitute, rather than a supplement, to mother's milk. The second technology transfer which is occurring is modern advertising and promotion. Our culture is based on an ideology of consumerism. Subtle and not so subtle advertising is used to create a need for a new product, and this need may be real, it may be genuine. On the other hand, it may be little more than the creation of some advertising person's imagination.

When practiced in our society, the results can be insidious enough, but when targetted against an unsophisticated and inexperienced population, the result can be tragic. Now, one of the issues that we must focus on in these hearings is whether an improper sales campaign has led to the creation of a market in which consumers are unable, financially, to bear the costs, and not equipped to handle the technical details of efficient use of this substitute nutritional source.

I doubt that anyone will say that infant formula, per se, is dangerous. But everyone will agree that these formulas must be used under sanitary conditions. There are areas in the world where the attainment of these conditions is not presently possible. The use of infant formula under these conditions may well be the cause of infant disease and death.

In addition, we must be concerned by the problem of cost. It is estimated that in many less developed countries, it would cost over one-half of the family's income to feed infants properly if they were using the formula. As a result, the formula is often over-diluted, in an effort to make it last longer.

The effect of misuse of infant formula, whether for economic or sanitary reasons, can be detrimental to the health of the baby, and such babies are often susceptible to repeated infections, diarrhea, and severe forms of malnutrition which, in turn, obviously, can lead to adverse effects on brain development.

Now, there is a real question of whether the sales promotion techniques outlined by the companies, such as providing free samples to doctors, hospitals, and health care centers, or the use of so-called mothercraft workers who advise mothers in the use of formula, help to minimize the risk of formula misuse or, in fact, encourage mothers to abandon breast feeding.

It is my understanding that as a result of the recent protest by the Infant Action Coalition, and others we will be hearing from here today, many companies which produce infant formula have taken steps to change their marketing practices.

Some companies have subscribed to the International Council of Infant Foods Industry Code, while others have adopted even more stringent codes, and it will be important to hear more about these here today.

Our major goal of these hearings should be to determine if these voluntary industry measures go far enough, or whether further improvements are needed. If it is determined that legislative actions are required, I hope that these hearings will point out what type of legislation would be most effective.

While the primary responsibility for setting proper health standards and nutritional standards rests with the local governments, the industrial countries certainly have a duty to insure that the technology we promote and sell is not harmful to the people who receive it.

I particularly thank you, Mr. Chairman, for allowing me to sit with you this morning.

Senator KENNEDY. Thank you very much, Senator Clark.

We have three panels this morning. Those who have been perhaps on the firing line, whom I will introduce shortly, will give us their own eyewitness account of the circumstances and situations in the developing parts of the world.

We will have, after that, a panel of some of our most distinguished researchers and public health officials, and then a final panel representing the industry. We want to make sure that each group is given fair and adequate time. To accomplish this, we will allow about an hour for each panel.

Senator KENNEDY. Thank you very much, Senator Clark.

I will introduce the first panel of witnesses this morning. It is composed of individuals who are presently working, or have recently worked in Third World countries and who have personal, firsthand knowledge of the health conditions which exist in these developing countries.

We will introduce Mrs. Patricia Young, who is the moderator of the Presbyterian Synod, and a member of the Interfaith Center on Corporate Responsibility, which is under the sponsorship of the National Council of Churches; Ms. Leah Margulies, the director of the Infant Formula Campaign, and also a member of the Interfaith Center on Corporate Responsibility.

We have Father Daniel Driscoll, a member of the Maryknoll Order, who has spent the past 11 years in Venezuela; Ms. Fatima Patal, a registered nurse who was born and raised in South Africa and who has spent the last 7 years working with poor people in Peru; Dr. Allan Jackson, who is affiliated with the Tropical Metabolism Research Unit at the University of West Indies in Kingston, Jamaica; and Sister Jean O'Brien, who is a member of the Maryknoll Order, and Dr. Navidad Clavano, who has worked in the field of pediatric development in the Philippine Islands.

Now, as I understand, within this group, you have visited and worked in the countries of Africa, South and Central America, the Philippines, Jamaica, and Venezuela, to name just a few. And you have been there over a period of time and seen the practices in those countries.

We will start off with Dr. Jackson, if we could. What kinds of infant malnutrition problems do you see in Jamaica? And perhaps after

you tell us what the conditions are, you can describe what the Jamaican Government is doing to correct these problems.

STATEMENT OF ALLAN JACKSON, TROPICAL METABOLISM RESEARCH UNIT, UNIVERSITY OF THE WEST INDIES, KINGSTON, JAMAICA, ACCOMPANIED BY NAVIDAD CLAVANO, BAGUIO, LUZON, PHILIPPINE ISLANDS; SISTER JEAN O'BRIEN, MARYKNOLL SISTERS, NEW YORK, N.Y.; REV. DANIEL DRISCOLL, MARYKNOLL ORDER, LOUISVILLE KY.; FATIMA PATAL, REGISTERED NURSE, LIMA, PERU; PATRICIA YOUNG, SYNOD OF THE TRINITY, UNITED PRESBYTERIAN CHURCH IN THE U.S.A., SCRANTON, PA.; AND LEAH MARGULIES, DIRECTOR, INFANT FORMULA CAMPAIGN, INTERFAITH CENTER FOR CORPORATE RESPONSIBILITY, UNDER THE SPONSORSHIP OF THE NATIONAL COUNCIL OF CHURCHES, NEW YORK, N.Y., A PANEL

Dr. JACKSON. Maybe I should start off by telling you a little bit about what I do, so that it will give you an idea of the perspective that I have on the problem.

I am a clinical nutritionist and pediatrician who, for the past 5 years, has been working at the tropical metabolism research unit of the University of the West Indies. At that unit, we investigate and treat severely malnourished children. Since the unit was opened just over 20 years ago, we have looked after just under 2,000 children.

Now, Jamaica, as you are aware, is a developing country, which has an infant mortality which is something like seven times worse than that of the United States of America. And the health delivery system, relative to many places in the world, is rather good, and the infant mortality is certainly much higher than many regions in the Caribbean and Latin America.

Studies that have been carried out over the last 12 years show that there is a consistent pattern of infant feeding. About 70 percent of the mothers start off by breast feeding their children. But from a very early age, they introduce their children to bottle feeding, complementary feeding, usually with a milk formulation.

So, by the time children are 3 weeks old, there may only be as many as 20 to 25 percent of the mothers who are still thoroughly breast feeding. The rest have gone over, in part, or wholly, to bottle feeding. And the bottle feeding continues for a prolonged period of time, so that children as old as 1 year, or a year and a half, are still getting their main source of nutrients from the bottle.

This pattern has remained essentially unchanged, and is representative of rural and urban populations. About half of our children under 2 years of age are underweight, by accepted North American standards. One to two in every 100 children are suffering from severe malnutrition, and by that I mean that if children do not get immediate medical assistance, then they are likely to die.

One-half to three-quarters of the children who die in the hospital die either directly due to malnutrition, or from diseases that are directly associated with malnutrition. It was estimated in 1974 that the cost of hospitalization of malnourished children in our country, where

we have a population of 2 million, was of the order of $3 million a year.

Since we have devalued our dollar and the cost of living has skyrocketed, probably $4 million a year is a conservative estimate, and this fails to take into consideration the immeasurable social costs of severe malnutrition.

Maybe I could give you a typical history of the kind of child that I am talking about. I have a very vivid recollection of two children who were admitted to our ward just recently. They were brother and sister who came from a rural area. The sister was aged 18 months; the brother was aged 4 months.

When the brother was born, he weighed 7 pounds. At four months of age, admitted to hospital, he weighed 5 pounds. His sister, aged 18 months, weighed 12 pounds, the weight that one would expect a 4-month old baby to weigh, and it was even less than that because she had an accumulation of fluid in her body due to malnutrition. And when she lost that fluid, her weight actually came down to 8 pounds.

And when one went into the story and asked the mother how it could be possible that these children could get into this state, the mother told us about the way that she had been feeding the children. And, essentially, the children had never been breast fed and their diets from birth had consisted basically of bottle feeding.

The mother said, when we asked her how she made it up, "I make it up according to the instructions on the tin." She was very specific about that, and so we asked her how long the milk lasted.

Now, for the 4-month-old baby, one tin of feed should have lasted for something just under 3 days. She said that one tin of feed lasted 2 weeks to feed both of the children. She was illiterate; she had a dozen children. They lived in two rooms; they had no running water, poor sanitary convenience, no electricity. They were farmers with no visible cash income, and their total income was something like $6 to $8 a week.

Now, all these studies which have been done have shown that the decline in breast feeding is associated with the increased availability and use of bottle feeding and proprietary formulas.

Initially, widespread advertising, free samples, and the use of milk nurses encouraged this type of feeding practice. The government has been fairly active in Jamaica, and they have attempted to limit the advertising and the accessibility of milk nurses to government institutions. But this has had little effect on the established pattern.

Furthermore, the influence of the advertising and the milk nurse has been found to outlast the period of their physical presence, so that unless definitively and strongly advised otherwise, the mothers persist in a pattern of bottle feeding in subsequent pregnancies. And this is something that is associated, in fact, with the ambivalence itself of health professionals who, themselves, have been courted by milk companies, and help to promote an undesirable practice of feeding.

I think that among the ordinary population, there is an unrealistic expectation as to the nature of proprietary formulas. One mother who brought her child to the hospital just in the last few months was amazed that her child was so greedy. This is a year-old baby, and again the tin of formula that should have lasted a 4-month old for 3 days, he was

getting through it as fast as 1 week, and the mother thought he was greedy and eating too much. And so she had no conception of how long the feed should last.

Now, the average family income in Jamaica for a family of, say, five or six people is of the order of $16 to $20 a week. Now, to properly feed a 4-month old baby—it is difficult to get an accurate figure, because they are having rising costs of living—but it is a minimum of $7 dollars a week out of total family income of, say, $20 a week. Obviously, that is prohibitive.

The instructions as to how to make up the feed and how to keep the bottles clean on tins of formula, we think are inadequate for a semiliterate population. A recent study has been carried out in Kingston of well babies at a clinic, and the feeds that were being given to the babies at that clinic were analyzed in the laboratory to test the nutrient content of the feed, as against the nutrient content that ought to have been in the feed.

Out of 69 bottles that were tested, only 10 contained the correct nutrient content, as advised by the manufacturers.

Senator KENNEDY. Well, what does that mean?

Dr. JACKSON. That means that if you take the feed and you make it up as it says on the tin with so many scoops to so much water, and then you analyze the feed to see how much energy or protein there is in the feed, you can get a figure for the recommended content of feed.

Senator KENNEDY. Well, what does it mean in terms of nutrition for the infant.

Dr. JACKSON. Well, the feed can be made up incorrectly in one of two ways. It can either be too dilute—that is the result of too much water to too little feed—or it can be made up too concentrated, and that means there is relatively too much feed or powder to the water.

Senator KENNEDY. What is usually the problem?

Dr. JACKSON. There is a tendency to dilute the feeds but in this study it was also found that there were significant numbers of feeds that were being made up too concentrated, and both of them had health hazards.

Senator KENNEDY. Now, let me ask you, are there broad areas in Jamaica where the rates of illiteracy make it extremely difficult for parents to develop that right kind of balance in this formula?

Dr. JACKSON. There is a significant group of the population who cannot read and write, and there is a significant further group of the population who would find it difficult to understand the instructions as they are on the formula.

Senator KENNEDY. Can you give us an approximate comparison of those that can understand the instructions, and those who cannot?

Dr. JACKSON. It would be very difficult.

Senator KENNEDY. It is a serious problem, though, in terms of a vulnerable population, right?

Dr. JACKSON. Yes.

Senator KENNEDY. I understand. Second, are there contaminated water conditions?

Dr. JACKSON. It is estimated that 50 percent of the population receive unsatisfactory water supplies over the country as a whole. There are regional differences, obviously, in terms of the quality of the water.

Senator KENNEDY. Now, was there until fairly recently an increased desire by the population for bottle feeding, as a status symbol, or at least a belief among expectant mothers?

Dr. JACKSON. The reasons as to why mothers actually use formula are very difficult to ascertain. If you ask pregnant women what they think is best, the vast majority would tell you that they think breast feeding is the best thing for their baby.

If you ask mothers who bring babies to the clinic that are 1 year old how they fed their baby and why they did it that way, then the vast majority will tell you that they resorted to bottle feeding. And if you ask them why, it is very difficult for them to give you an answer. There is some "They told me it was better"—a very indistinct "they," without being able to identify particularly who it was; maybe a sister, mother, or grandmother.

At the present time, there is no widespread advertising, so it is not possible for them to get the information in that way. And it is almost a folk culture now that you use bottle feeding.

Senator KENNEDY. Now, what recent actions have been taken by the government of Jamaica in regard to this?

Dr. JACKSON. Since the first breast feeding study was done 10 years ago, when the results of that came to light, the government banned the mass media advertising of infant formula.

Senator KENNEDY. So how do they get information now; is it directly from the doctors themselves?

Dr. JACKSON. And the milk nurses. The problem with that was that there was a very definite influence of the milk nurses in all sections of the society.

Senator KENNEDY. Just briefly, describe what a milk nurse is even though we will hear it later on.

Dr. JACKSON. A milk nurse is a qualified nurse who is employed by a company that manufactures, produces, and distributes an infant proprietary formula, to act as a sales representative on their behalf to promote the formula directly to the mothers and the whole professional community.

Senator KENNEDY. Do they work in the clinics?

Dr. JACKSON. They used to work in the clinics, but the government has banned them from going into the clinic, and now they are working at private hospitals, or their work was based in private hospitals, and expecting mothers have them shortly after the baby is born.

Senator KENNEDY. They are banned now?

Dr. JACKSON. They have been banned for a long time.

Senator KENNEDY. Why were they banned?

Dr. JACKSON. Because it was felt that their presence in the hospitals, having an early effect on mothers, is likely to influence mothers to utilize bottle feeding at an early stage, which was considered undesirable.

Senator KENNEDY. Why was advertising banned?

Dr. JACKSON. The advertising was banned because it was felt that the advertising, in our situation within the whole socioeconomic status of our country—bottle feeding presents a positive, dangerous threat to the health of our children.

Senator KENNEDY. Maybe we could move to——

Senator CHAFEE. Mr. Chairman, I would like to ask a couple of questions of Dr. Jackson.

Do you feel your country would be better off if you banned formulas entirely? Take the case of the mother you were describing with 11 children having income of $20 a week. What would have become of those children if they had not been using the formula? Do you think they would have been able to get adequate breast milk from their mother, and if so, would they have been better off? Certainly, they could not have been much worse off.

Dr. JACKSON. Well, that is a very complicated question that you ask, Senator, and I will try to deal with it as briefly as possible.

We have an established pattern that is undesirable now, and it is easy to think that we can move from this situation to an ideal situation very easily. It is clear that bottle feeding practices were established, and it is not possible to ban bottle feeding and create the ideal situation.

Senator CHAFEE. The ideal situation being no bottle feeding?

Dr. JACKSON. Yes; obviously, if one is making that kind of move, then there is the whole question of attitudes and consumer choices that comes into consideration.

So far as the children that you asked me about are concerned, I think that the children would be far better off if they had been breast fed. I think it is quite conceivable that the four-month old would never have become malnourished if it had been breast fed.

So far as the 18-month old child is concerned, obviously one has to take into consideration other things. I think it is reasonable to say that malnutrition cannot solely be associated with the feeding of babies from bottles in proprietary formulations.

I think it is reasonable to say that so far as the problems, the medical problems associated with malnutrition are concerned, the presence of a wide pattern of use in bottle feeding makes it very, very difficult to even start with problems and to start with the other associated factors. So, it is an important contributing factor; I would not say it is the sole factor.

Senator CHAFEE. You are not suggesting that malnutrition would disappear if formula feeding were banned.

Dr. JACKSON. Not at all. I think that malnutrition was here before formula feeding came in, but I think that formula feeding exacerbates the problem and makes it more difficult to deal with.

Senator CHAFEE. Thank you.

Senator KENNEDY. Dr. Clavano and Sister Jean, you have worked in the Philippines for a number of years. Dr. Clavano has been an eminent pediatrician and head of pediatric development.

What have the consequences of bottle feeding been for the Philippines?

Dr. CLAVANO. Well, it has been widely known, and most of the health workers are aware of the havoc that bottle feeding creates. So, I have here a working paper which is a 4-year study that we have done in the Philippines. It involves nearly 10,000 infants delivered at the hospital, and it is from 1970 to 1976.

In this study, we were able to prove the beneficial effect of breast feeding. We did not change anything, except that we brought the

babies back to their mothers. In the 2-year period of 1973–74, the percentage of bottle-fed babies with us was quite high; I was the department head at the time.

But, then, as I realized that we were committing some errors in that, we shifted and reversed the situation, wherein we had breast feeding of 81 percent. In that research paper, we were able to reduce our deaths by 47 percent, and our morbidity and disease by 58 percent.

Senator KENNEDY. Before you get into the statistics, could you describe in your own words the differences that you saw as a pediatrician and as a clinician? What did you see when you went into the homes of needy people, and what conclusions did you draw?

Dr. CLAVANO. Well, in the Philippines, it is common knowledge that we have very high malnutrition and high infant death, and we have a lot of economic problems. You see mothers diluting their formula, because the basic salary of a Filipino father is only around—less than $2, and how much would a tin of feed cost? It costs more than what he earns, and that milk should be consumed for only 3 days. So, it really aggravates the situation, economically.

Senator KENNEDY. From your own work, what do you find are the health consequences of this for the infant, when the father is not able to afford the continued supply of the formula?

Dr. CLAVANO. What happens is that the mother just dilutes the formula, puts in the water, which is not even clean, and just puts a little formula, which leads to deprivation and malnutrition.

Senator KENNEDY. Why does the mother do this? Why does the mother start off down this road?

Dr. CLAVANO. Well, because they cannot afford it.

Senator KENNEDY. Well, why do they start buying the formula?

Dr. CLAVANO. Well, the thing is, it is the sort of a system wherein we healthworkers know the economic problems, and yet we cannot seem to cover all the ground in implementing—it is in the implementing of breast feeding. So, from the very start, babies are separated from their mothers at the hospital and are mostly started on bottle feeding.

Senator KENNEDY. Let me just ask you before you give your statistics, is there a great deal of advertising of formula feeding in the Philippines?

Dr. CLAVANO. Yes; there is a lot of advertising; you know, "This tin is similar to mothers' milk," et cetera, et cetera. I really cannot memorize it, but there is a lot of advertising.

Senator KENNEDY. Does the advertising suggest that the baby might be healthier with the formula?

Dr. CLAVANO. Well, they say that it is the best food, or the best substitute.

Senator CHAFEE. Mr. Chairman, just so I can understand, when we use the term "bottle feeding" here, are we referring solely to formula feeding? In other words, I presume that the infants are bottle fed with other than formula, possibly a mixture of skim milk, goat's milk, or even cow's milk in a bottle.

I assume you mean formula when you are discussing bottle feeding, is that correct?

Dr. CLAVANO. Yes; it is mostly canned milk. It could be evaporated or powdered or the condensed milk. It comes in three varieties, but they all come in tins.

Senator CHAFEE. As opposed to, say, goat's milk or cow's milk, or some other mixture.

Dr. CLAVANO. No; because in the Philippines we do not have many dairy farms. We do not have much, except probably a little in the Provinces, but they use goats for celebrations, and the people eat the goats.

Senator CHAFEE. Again, when we use the term here "bottle fed," we mean it is some type of formula?

Dr. CLAVANO. Yes.

Senator CLARK. Doctor, could I ask just one question? Dr. Jackson talked about the Jamaican Government and the restrictions that they have placed through the years, and so forth. Can you briefly describe that kind of action in terms of the Government of the Philippines? Have they done anything with regard to advertising, or other kinds of restrictions or discouragements?

Dr. CLAVANO. Well, I do not know of any restrictions being done by the Philippine Government; I am not aware of that.

Senator KENNEDY. Why do you not proceed with just the study, if you could?

Dr. CLAVANO. Yes. It is a résumé of the study, wherein we did not alter our method, except we just brought back the babies to their mothers 2 hours after birth. So, this is a résumé of a 4-year study done at the Baguio General Hospital, Philippines, that is from 1973 up to 1976.

The result of this study is that in nearly 10,000 newborn babies, we were able to reduce our deaths by 47.2 percent, and our diseases by 58 percent. Now, diseases due to infection were reduced to 66 percent, and mortality due to septicemia was reduced by 81 percent, and the diarrhea was reduced 79 percent.

This means that just by giving back the babies to their mothers and not using any infant formula at the nursery, we were able to put down our deaths and diseases.

Senator KENNEDY. By the change of bottle and formula feeding back to breast feeding, is that correct?

Dr. CLAVANO. Well, mainly; what we were doing before was we kept the baby at the nursery and gave them bottle feeding; a majority of the babies were on bottle feeding. In the second step, what we did was we tried to reverse our figures. Our breast feeding went up to 81 percent, and this is the result that we got.

In fact, it is reflected in the infant mortality rate in our city, which is now only 25.5, and the overall infant mortality in the Philippines is around 74 or 76. Just by doing the natural way, giving the babies where they belong, to their mothers, we were able to do this.

Senator KENNEDY. Those are dramatic figures.

Dr. CLAVANO. Yes.

Senator KENNEDY. At this time, I would like to ask Sister Jean what she saw.

Sister O'BRIEN. I have worked in the Philippines for the past 10 years. I went there in October 1966, and I returned to the United States in December of 1976.

I worked in three areas. In the Manila area which is rather urban, I medically dealt with poor people from squatter areas. I later worked in a rural area with barrio people in a place called Manapla which is located in the central section of the country. The third place where I worked was with Dr. Clavano in Baguio City and on occasion in the Mountain Province. These are the three areas where I have been over that 10-year span.

I have participated in a study with Dr. Clavano. I considered this work the most important aspect of my mission work in the Philippines. When I was in Manila and in Manapla, I did not have an eye for statistics, but I did have an eye for what I was seeing. I was seeing what we would call marasmic children. Marasmus—maybe the lay term would be a kind of a starvation child.

What we would have would be very underweight children; children with thin muscles, with no fat; children with the old man face that you see on the posters—a very anxious looking child. The extremities would be very thin; the stomach sometimes inflated or dilated.

As I said, I was not looking statistically, but when I actually talked to the mothers regarding what they were doing with their children at this point, I found out that the children were not being breast fed. They were being fed either formula or a formula of rice milk. I was aware of this when I was in Manila and Manapla.

Prior to going into pediatric nursing, I was mostly in adult nursing, teaching at the University of the Philippines and other schools of nursing. Therefore as an educator, I was interested in the overall picture.

But when I was in Baguio City and also went to the Mountain Province, I became exclusively a clinician and engaged with Dr. Clavano in what we would call the Under Five Clinic. This is an internationally recognized clinic founded by David Morley, M.D.[1] Operating originally in Africa. Dr. Clavano and I implemented the concepts of Dr. David Morley in the Philippines. In my last 2 years in the Philippines, I have exclusively been involved in this study—at least the latter part of it.

I support her statistics. I have worked as a clinician, and the amount of children we have seen coming in in a marasmic state has been as her statistics have said. I have had people come to me, because I am a sister—this happens very often, as a sister or as a priest, or in this type of capacity, where people come and ask me for money for formula and for milk; their child is hungry.

When you ask them why they are not breast feeding, they do not quite understand why they should be breast feeding; the education of the mother was not developed.

So, this was the general idea. What I actually did was work as a nurse with Dr. Clavano. I actually did the clinical aspect of measuring the children. This would be taking weights, taking measurements of the extremities of the children. So, I actually have, more or less, hand-to-hand contact with the children.

I could feel their fevers when I weighed them; I could see they were underweight; I could see their skin conditions, their lack of hydration, et cetera.

Senator KENNEDY. Sister, did you and Dr. Clavano draw a conclusion that with the exception of the study that you commented on,

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[1] Author of "Pediatric Priorities in a Developing World," Butterworth, London.

generally in the Philippines, more and more mothers want to go to bottle feeding, rather than breast feeding? Is the trend in that direction, or is it more in the direction of breast feeding?

What can you tell us, from your observations and your own knowledge of the country and its people?

Dr. CLAVANO. Recently, there is an awakening, but it is only a reawakening without real implementation, wherein the babies are still separated from their mothers from birth. They are put in the nursery, and then by the time the mother is ready to go home, that is the time they give the child back to the mother. That is still our standard procedure in the different hospitals.

Senator KENNEDY. Let me ask, Sister Jean, do you think that the mass advertising—what impact does that have on the attitude of the country?

Sister O'BRIEN. Well, I will just speak for myself. I am very visual. I never read advertising; I only look. The type of advertising that I have seen is a very well developed, almost an obese child, and a fat child is supposed to be a well child. Very often, we get this connotation.

So, when I personally look at the ads, these are rather chunky, chubby, well-colored children, drinking a particular milk. So, I would say that would be my impression.

Senator KENNEDY. Do they use pictures of Filipino children?

Sister O'BRIEN. Yes; they would be oriental children.

Senator KENNEDY. And what message does that translate to you?

Sister O'BRIEN. Well, that message to me—and I speak personally, again—is that if you drink this milk, you are going to look this good.

Senator KENNEDY. What about it, Dr. Clavano; is that what you think the message is?

Dr. CLAVANO. Yes; I would agree with her, because mothers see it in posters. And by the way, we do not have any more of those posters at the hospital. We do not put those posters up, but you can ordinarily find them in the different hospitals and clinics. It is just like a healthy baby taking this kind of milk.

Senator KENNEDY. Could we go to Father Driscoll? I understand you spent 11 years in Venezuela and returned in October of 1977. Would you tell us where you lived and what kind of conditions you observed there, particularly in the poor areas, and the degree to which the women used infant formulas, in your own words, Father?

Reverend DRISCOLL. Yes; I would be happy to.

In my 11 years in Venezuela, I have worked in seven different barrios in the city of Caracas, principally in Las Brisas, Pro-Patria, and in Tacagua, most of the time as a parish priest and along with my other duties I was involved in a lot of community projects.

Caracas is a very rich city, but my friends do not get in on that kind of action. In our area, water is a problem.

Senator KENNEDY. What do you mean, water is a problem?

Reverend DRISCOLL. Well, in 1967 when Caracas was 400 years old, the Government put water into almost all of the barrios, but it only comes in every second or third day. So, it has to be stored in big oil drums, and during the last 2 years in the city, we have had problems with water supply.

In two of the sections where I work, the water is brought in in cisternlike trucks. Of course, when I speak, I do not have a medical

background, or even the sensitivity that comes from experience in a clinic that some of my colleagues here would have. But I have seen many sick babies; people bringing babies to me—"would you please baptize them." The baby has had diarrhea for 5 days; the baby is going to die; or asking for money to go to the doctor.

Like Jamaica and other countries, our people tend to determine which medicine they will take. For example, if you get a cold, people offer you five or six medicines. So, if their baby becomes sick or starts to cry, many mothers who are breast feeding say, "Well, the baby was not satisfied and she was crying, so I started on the infant formula."

Now, one thing I have a lot of competency in is the education level of people, since I have worked in many different kinds of education projects. Our illiteracy rate in Venezuela is very low, in comparison to other Latin American countries; it is 26 percent.

However, in the barrio, that is where all the illiterate people of the country are, so it would be closer to 50 percent. And what we find in this kind of a situation is that our people only read headlines; they are very visual in that sense.

Also, one time with some Venezuelan seminarians in the parish, we did a study along the lines of Latin American educational trends to find out what were the key words of the people. We came up with 109 words, and all of the words were very concrete. None of the 109 words had more than three syllables.

And yet, if you take a look at the kind of cans that are used in Caracas—and here I have the S26 formula can—you will see that the directions are in very small print, the kind of print our people never even look at, because 50 percent are illiterate, and another 20 percent would be functionally illiterate, and these would be government statistics.

All this can of S26 says is that you should mix this solution in water previously boiled, "previamente hervida";—previamente, a five syllable word, and "hervida", they would understand. But in that very small print. I doubt they would even read it.

Once again, I have a picture of a happy little boy here. In a culture that is 70 percent mestizo, he really is very white.

The legal minimum wage in Venezuela is 15 bolíverés a day; that is roughly $3.50. Here you have the price on the can, 8 bolíverés y cinquenta; that is just a little over $2, so that one can of this formula would cost more than one-half the minimum daily wage.

Senator KENNEDY. Now, as I understand it, the mass media campaign has been cut back in Venezuela, is that correct?

Reverend DRISCOLL. Yes, that is correct, Senator.

Senator KENNEDY. And the companies are now mainly working through the medical profession and the hospitals?

Reverend DRISCOLL. Yes, that is absolutely correct.

Senator KENNEDY. Why don't you tell us how they work?

Reverend DRISCOLL. Yes. Having talked to the doctors in the hospitals in Caracas, what has happened is, for example, the biggest maternity hospital in Caracas, and I think one of the biggest in the world, is the Maternidad, Concepcion Palacios, where over 35,000 births take place each year; between 100 and 150 each day.

Now, Dr. Salvator Materetti, who is in charge of that hospital, has eliminated all practices of giving out of free samples, and the presence

of milk nurses. That has been within the last 2 to 3 years, and he told us that he had quite a problem eliminating that kind of presence.

Furthermore, starting in September of last year, the Instituto Nacional de Nutricion began a campaign in favor of breast feeding, in the movies, on television, and on the radio, to try to combat the decrease in breast feeding which has come about in the last 4 or 5 years.

While it is true that the direct media advertising has been taken away, because of this phenomenon which I mentioned and which Dr. Jackson also mentioned of how people recommend medicines or foods, one to another, if you go anywhere in my parish, if you go into a pharmacy or into a grocery store, you see these infant formula products, particularly the products of Nestlé and Wyeth, who are the biggest sellers there, which are right up front and center on the shelf.

This is what it can lead to. I have a picture here which partially shows one of the saddest scenes I have ever seen. This was in August of last year when I was in the emergency room of the Hospital de Ninos, the children's hospital in Caracas.

In this room, there were 58 babies, 53 of whom had diarrhea. Of the 53 babies who were there, all were bottle fed, although the hospital does not know which formula they are taking. The doctor checked the records, and all had been bottle fed.

As you can see in this picture, which is on one side of the wall, three of the babies are receiving intravenous feeding which, of course, in babies, they receive through the head.

Now, in Caracas, there is much stricter control on whether or not these companies can give out free samples in these hospitals. When you get out into the interior of the country—for example, I went to a town called Cagua, which is only about 3 hours from Caracas, but is in a very jungle-like section, a section called Barlovento.

There in this hospital, they apparently have so many babies with this problem that they have a little table all set up for intravenous feeding. It was just big enough to have a baby in it, and it had a piece of wood attached, whereby you could hang the bottle to give intravenous feeding.

In this hospital, all of the companies left free samples. To me, what was very indicative about that situation was—the local priest sent me over there, and the nurse who received us was a very warm person, and not just with us. She would stay 45 minutes after her work schedule was over. In the meantime, poor people were coming in and she attended them with a great deal of warmth and compassion.

And yet, when she asked me why I was asking so many questions, I told her what my concern was. I said, for example, I did not think that most of the women I knew could read this, and she said, "I think it is fine; I think it is very clear. I give this to my baby." She said, "As a matter of fact, last week they came and gave me a whole box full, 24 cans."

And I use that example because she was not a greedy person, but like many nurses in Venezuela, she was a poor person. So, it seemed to me a clear case of taking advantage of the needs of a very good and generous person who, because of her poverty and need had a blind spot.

In fact, she told me that all the babies who came in used Nan—a Nestlé product—all of the babies who had diarrhea used Nan. None

of them used this product. So, I am going back in a couple of weeks, and they will keep bringing in the babies to be baptized, and coming for money, and we will do the best we can.

But I sincerely hope that this kind of hearing can lead to the kind of action that is going to get to the roots of this problem.

Senator KENNEDY. Do you know of gifts by the sponsoring companies to pediatricians?

Reverend DRISCOLL. Yes. Three different pediatricians told me the same story, and one would be this Dr. Materetti, who is the chief of prenatal services at the Maternidad Concepcion Palacios.

Apparently, the tack that is used there is to buy booze, believe it or not.

Senator KENNEDY. To what?

Reverend DRISCOLL. To buy booze. When the pediatricians graduate from college, it seems like the American Home Products Co. is very generous in providing about 20,000 boliveras' worth of liquor and, in other words, puts on the whole party, which comes to almost $5,000 U.S.

Whenever there are professional meetings of pediatricians, and so on, Nestlé, for example, will fly in certain doctors, and they will always have the last banquet, which will be a lavish affair in Parque Central, which is right across from the Caracas Hilton, where they kind of put on the whole bash, and you just kind of see their name down in the corner of the menu.

So, one doctor said, "I have conscience problems even eating there, but I should be there as a professional, so I feel trapped."

Senator KENNEDY. Dr. Clavano, I saw you nodding your head on that point. Is there anything you want to add, just on that point, before we go down to the rest of the panel?

Dr. CLAVANO. What the father has said is true. What the father said is also happening in my country.

Senator KENNEDY. In the Philippines?

Dr. CLAVANO. Yes.

Senator KENNEDY. These types of incentives by those that are the manufacturers of the formula?

Dr. CLAVANO. Yes.

Senator KENNEDY. Do you think they are correct?

Dr. CLAVANO. Well, as department head of pediatrics, they come to me, and we are only human. Unless you have a very, very strong conviction that this will not be good for our people, you cannot say no.

This comes in banquets they will sponsor; they will sponsor a plane ticket. And that seems to be a part of the scheme and it is an acceptable practice. But I feel that we, as health workers, if we really care for our people, then we will have the guts to say no.

Senator KENNEDY. That is a fine statement.

Ms. Patal, as I understand it, you were born and raised in South Africa. You have been in Peru for 7 years. What conditions have you found in the rural areas, particularly in regard to the health of children? You are a nurse, as I understand it?

Ms. PATAL. Yes; I am a nurse. I did my general nurse's training in South Africa.

Senator KENNEDY. We want to get a quiet room now here, please. We just want to make sure that everybody listens to you as you should

be listened to. You have come a long way to be with us. We want to hear your message.

Ms. PATAL. I did my general nurse's training at the Landis Memorial Hospital. We had four baby wards; that went from infancy to 1 year, then from 1 year to 2 years, and then from 2 years up to 6.

In this hospital, we treated very bad cases of diarrhea, along with malnutrition. As everybody knows, we have domestic servants in South Africa, and these mothers had learned from the ladies they worked for how to use formula feeding for their babies.

So, when they had their baby, they would leave the baby with a grandmother, and leave a feeding bottle and a tin of formula. I am talking about 20 years back, now. In those days, a formula nurse was going around giving out free formula at the clinics.

So, the grandmother, having no education and just being absolutely rural, she might not mix the formula as the mother told her to do it. And because the tin of formula will not last very long, she also thinks it is a waste to give the baby so much milk.

So, she just carries that water down to the minimum. That baby has been suffering from severe malnutrition, because it is just surviving on water. When many mothers have left their children with older brothers and sisters—when I say "older," they are not any more than 8 or 9—they are in a playful mood, so they would mix that formula with a high concentration. The baby gets full and he goes to sleep, and he can go and play.

Well, that also is bad, because the baby's stomach is overworking now. We have the vicious circle where he has malnutrition and low resistance, and in these developing countries, we do not have the vaccination program that you have in places like the United States and Canada.

Senator KENNEDY. Tell us about the conditions of Peru in both the urban and rural areas. Do people use the formula there? Is there a poor water supply, and how are the sanitary conditions?

Ms. PATAL. Well, when the mother has the baby in the hospital—

Senator KENNEDY. Whereabouts in Peru are you talking about?

Ms. PATAL. I work mainly where there are tribes.

Senator KENNEDY. Where?

Ms. PATAL. In the Amazon tribes; the Amazon Indians, you call them.

Senator KENNEDY. That is out in the rural areas?

Ms. PATAL. Rural? It is bush jungle

Senator KENNEDY. Bush jungle. [Laughter.]

Ms. PETAL. The only way of getting into this area is with a small Cessna, or using the river, or walking on a footpath in the jungle. Now, the Cessna has brought modern——

Senator KENNEDY. They have got formula out there, too?

Ms. PATAL. Yes, sir. Since the Cessna plane is going in and out, most of the younger generation go out to work as domestics. So, they will learn from the ladies they work for about formula, bottle feeding, makeup; everything that is not just right at that moment for them.

If somebody in the family has had a baby, they come to visit and they bring them a couple of tins of formula and a bottle and tell them

how to do it. But where she worked, there was plenty of electricity and plenty of water; maybe madam also had a special bottle sterilizer.

But in the jungle, we survive on the water that is contaminated in the river. I myself do that.

Senator KENNEDY. It is contaminated in the river?

Ms. PATAL. Yes. The river is used as a laundry, as a bathroom, as a toilet, and for drinking water. It is the only source of water we have.

Now, you can tell the mother to boil the water, even if you are going to give it to them just as water—never mind mixing it with the formula. But, to get the fuel to boil that water, she has to go into the jungle, chop a tree trunk with a machete, which is a huge knife, and carry it back on her back. No mother is going to use that hard-earned piece of wood to boil that water.

Senator KENNEDY. What did you observe among these Amazon tribes using the formula? Did you observe that the rates of diarrhea and malnutrition was a serious problem for those infants?

Ms. PATAL. The kind of diseases are malnutrition and anemia, due to the parasites which we get from drinking the contaminated water. So, the babies are drinking the contaminated water, and the preparation of the formula is being done under very unhygenic conditions, so you get diarrhea and you get vomiting.

Senator KENNEDY. Well, would they have gotten that, anyway, from drinking the water?

Ms. PATAL. Well, naturally; the baby is going to drink water because he is thirsty. The mother just takes it right out of the river and gives it to the baby. She is going to make up the formula with that water, and as I said, the baby is not in A–1 health, as we find on the posters.

Once he starts taking the formula, he has constant attacks of diarrhea and vomiting. Naturally, the resistance is going down and his digestive tract has lost resistance against any other diseases, too.

In the jungle, we have measles which is very virulent; it is called black measles. I only wish that all these agents sending these formulas could see this. Within a week, we can lose—can any father imagine losing three or four children in the same family within a week due to measles, which is becoming an epidemic because of malnutrition?

[The prepared statement of Ms. Patal follows:]

Statement Submitted to Senate Subcommittee on
Health and Scientific Research

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SALES PROMOTION TECHNIQUES USED BY INFANT FORMULA MANUFACTURERS IN PERU-S.A.

1) Formula Samples: Given free to doctors and pediatricians to be given to mothers.

2) Regular Supply of Free Formula: Perulac-Nestle to government hospitals and private clinics, maternity homes, for use during the newborn baby's stay of three to four days.

3) Booklets: Baby's record book, giving instructions on ante and post natal care of mother, preparations for birth, vaccination register, monthly control of weight, babies' progress in normal growth, step-by-step preparation of formula, pictures using beautiful, bonny white babies and contented, happy, smiling mother, etc. (Wyeth)

4) Color Illustrated Posters: Given to doctors, hospitals, and clinics. Step-by-step instructions on the preparation of formula and bottle feeding, bathing and dressing baby, preparation and serving of solid foods, using a nice, bonny white baby and contented, happy mother. (Nestle)

5) Regular Visits from Salesman: Should the doctor be popular and have many baby patients, the visits are monthly and stocks of free samples are given out, usually at least one tin per patient.

6) Free Supply of Powdered Formula and Baby Cereals for Doctor's Own Baby: Usually for first six months to one year.

7) Should the Doctor Need Any Medical Information or Research: The company will provide this for any part of the world.

8) Sponsor Pediatric Seminars, Congresses, and Courses: The company pays all the expenses, i.e., rental of conference rooms, transportation, accommodations and meals, plus extra pocket money (at last P.D. Congress held in Trujillo, Peru, they were given 10,000 soles, roughly $77.00 in U.S. Dollars, for duration of five days.) Candidates selected according to his promotion of product. Participating speakers' expenses also met by company.

9) General Medical and Pediatric Information Service

10) Postgraduation Study Grants to Doctors who made top grades during their medical school studies and who in the entrance exam for pediatric specialization come within the first three, the company will provide a partial or full grant for the duration of the course anywhere in the world.

11) Close of Congresses, Seminars etc. are celebrated with huge banquets (fiestas) with plenty of liquor.

12) Since the international economic crisis, these activities are less frequent but the nevertheless still held.

13) In return the doctor has to present a study on clinical dietetics, statistics etc. (Formula feeding) according to his practical work, annually.

14) At Christmas and New Years, the doctors were given gifts of leather desk pads, diary, ash trays, pens, calendars etc. at random, but since the international economic crisis these have ceased.

15) Newborn Infant Care Teaching Data Given to Nurse-tutors (Perulac-Nestles)

HOW AND WHY BABIES ARE STARTED ON FORMULA FEEDING

1) Babies born in hospitals, clinics and maternity homes are usually separated from their mothers. According to a pediatrician in Peru, this was taught to them at medical school to prevent infection, asphixia etc. In the nursery the baby is started on formula feeds after twelve hours of fasting. There is a notion that breast milk doesn't begin to flow until the third or fourth day. In the meantime, the baby gets used to the nice, soft rubber nipple with a hole as big as a drain, which allows the formula to flow into his mouth and down his throat; so he doesn't have to make any effort to suck and gets lazy.

   As the breast fills over three days with no expulsion, automatically they get engorged and very painful; the nipple is hard and protruding making it difficult to grip for sucking. The usual procedure on discharge from hospital, after three to four days, the mother is instructed how to bathe and breast feed. But since his royal highness is now used to formula just flowing down into his stomach without any effort on his part, he just refuses to suckle on the engorged breast, also is unable to get a grip on the nipple and so cries desperately. Both mother and nursing staff get desperate and feel sorry for the poor starving fellow and call in the doctor, who very professionally palpates both breasts, which are hot to the touch and informs the mother that she has either an abcess or inflammation and the milk is bad for the baby. He writes out a prescription for formula and another for some brand of injection to given to her to stop and dry out the natural secretion of milk.

   N.B. I notice the Wyeth "Baby and Mother Care" Booklet, doesn't even mention the care and preparation of the breasts in the ante and post natal periods.

2) Modern mothers do not want to breast feed for cosmetic reasons and usually it's the first thing they tell the doctor when they go for consultations, so there is another client for many formula companies.

3) Within the last few years, there has been much advancement in transport with Cessna planes making the most remote village accessible to the larger cities. So the young people go out in search of work; the girls mostly work as domestic servants in the homes of the upper and middle class, where the madam does not breastfeed, her figure isn't all out of shape, and she is free from the normal duties of motherhood since she feeds her baby by bottle and anybody can feed him. When she has her baby, she too is

is going to keep her "chic" figure and not be a slave to the whims of the baby. Should someone in her family notify her of an addition to the household, she takes along the most appropriate gift when she goes home on vacation--a feeding bottle, pacifier, and a couple of tins of that miracle baby food that can be prepared in a jiffy. Interesting enough, formula feeding bottles have invaded even the most remote part of the "Green Hell" (jungle) where civilization and basic health education is still sadly lacking and living conditions leave much to be desired.

4) Other mothers get to know about formula feeding from ones who have returned from working in cities.

5) It's a natural maternal instinct to want her baby healthy and beautiful--just like the one in the Nestles poster and Wyeth "Baby's Own Book."

6) During the student nurses training, she is taught infant alimentation from some notes from Perulac Nestles, giving her all their product names etc. so she is familiar with them and would then recommend the product to the mothers.

HEALTH PROBLEMS FROM FORMULA FEEDING

1) Severe Malnutrition--Kwashiorkor, Marasmus: Mainly caused by the over-dilution of the formula to make a tin of milk powder last longer.

2) Vomiting and General Upset Stomach: Due to overconcentrated feeds if the given instructions cannot be followed because of illiteracy.

3) Gastro-Intestinal Infections: Ingestion of contaminated formula, causing severe diarrhea, vomiting, cramps, and colic. With the rapid loss of body fluids--dehydration leading to death.

4) Respiratory Infections: Low resistance to infection due to malnutrition--bronchopneumonia,pneumonia, tuberculosis, etc.

5) Inner Ear Infections: Otitis media,caused by the drainage of formula into the eustachian tubes while formula feeding in the unnatural position with the bottle propped up.

6) Infectious Diseases and other Infections: The infant's health remains poor, and he gets frequently ill due to the malnutrition and low resistance of his body to infections, such as the usual infantile ailments like measles, chicken pox, whooping cough, scarlet fever, and mumps. He takes much longer to recuperate.With frequent attacks of illnesses, the body constantly gets weaker and his chances for survival are greatly lessened.

7) Retardation of Mental and Physical Development

8) Poverty: Most dangerous disease affecting the whole family with most of the above mentioned health problems caused by the dangerous economic drain due to spending of most or all of the family income on trying to feed one baby on artificial formula plus vitamins, iron tonics, etc. according to what the doctor ordered.

9) Life Long Psychological Effects: Usually formula-fed infants feed themselves with the bottle propped up on a pillow or what-have-you; they lack the natural body contact, cuddle and contented, happy smile etc. which normally goes with motherhood. This gap in human relations between the infant and his mother is the main cause of the modern youth taking the attitude that he was an accident and his parents don't love him, so he grows up hating himself and also his family, turns to drugs and drink to drown his unhappiness and lives in a world of false illusions. Since formula feeding freed the mother of her natural responsibility, i.e., devoting herself to the upbringing of her child, she continues to be as free as possible later in the child's life and once again neglects, leaves his dinner in the oven etc. All animals, human or otherwise, need both food and love to thrive and grow into sane, healthy, intelligent creatures.

OTHER FACTS

1) Lack of Ideal Conditions Needed for Preparation of Formula Feeding

a) Water Supply: The majority of the people in the developing countries do not have access to laid-on water; this has to be fetched from a highly contaminated stream or river. In the urban slum areas, water can be collected from a tap at strategic points and the queues start at 4 a.m. In the rural areas one can buy five gallons at a price. One can only carry two buckets at a time. So this vital element needed to survive has so many uses and just can't be wasted to sterilize the formula bottle.

b) Fuel: Kerosene or paraffin, which is the oil used mainly in the rural and urban areas, also has to be queued-up for, i.e. when a supply is available, from the early hours of the morning and is also rather costly, so that's not to be wasted, boiling water and bottle. In the jungle areas, the women have to go into the interior and cut down a tree, using a machete which takes almost all day, has to haul it on her back all the way home and this serves as fuel for the precious little there is to cook for dinner. This strenuous task can not be repeated daily, as there are other equally laborious jobs to be done, so the log has to be used sparingly.

c) Unhygienic and Unsanitary Preparation of Formula: With both water and fuel being such a luxury, they are used sparingly. The bottle maybe rinsed out in a bowl of water, which has been used for many other purposes; the water to mix the formula will be scooped out of the bucket with any old utensil; hands won't be washed since soap is another luxury item. The unfinished formula will be left laying around with the nipple exposed, flies swarming and settling on it; and when needed, the formula will be stuck back into the crying, hungry infant's mouth, giving it a big dose of mortal poison.

d) Climatic Conditions: Formula left over can go sour and ferment in tropical weather and the same can happen if left overnight under other weather conditions. Remembering, we are dealing with people in the lower income groups who cannot afford the extravagent luxury of a refrigerator.

e) Illiteracy and Incorrect Preparation of Formula: Most of the mothers using these formulas cannot read the instructions on the label and therefore either

overconcentrate the feed to get, almost overnight, results with their infant looking like the bonny, white baby on the poster. Once they find that the tin doesn't last as long as it should, for the price it costs, they over-dilute, giving the water a milky color to stretch the contents over a much longer period.

2) Medical Expenses: All the above-mentioned makes the infant fretful and ill. Since baby is the most important person in the house, no expenses are spared and is taken to consult a doctor at his rooms or at the hospital. The consultation fees are usually high, way beyond the family budget and the medicines that are prescribed can burn a hole in the budget, i.e. if there is a budget after buying the formula that can leave the family in great economic difficulties.

N.B. The frequent use of antibiotics can make the infant immune to these; and maybe later in life when he is to be treated for some other serious ailment, the antibiotic will have no effect.

3) Vaccinations: Not everybody in the developing world has adequate access to the routine innoculations given to children in most developed countries. Some parents don't take their children to be vaccinated, others live in areas too remote for a successful vaccination campaign, mainly due to not being able to conserve the temperature required etc. These unfortunate infants would have had a natural immunity had they been allowed to suckle at the breast and partake of the thick, yellow secretion colostrum forming their own antibodies.

4) Family Income and Buying of Formulas: Working out the local minimum wage with the cost of feeding one infant on formula powder, plus the vitamins and iron tonic, as prescribed by the doctor in the correct measures. The infant drinks up $4.00 more than the father earns. This does not include the orange or other juice, baby cereals, vegetables, soups etc. I knew a mother of four children, all between the ages of six years to a few weeks who, when she had spent the available cash to buy baby formula requirements, would lift up the lid and say that the food would soon be ready. In the meantime, one by one the children would cry themselves to sleep. The expenses of formula feeding leads to the over-dilution of the formula.

5) Big Social Gap between Formula Company, Promotion Staff, and the Majority of Users: Company presidents, directors, sales agents and the medical profession normally have, from a very high, sophisticated to a rather elegant standard of living and just cannot visualize the slums with its million and one health hazards. Some talk of their experiences in the field, i.e. when they go on trips to the developing countries with expenses paid. Maybe they meet a few health professionals, stay at the posh hotels, play a couple of holes of golf, get a birds-eye view of the city from the hotel or car window and return with their favorable report of their "field experience", which usually misleads the company shareholders and others.

6) Nestles--"Derechos de Ninos" (Rights of the Child): A poster given out to all and sundry gives points on the human rights of the child, but seems to have overlooked the first and basic birthright--mother's milk.

BIOGRAPHY

I am a trained medical and surgical graduate nurse (South Africa), a state certified midwife (England) and a registered graduate nurse (Canada) with 25 years of very varied nursing experience, from the most modern and up-to-date hospital to the most primitive backwoods.

I have been working as a volunteer public health nurse with the Canadian University Services Overseas (CUSO) organization, spending a year each in Chile and rural Jamaica, working in hospitals and have been in Peru for the last seven years, working with the Indian tribes in the Peruvian Amazon Jungle and in small hospitals in jungle towns.

During the last three years, I have trained twenty auxiliary health technicians from these tribes and set them up in their respective villages in rustic clinics built by the people themselves, using bamboo and palm leaves. The equipment and other material for these clinics is mainly donated by Church World Services, New York. Funds for the training courses are supplied by the government of Holland. This year we have a project for the construction of a twelve-bed hospital in the jungle. Again, aided financially by the Dutch Embassy in Peru, with the local inhabitants of the area chipping in with the timber (which is plentiful) and manual labor.

The trained staff and other equipment will be provided by the Peruvian Ministry of Health. The medical and paramedical staff are final year graduates who are obliged to do one year of rural work.

I would like to make it quite clear that the attached testimony is not a research or investigation project, nor is it a field report from a brief flying all expenses paid trip where the field is the cozy comfort of a Sheraton or other posh hotel and talking to a handful of English-speaking nationals. Neither is it a year or two spent as a "hippie" tourist, staying brief periods in a dozen or so way-out villages.

I make my statements after actually having lived and worked in these primitive environments over a period of seven years. As the British would say, I "muck in with the natives" and since I have the advantage of being born with a dark olive complexion, which has been a great asset in being accepted as one of them.

Also, I take to their customs and habits like a duck takes to water, sleeping on floors and in hammocks, eating what there is to offer and even using the one and only glass or calabash that is passed around from mouth to mouth during festive celebrations. The home brew is fermented ground corn (chicha) or yuca (masato) in which a small amount that has been chewed by the women preparing it has been added to ward off evil spirits and bring good health and luck. I was told that partaking from the common glass was a test to see the outsider's reaction. Should one make excuses and refuse to drink from the communal container, you are not accepted as one of them.

During my many journeys through these jungle villages, I have had to drink many a lemonade or other fruit drink, made with the same contaminated water that the baby formulas are made up with.

Now, you would want to know why I don't get ill and suffer all the illnesses I have mentioned in my testimony. Well, first I was breast fed and therefore have produced my own natural immunity, then I had all the innoculations required by CUSO before sending us out to work in the Third World.

Senator KENNEDY. Let me understand. The river is contaminated. It is your professional opinion as a nurse that if they use breast feeding, the child would not be contaminated, or at least the risks would be much less than using a formula which necessitates using the contaminated river water. The infant's ability to resist infection, obviously, is much less in a young child than in a somewhat older child. Is that a description of what the conditions are in these tribal areas?

Dr. JACKSON. Senator, could I just make a comment there about this whole situation, which I think is very important?

It is well recognized that breast milk has protective effects against infection. But what I do not think is as clearly recognized—and I think the evidence is only just coming to the fore—is that when the babies are fed on breast milk, it actually allows them to develop their own resistance to infection better.

So, a child who is fed on breast milk is more efficient at developing his own resistance, so even if he is presented with contaminated water, he is actually better able to deal with it than a child who is fed on formula, where he has a decreased capacity to develop his own resistance. So, the same infective amount of water is presented in a more balanced situation.

Senator JAVITS. Mr. Chairman, I am here this morning because on previous occasions similar subjects have been looked into. For example, on May 27, 1976, the Senate Health Subcommittee looked into pharmaceutical company practices in labeling and promoting prescription drugs sold in Latin America. I would like to ask unanimous consent that my statement at that time be made a part of the record.

[The May 27, 1976, statement of Senator Javits follows:]

STATEMENT OF SENATOR JACOB K. JAVITS

MAY 27, 1976.

Today's hearing continues the Senate Monopoly Subcommittee examination of pharmaceutical company practices in labeling and promoting prescription drugs sold in Latin America.

I share the concern expressed by the witnesses, and Senator Beall who chaired yesterday's hearing, of the questionable practices of some drug companies in promoting use of their drugs without adequate or appropriate prescribing information.

However, as Senator Beall developed through his questioning of the witnesses, it must be clearly understood that:

a. Misleading and incomplete information to promote the sale of drugs by some American drug companies or their foreign subsidiary in Latin America is beyond the jurisdiction of the FDA—which regulates drug advertisement and promotion in this country.

b. Improper marketing practices should be subject to the legislative control of the foreign country—for responsibility for what goes on within any country is the responsibility of that country.

Grave questions have been raised that certain drug promotion practices abroad may be legally correct but are they ethically or morally honest?

The U.S. may well have means to call domestic corporations to account in the marketing of pharmaceuticals in foreign countries to follow a more ethical course in their advertising and labeling require-

ments—and which are in accord with and do not violate the laws of the country where the drug is marketed. The question to be decided is whether those means should be invoked.

[End of May 27, 1976, statement.]

Senator JAVITS. I would be deeply indebted to the Chairman—and I think he should be commended for calling this hearing—if, when the representatives of the drug companies come up, the Chair would kindly question them as to what was done between 1976 and 1978 to alter the practices under examination. I thank the chairman.

Senator KENNEDY. Thank you very much.

Mrs. Young, perhaps you could tell us when you became involved with the Interfaith Center for Corporate Responsibility.

Mrs. YOUNG. My involvement actually goes back to 1966 in the hospital described by Nurse Petal, where I saw my first baby in a marasmic condition in that hospital in South Africa. I came home and became involved in corporate responsibility activities around Southern Africa issues. When the Interfaith Center received the first information about the "scandal" of marketing infant formula, they began their investigation. Because of my own long-time involvement in hunger, I became deeply involved in this issue.

Senator KENNEDY. Perhaps you could tell us what reforms have been instituted by the companies, and what you think still needs to be done.

Mrs. YOUNG. I would have to say that the reforms have been more promises than realities. We have been engaged in dialog with the companies now for some time. I have a high level of frustration about the seeming ability of management officials to separate their personal lives, and their involvement with their children and grandchildren and the kind of world they are going to have to deal with, from their present business efforts.

We hear over and over again that: "We are making the very best possible product," and, "There are some mothers and infants who need to use this." We will accept that. However, they do not seem ready to accept responsibility for limiting their promotion methods, their sales methods, and their marketing methods to those who do not need it or cannot use the formula properly.

It is my conviction that if you can reach the remote village by Cessna and jungle trails with the product, you can also reach it with controlled business ethics. We do get some promises that labels will be improved. We do get withdrawal in pilot situations of milk nurses.

We did get from one company, as the result of a long legal suit on the part of the Sisters of the Precious Blood, a promise to eliminate all promotion. But until these practices are industrywide as a commitment, and until there is very strict monitoring, not only of home-office procedures, but of their agents in the field, we will still have this problem.

Senator KENNEDY. This leads to what sorts of conclusions? I think, obviously, it is recognized that these products, under the right kind of conditions, can be enormously useful and helpful, and valuable to health.

What we heard here this morning, during the course of other witnesses, are the instances where it is not being used appropriately, whether it is in the Amazon tribes, or because of the illiteracy factor or because of the poor water and sanitation conditions, or because of

availability of the resources with which to purchase these formulas to continue supplying their infants.

Who bears this responsibility, in terms of the appropriate use of the formula? I would be interested in what you have to say on that.

Mrs. YOUNG. You have recited a long list of the complexities, and there are at least that many more kinds of complexities that contribute to the problem. Therefore, it is obvious that there must be mutual responsibility and mutual accountability.

There is some on the part of the companies who set up their own policies. The church accepts a responsibility, as well as other shareholders should, as part owners of those companies, to be interested in not only the amount of income we get, but the source of that income, that is, how does it affect lives.

I think our Government has responsibility in its aid programs—the new Humphrey bill is certainly one that we should examine, and build in some guarantees of protection. The international community and other aid agencies have to develop some restrictions. The medical community, as we have heard, has to develop a stronger willpower to resist the siren call of inducements.

It all comes down to what President Kennedy said at the first World Hunger Conference: "If we have the will, we can find the answers."

[The prepared statement of Mrs. Young follows:]

PREPARED STATEMENT OF PATRICIA YOUNG

I am Patricia Young of Scranton, Pa. I am representing the United Presbyterian Church Committee on Mission Responsibility Through Investment and the ecumenical, Interfaith Center on Corporate Responsibility.

My primary credentials are in the areas of hunger and food policy. My commitment to this work began with my first trip to Africa which provided my first devastating exposure to hospital wards filled with infants and children who were victims of severe malnutrition—including kwashiorkor and marasmus.

As we sit here, the nightmarish projection that 70 percent of the world's children are threatened with nutritionally related permanent, mental and physical retardation haunts us . . . whether it is due to the food the world withheld from children through national or international economic or political priorities that did not consider them . . . or perhaps worse still, because of the food we pushed on them in the name of progress or profit, i.e. bottled infant formula.

The nightmare will not go away unless we have the will to act quickly in many problem areas. One such area where we believe concerted, cooperative action can offer almost immediate results is the problem we are discussing in these hearings.

In my testimony I plan to deal with three questions: Why are the churches involved? What policies and practices concern us? What steps can be taken?

1. Why are the churches involved? First, the obvious answer is that Christians are involved in response to God's commandments and Christ's example. However, to be more precise (without exegeting a series of Bible passages) as God's agents, we believe we have no choice. We are called to a ministry of compassion to the hungry, to be advocates for the poor and powerless, to be the conscience in society (the institution expected to raise the moral, ethical and value questions), to be witnesses for truth, love and justice. . . . in short, called to concern for the whole person.

As Mother Theresa puts it so simply, "everyone has a right to have someone care." The church tries to be faithful in this role.

Second, the churches are involved as part owners—as shareholders—of companies that produce and market formula. Like all other shareholders, we are interested in a return on our investment; it is a way to multiply our mission dollars. However, the gospel is both constant and contemporary in its challenges and forces regular re-examination of all policies and practices. The urgency of the many crises of our times, and especially the breadth and depth of the hunger crisis, has convinced us that there is a further responsibility that comes with proprietorship and profit. We now believe we have a dual obligation, that we

must look not only at the AMOUNT but the SOURCE of our invested income. This leads us to ask questions like: Are people diminished? Is the environment damaged? Are human rights denied? Are lives destroyed?

The search for answers is one reason we are here.

Third, the churches are involved like every other human institution on this planet as global citizens entrusted with planetary survival.

The scriptures tell of one created world and one human family. Biblical truth proclaims that when one part of the body—family—hurts, the pain invades all parts and affects the health of the whole. When babies die through any acts—sins—of commission or omission, God holds us accountable. When even one small life is nurtured to full human potential, the whole human race is more human—more a reflection of our divine model.

2. What are the practices and policies—and accompanying agony—that concern us? You will hear them spelled out today in detail by other witnesses so I will only list the key ones: inadequate safeguards, including label content; inducements to medical personnel, inexcusable promotion, given the particular socio-economic setting; inordinate amount of sampling to doctors, hospitals, mothers; and inappropriate use of nurses as sales personnel.

Personally, I have a general concern which is the attitude that appears operative in the industry. After years of speaking with corporate management, I have a feeling of being in never-never land—a sense that they must not live in the same world I do. I know I sound judgmental, but I am being honest about my impressions. I often leave a meeting in a state between shock and outrage. In my frustration after one annual meeting, I commented that the corporate representatives seemed like lemings marching to the sea with their "prudent man rule" intact, passing by the formula bottle headstones on infant graves without a backward look—without an apparent awareness of any complicity.

I know that is not fair, that there is humanity and sensitivity on both sides of the dialogue, but there does appear to be a quite different interpretation of the level of seriousness and certainly there seems to be a divergence in the degree of intensity about the need to solve the problem.

No one is suggesting that increased formula use is the SOLE factor in the earlier onset of infant malnutrition, but evidence points to it as a SIGNIFICANT contributing cause. If so, we are all implicated. Surely the sooner we each accept any culpability that could lead to a world where 70% of the adults are handicapped with physical and mental limitations due to inadequate nourishment when they were children, the sooner we will make the necessary changes.

The churches believe that maintaining the highest standard of product is not enough. Quality control must be coupled with strict, socially conscious and morally responsible guidelines for marketing. The companies are taking steps, but mostly they are codifying PRESENT practices rather than cooperating in finding creative NEW answers.

3. What steps might we take together? I would suggest that we need to design a process by which more interest groups are involved in asking the value questions that must be raised in formulating the ultimate goal. There must be interaction of many groups in making decisions. We must know where we want to go in order to get there. If we want babies to live and be healthy, we must each ask what we are doing to help or hinder achievement of this end.

There is a whole set of new value questions that must be taken into account; calculations and evaluations of data that must be made, such as:

What is the difference between promotion and education; real needs and created needs; samples for testing and samples for tempting; right to market vs. right to live; and serving the few vs. protecting the many?

What would a study of the number of lives saved by ready availability vs. lives lost through mass distribution tell us?

Country by country, what is the relative value of free breast milk wasted to food needs of the nation?

What is the eventual cost to whole families wooed into "commercially programmed purchases" of a luxury for one family member?

What comparison can we make between ascending lines on hospital admission charts and sales charts, if any?

What are the overt and subliminal messages transmitted by salespersons in nurses' clothing, a donation placque on a hospital wall, a sample packet of commerical formula as a going home gift for the new mother?

I contend that if we can reach the most remote village store with the product, we can reach it with our business ethics!

If existing studies aren't convincing enough, let's do another, but quickly and then get about the business of an internationally agreed and implemented code. This may mean limiting business freedom in order to limit harm to the helpless, but it seems the least we can do for our least ones. The churches are calling for a limit or elimination of samples and other inducements, for elimination of mothercraft or milk nurses, for the limiting of availability of the product and in general the cessation of all inappropriate marketing methods wherever that formula can be mis-used. We are asking for the companies to do all possible to achieve unquestioned field allegiance to any headquarters' commitment and unflagging monitoring of implementation.

Several years ago the director of the Common Market called for Gross National Happiness as the preeminent goal. Japanese leaders are talking about a national consensus around Net National Welfare. Some European corporations are instituting "social bookkeeping" (weighing social benefit and cost in addition to profit and loss), and adding a new wrinkle in policy-making which involves management, employees and customers, since all three are concerned with company standards and operations. More and more religious communities are emphasizing justice and self-development issues over outright charity. The global conscience appears to be responding to the universal commandment to "love thy neighbor."

As Barbara Ward writes, "The scientist and the sage, the man of learning and the poet, the mathematician and the saint repeat the same plea and the same warning—We must love each other or we must die."

Each of us is under judgment for anything we do to contribute to a damaged future for all. We need "20–20 vision" so we can take a clear look at our impact on the citizens of the year 2020. We must begin now to cancel our debt to posterity. The crises demand it. The time is right if ever it was. There is a world-wide network of caring, a mutual will to act, a commonality of purpose. Let us move with it. Our marching song can be the words of the current ballad, "I Want To Be." The world's children now living and yet to be exposed to our impact are saying to us "I want to be, to live, to grow, to know. . . ."

Senator KENNEDY. Ms. Margulies, what kinds of problems do you see when you travel around?

Ms. MARGULIES. Well, I traveled last summer, but I have been collecting data on company practices for nearly 4 years. I am the director of the infant formula program for the Interfaith Center on Corporate Responsibility, and in my capacity, I have collected a lot of data and I have presented it, over the years, to the companies themselves.

I think I would like to just start in the Philippines, because we have talked so much about it. In some of our data we have collected, things like this have come out: On a Del Monte plantation, which is a workers plantation, in the clinic there, Enfamil, a Bristol Myers formula, is given out free. Mead Johnson, which is the Bristol Myers subsidiary, has practically equipped the entire nursery supplying bassinets, scales, clocks, air-conditioning, et cetera.

In other hospitals in the Philippines, Nestlé Corp. has name tags on the cribs of babies; the wristbands also have the name of the formula on them. In one hospital that we surveyed, where 90 percent of the patients were poverty patients, three companies—American Home, Wyeth Division; Bristol Myers, Mead Johnson; and Nestlé—had a closed marketing arrangement with the hospital, where each company would be allowed 15 days in rotation to give out their free samples.

To quote Dr. Abraham, a doctor from Malaysia on this problem, from a paper he presented at the International Pediatric Conference in New Delhi:

The milk companies have gained access to the health services in government and private sectors with advertising posters, pamphlets, and free samples. These are difficult to resist because they are given free to inexperienced health staff, and seem only to be offers of much needed help.

One of our investigators wrote me from the Dominican Republic about a month ago, where she is investigating the problem. And right across the hall from the dehydration ward, which is where they bring back the sick babies, there was a classroom and outside the classroom was a little bronze plaque and it said, "Classroom donated by Nestlé." Inside, there were Nestlé posters on the wall, there was a Nestlé formula display. It was the only air conditioned room in the hospital.

Our investigators were in Indonesia, and the living conditions there are really squalid, which these pictures will show. There are approximately 250 pediatricians there, as of 1975, and in these conditions, U.S. companies were selling formula. We just found out at the last stockholder meeting of American Home Products that they were building a production facility for infant formula in Indonesia.

This, by the way, is a picture of a formula room where these products have been donated; this is in the Philippines. We just had an investigator who returned from Kenya, and reported on the promotion there. For example, a bib is given out with a message, "For the best possible start in life," and it is for SMA formulas.

Samples are given out in hospitals. One doctor said, "There are bottles in the tiniest huts of Kenya."

[The prepared statement of Ms. Margulies follows:]

STATEMENT BY LEAH MARGULIES

May 23, 1978

Hearing: "Marketing and Promotion of Infant Formula and the Decline of Breast Feeding in Underdeveloped Countries"

(Excerpted from detailed Testimony submitted to the Subcommittee on Health and Scientific Research of the Committee of Human Resources)

My name is Leah Margulies and I am the Director of the Infant Formula Program of the Interfaith Center on Corporate Responsibility, an ecumenical agency of the National Council of Churches of Christ. (ICCR members include 14 Protestant denominations and 150 Roman Catholic orders who, as stockholders in U.S. companies, are concerned with ethical and moral questions related to their investments.)

Since December 1974 I have coordinated the work of the churches concerning the problems of bottle feeding and the role of multinational companies in promoting baby formulas in developing countries. From the start, the thrust of our activities has been to convince the companies that health problems related to unsafe bottle feeding were extremely serious, and that the distribution, marketing and promotion practices for infant formulas contribute to that problem.

In 1976 our agency became involved in a lawsuit by the Sisters of the Precious Blood (members of ICCR) against the Bristol Myers Company concerning their sales of and promotion practices for baby formulas.

In order to support our claims, we gathered documents from 18 Third World countries written by medical personnel, missionaries and other informed people of good will all over the world. These affidavits had to be sworn to before a notary public and countersigned by the U.S. Consulate, often at great inconvenience to an overworked Third World doctor. Since the filing of these documents a year and a half ago, we have collected more documents concerning the practices of other U.S. formula and milk companies as well as for Nestle. The data we collected inasmuch proved (1) promotion within medical facilities and to medical personnel inappropriately encourages the use of particular formulas as well as endorses bottle feeding in general for newborn infants, (2) there are detrimental health effects related to

improper bottle feeding of U.S. formulas, and (3) baby formulas are widely distributed and marketed in areas where poverty and unsanitary conditions make safe use virtually impossible.

In regard to promotion, in our view, the industry hides behind the cloak of the medical "authority" - excusing promotion by saying the doctor is the final arbiter of infant feeding choices. Dr. John Knowles, President of the Rockefeller Foundation and a pediatrician, stated in a letter to the Chairman of Bristol Myers that:

> "The problem is poverty and the inadequate home environment which makes the use of prepared formula so lethal. This the physician is not uniquely qualified to understand. In fact, he may be precisely the most unqualified to understand, since he undoubtedly comes from a different socioeconomic background and may have no idea of the home conditions of the poorest mothers of his own society."

Dr. S.C.E. Abraham, head of the Department of Pediatrics, General Hospital, Kuala Lumpur, Malaysia, expanded this point to the XV International Pediatric Conference in New Delhi in 1977. "The milk companies have gained access to the health services in Government and private sectors with advertising, posters, pamphlets and free samples. These are difficult to resist because they are given free and to inexperienced health staff and seem only to be offers of much needed help."

One investigator, Arnold M. Muller, was told by at least four independent medical sources, all doctors in senior positions, that the promotion of Mead Johnson (Bristol Myers), in the Philippines, included substantial inducements to doctors intending to ensure the exclusive use and prescription of the Company's products. Inducements included equipment such as incubators, furniture and air

conditioning in doctors' offices.

Muller quoted a hospital administrator: "It /Mead Johnson promotion/ is a very corrupting influence. You are always aware you could have virtually anything you ask for."

Other investigators in the Philippines have reported:

On a Del Monte plantation, a nurse said that all babies were given formula. Mead Johnson had practically equipped the entire nursery, supplying bassinets, scales, clocks and air conditioning. An Enfamil poster hung at the ordering window of the clinic. Workers' homes had neither running water nor refrigeration. One woman was using Enfamil "because the doctor had recommended it."

In other hospitals, Nestle name tags promoting Lactogen adorn cribs while baby wrist labels also carry a promotional message.

In Pasay Hospital, where 90% of the patients are on charity but receive free samples, Mead Johnson, Nestle and Wyeth (American Home Products) are each allowed fifteen days in rotation to exclusively distribute their formula.

Dr. Abraham from Malaysia states: "It is difficult to justify the continuation of the practice of handing out free samples, given their purpose. If a mother is poor enough to need a free sample, she is too poor to use it properly, and the promotional impact of that sample on her and her friends is unjustifiable. Many countries might find it beneficial in the long run to ban free samples."

A quick trip around the world reveals the following:

In the childrens' hospital of Santo Domingo across the hall from the rehydration ward (the emergency room for babies with diarrhea and vomiting primarily from bottle feeding), a bronze plaque by the door says "Classroom Donated by

Nestle". Inside the air-conditioned room (the only air conditioning in the hospital), the walls are lined with color posters for infant formula. The finest piece of furniture in the room is a display case of Nestle products.

In Lima, Peru, Carnation is the most active U.S. company. Carnation's "Leche Gloria" gives out free promotional bottles in hospitals with Leche Gloria imprinted on them. Promotional name tags are given as well.

In Haita, labels for Enfamil and other powders were printed in English and Spanish, neither of which is the native language. Samples are distributed to mothers through doctors and clinics. Displays in store windows promote U.S. formulas. (Abbott, American Home Products and Bristol Myers all market there.)

Haiti, by the way, has the lowest per capita GNP of 20 Central and South American countries.

An investigator just returned from Kenya a few weeks ago and said that Wyeth distributes free kits which include a bib with the following message: "For the best possible start in life". Samples are given to doctors in public hospitals and clinics and then passed on to the mothers. SMA tins, distributed several weeks ago, say nothing about breast feeding. Infant formula products are available everywhere, including slum shops, rural villages, and "settlement" shops. Doctors say "there are bottles in the tiniest huts in Kenya."

Radio, T.V. and newspaper ads continue in Singapore, with slogans like: "Help your baby grow healthy and happy. Give him Lactogen with Honey."

Ted Greiner's 1977 thesis on St. Vincent (Cornell University School of Nutrition) finds (1) the more the mother remembered advertisements, the earlier she started bottle feeding, and (2) the earlier she started bottle feeding, the more

likely her baby was to get sick.

So promotion in hospitals is one-half the problem. The other half is what happens after the mother goes home to her own neighborhood. Here are some of the conditions and practices we found.

The water supply of the capital city of 1,000,000 people in the Dominican Republic is uniformly contaminated. In the riverside slum, Gualay, a local doctor surveyed expectant mothers and found a 50% illiteracy rate. The cost of formula for a four month old baby is 41.8% of the minimum wage. Photographs show barrio stores where Nestle, Bristol Myers, Abbott and AHP formulas are sold. Cans often have different units of measurements and different directions.

Last summer, I personally visited an emergency rehydration room in Caracas, Venezuela with 52 sick babies. The doctor in charge said, "Breast fed babies just don't get sick like this."

Throughout Venezuela, Nestle posters adorned clinics and hospitals. In the barrios and rural areas I visited, primarily Nestle and American Home Products were available - even in a rural town with less than 200 families. In another barrio I visited, people kept their water in rain barrels next to their door. There were no toilet facilities or running water of any kind. The AHP tins I bought did not have directions for sterilization.

Dr. Ann Barnet reported on 36 typical patients under one year of age admitted to a rehabilitation ward in Mexico City for protein calorie malnutrition (marasmus). Many lived in conditions of extreme poverty without sanitary facilities. All the children had been bottle fed. 21 out of 36 cases were fed with commercial formulas.

In Indonesia, large segments of the population get their water supply from

untreated rivers and canal water. Even among the middle class, refrigeration does not exist. In 1976, there were 6,221 physicians for the population of 126,000,000. There are are 250 pediatricians. American Home Products just announced at their annual meeting that they were constructing a new formula production plant.

Last summer I had the unique opportunity of experiencing for myself the difficulties of improving company practices - even where the government is also taking a role. I encountered a Mead Johnson milk nurse on the ward of the largest maternity hospital in Jamaica. She was wearing a white uniform but no company insignia (contrary to the Bristol Myers code). She was collecting off the ward rolls the names and addresses of mothers to visit. Here she was, despite a Ministry of Health order forbidding the entry of milk nurses onto public wards, and despite the Company Code which pledges to uphold government policies. The regular nursing staff told me company nurses gain access be cause of their long standing relationships with the hospital and hospital staffs. Under pressure Bristol Myers ultimately stopped their milk nurses in Jamaica.

We have consistently passed on our data to the companies. The companies have made some moves in the direction of change. American Home Products no longer has commission sales. Bristol Myers claims to have ended promotion directly to consumers even in the case of posters on hospital and clinic walls, and ads on their delivery cars. Abbott has a samples policy. Some milk nurses have been taken out of white uniforms and the like.

Often, however, when we find examples of direct consumer advertising or product labeling that don't conform to the Codes, the companies say it's an "exception."

Frankly, we're a little tired of arguing about exceptions to weak Codes. Our real complaint is that the Codes legitimize promotion practices that ought not to

be happening at all.

We feel the responses by the companies have been disappointing and frustrating. We have yet to see any real evidence for their claim that the wide spread misuse of their products does not happen. We have yet to see any significant change in their very effective and persuasive form of promotion - promotion and inducements to the medical profession.

Just two weeks ago, in a meeting following the American Home Products Shareholders meeting, we offered to send management suggestions for implementing a much needed independent review committee - just to get the ideas flowing. Mr. Laporte, the Chairman, refused it.

I am left wondering why we have, with our data, convinced thousands, maybe even tens of thousands, of Americans about this problem. (Many are now supporting the boycott of Nestle in an effort to change that Company,) but we still have not convinced the small number of top management people, who know the facts and the opinions of experts, and who could change things if they so desired.

Senator KENNEDY. Let me try to pose a question and get your response, as well as the rest of the panel's response. I understand we will hear later in the morning from the companies themselves. They believe that breast feeding is better, but that there is a need for the infant formula. They contend that they have instituted significant reforms, and that the misuse of their product is the responsibility of the medical profession; that they cannot bear the burden of all the public health problems that exist in the countries, and they cannot bear all the burden for improper distributions of sewage.

They point out that children are going to be in unhealthy environments, whether the infant formula is there or not, and that they cannot be blamed for the overwhelming poverty problems faced by the developing nations; they do not want to injure children; they do want to provide them with a nutritious and healthful substitute. They do not want the product misused.

Now, you people have been across the developing nations of the world. You have seen the conditions of the poverty first-hand. You know what is actually happening. Now, how do you respond to the companies? Is there a discrepancy between their statements and their intentions and reality of the situation?

Are you convinced that the use of the infant formula in the Third World countries, and the current system of advertising, marketing, and promotion remains a significant and worldwide public health problem? I think this is the issue we have to face.

Ms. MARGULIES. I do not think we have ever believed that we could solve all the problems of the world with this one particular campaign to stop baby formula promotion. What we have believed is that we could lessen the burden on the individual mothers and on health staffs throughout the world.

Our feeling about what the companies have done so far is that the codes that they have done are weak, and that they legitimize the very practices that we think ought to be stopped. The codes codify how to give out free samples, instead of stopping the free samples. The codes will say that a nurse should have a company insignia on and maybe not be in white uniform, rather than stopping the nurses.

I think there is real conflict out in the field between what a local subsidiary, or a local distributor has to do in order to fit in with the bottom line demands of the corporate headquarters, and whether they will follow a code.

I had an experience this summer in Jamaica where I ran into a milk nurse in the largest public hospital in Jamaica, regardless of the fact that there was a government policy forbidding her entry and a company policy forbidding her entry. This clearly exemplified the conflict between increasing sales and following a code.

That discovery of the milk nurse was one of the factors that led to Bristol Myers terminating their milk nurses in Jamaica. However, we have gone to the companies and said, "Well, you have stopped in one place; why can you not stop in all the places?" Do we have to go country to country to find practices that ought not to be happening in the first place?

Our agency is understaffed and underfunded, and despite the many people of goodwill—doctors, Third World health professionals, and

other groups all over the world who are working on this, our resources really cannot compete with those of the companies. It is time for our government to take a leading role.

Senator KENNEDY. Reverend Driscoll, just take a minute or two, and then I will ask Dr. Jackson.

Reverend DRISCOLL. Just on that point of what the companies say, here is a book, literally looking at life through a baby bottle. This book is very smoothly put out; it is going back to what you said before, Senator Clark, about advertising that creates needs.

In this entire book, seven lines are given to breast feeding, and it says that doctors are "accustomed to advise women to breast feed." But what is interesting is that there are several pictures in here of bottle feeding—obviously, none of breast feeding—even an interesting one of a little girl bottle feeding her little doll, while the mother looks on.

What is really interesting is that, here, this has prenatal and postnatal instructions. At this page when it talks about taking the baby home from the hospital, it has blanks here where you can put in the amount of ounces of S26 or SMA that you are going to use for the baby. Nothing is said about breast feeding.

Senator KENNEDY. Dr. Jackson, just on that earlier point.

Dr. JACKSON. I find it very, very difficult to respond to this. I think that our experience in Jamaica has shown that although there is a statement by companies of their intentions, what actually happens can sometimes be a very different thing. And it is very difficult always to justify or rationalize or deal with the arguments that are put forward, and I think it really comes down to the situation of when Leah spoke to the milk nurse in the hospital; that unless you attack the milk companies with that kind of stuff, they are not really going to follow up.

They may take the letter of the law, but they do not take the feeling of it. So, I think that there is an onus on them to at least meet up to the stated policy that they have, in reality, in the field.

Senator KENNEDY. Would you all agree that this continues to be a worldwide problem? Dr. Jackson?

Dr. JACKSON. Yes. I think it is clear that this morning we have focused very heavily on the problems in the Third World, but I do not think it is just our problem. I think that it is a problem of poor people anywhere in the world who live in deprived socioeconomic conditions.

Senator KENNEDY. Would you agree with that, Reverend Driscoll?

Reverend DRISCOLL. Yes.

Senator KENNEDY. Sister O'Brien and Dr. Clavano, in terms of the Philippines?

Dr. CLAVANO. Yes.

Sister O'BRIEN. I would agree.

Senator KENNEDY. Ms. Patal?

Ms. PATAL. Yes.

Senator KENNEDY. Ms. Margulies?

Ms. MARGULIES. Yes.

Senator KENNEDY. Mrs. Young?

Mrs. YOUNG. Yes.

Senator KENNEDY. Senator Clark?

Senator CLARK. Just one question, perhaps, to Ms. Margulies. You have worked on this for a long time and you have made some very dramatic and illustrative examples of what is happening. You have talked about the weakness of the codes; the fact that they do not work.

What do you recommend to the Senate? What do you recommend to the Congress? What is the answer, or part of the answer? What are the solutions that we ought to look to?

Ms. MARGULIES. Well, first of all, I think that the companies ought to stop this sort of promotion, and I think that they could do it if they wanted to. Second of all, if they will not do it voluntarily, I think we need to help them in certain ways.

The problem we are facing here in this country is that we have not been able to find the means for regulating business practices overseas. I think that is a real challenge, just as it was a challenge to us at the turn of the century in our country when there were no business regulations; there was no FDA or FTC, or any other regulatory agency.

Additionally, I think that the Senate could help significantly by controlling promotion in our own country, because in my experiences in the Third World, every time I would talk to a doctor, they would say, "Well, how can we help it when we emulate you? We emulate your practices, the practices of the rich, and the White, and the elite, and the people who are controlling a lot of what is being sold overseas."

So, I think if we set the example here, that would have a significant effect, to say the least. I also think that getting the international agencies involved in a solution that is more global, that deals with all of the companies—I know the U.S. companies feel singled out, and Nestlé feels singled out, and I agree with them that it is a problem with all companies.

Therefore, I think we need to involve the international community, and also the national governments of these countries, many of which, frankly, are much smaller than the companies themselves and do not even have the basic kind of FDA regulations that we have here.

Senator CLARK. Thank you very much.

Senator KENNEDY. Thank you all very, very much. You have been very, very helpful.

We have our second panel: Dr. Jelliffe, who is professor of public health and pediatrics, head of the Division of Population, Family and International Health, University of California at Los Angeles, who was formerly the director of Caribbean Food and Nutrition Institute in Jamaica. He is a world-renowned authority on this subject.

We also have Dr. Abraham Horwitz, who is the former director of the Pan American Health Organization, director emeritus, Pan American Sanitary Bureau. Dr. Horwitz is presently with the regional office for the Americas of the World Health Organization here in Washington. Dr. James Post, who is professor of management, Boston University; Dr. Post is directing a recent project supported by the Rockefeller Foundation on the infant formula industry and its problem and crisis in infant feeding practices. Dr. Manuel Carballo, who has traveled here today from Geneva, Switzerland, will present information on the impact of the use of infant formula in developing nations. Dr

Carballo is with the Maternal and Child Health Division of the World Health Organization.

Dr. Jelliffe, we will start with you.

STATEMENT OF DERRICK B. JELLIFFE, M.D., HEAD OF THE DIVISION OF POPULATION, FAMILY AND INTERNATIONAL HEALTH, UNIVERSITY OF CALIFORNIA AT LOS ANGELES, ACCOMPANIED BY ABRAHAM HORWITZ, M.D., M.P.H., DIRECTOR EMERITUS, PAN AMERICAN SANITARY BUREAU, REGIONAL OFFICE FOR THE AMERICAS OF THE WORLD HEALTH ORGANIZATION; JAMES E. POST, PH. D., PROFESSOR OF MANAGEMENT, BOSTON UNIVERSITY; AND MANUEL CARBALLO, M.D., MATERNAL AND CHILD HEALTH DIVISION, WORLD HEALTH ORGANIZATION, GENEVA, SWITZERLAND, A PANEL

Dr. JELLIFFE. Mr. Chairman, much of what I said in my testimony has already been covered. Perhaps I might just touch on a few——

Senator KENNEDY. If we could just have a little quiet for the Doctor.

Dr. JELLIFFE. Mr. Chairman, much of what I have to say has been covered already, so I will touch on certain highlights, perhaps, that have not been covered.

The economics of this situation, I think, has not been sufficiently stressed from a national point of view. For example, it has been calculated that if 20 percent of the mothers in developing countries stopped breast feeding their babies, this would mean an expenditure of some $365 million per annum. Also, it has been quoted that a high percentage of the family income would be needed to cover bottle feeding. I would like to stress that, also, if only a percentage of feeds given to a baby—say, a quarter of the feedings—are bottle and the rest are breast, this still represents an unacceptable burden.

The infections that have been mentioned, I think, are very important, because human breast milk is an active anti-infective biological system, which cannot be duplicated in any way whatsoever by a formula.

Malnutrition and its world consequences have been mentioned, but I would like to add some further dimensions, as I see them. I feel that we should get realistic in regard to the problems we are talking about, and I have a photograph here that I would like to pass around of a West Indian child that I looked after some years ago; it is a 4-month-old baby with the most grotesque and severe marasmus. This baby was bottle fed from 2 weeks of age.

This early marasmus and diarrhea is the major public health problem. We have calculated that if breast feeding could be reinstituted in developing countries, very probably—and this, of course, is based on available figures, but partly a guesstimate—some 10 million babies could be saved from diarrhea disease and marasmus each year. There is considerable evidence, although not so much as we would like, that this marasmus-diarrhea syndrome is on the increase in the developing countries.

Another point which has not been made is concerning population pressure. It is not appreciated sufficiently in technological countries that biological child spacing is effected through lactation, through the

sucking mechanism. And it has been calculated by the United Nations that at the present moment, 1978, 35 million couple years' protection is afforded in developing countries by lactation, by the biological child spacing of sucking. Also, this has now also been shown to be the case in well-nourished women in the United States, provided—and this is the point—that the pattern of sucking is similar to that in more traditional societies.

These four reasons; I think, need reemphasis: economics, infections—particularly diarrhea—nutrition, and child spacing. If one has a decline in breast feeding, one has a parallel rise in population pressure and more closely spaced children, and an exacerbation of all the problems of malnutrition, social problems, political problems, overcrowding, and the like.

It is to me particularly sad, and I have worked in this field in developing countries, a resident in developing countries prior to my present job for 26 years, that the majority of women in developing countries, even if not as well-nourished as we would like, are able to breast feed their infants well. Those that may find some problems in lactating as long as previously—in my opinion, this is not by any means an indication for bottle feeding, but, rather, for attention to be given to those mothers' nutrition and health.

[The information referred to follows:]

The volume and composition of human milk in poorly nourished communities A review[1]

Derrick B. Jelliffe and E. F. Patrice Jelliffe

> "How is it that poor men's wives, who have no cold fowl or port wine on which to be coshered up, nurse their children without difficulty, whereas the wives of rich men, who eat and drink everything that is good, cannot do so, we will for the present leave to the doctors and mothers to settle between them."
>
> Anthony Trollope (1847)

The question of the composition and volume of breast milk produced by mothers on different planes of nutrition at different phases of lactation is a major issue in pediatric public health in the world, especially in resource-poor countries.

Fundamentally, ultimate concerns are the nutritional adequacy of such milk for young infants in relation to calories, proteins, vitamins, and minerals, and the physiological and practical efficacy of supplementing the maternal or infant diets, when or if necessary.

However, it must be stressed that infant feeding cannot be considered in relation to the dietary supply of nutrients alone, but rather in an ecological context. For example, with regard to breast feeding in less developed countries, the nutritional and health consequences of the prevention of diarrheal disease, the lactation contraceptive phenomenon, and the economic and agronomic considerations have to be borne in mind at the same time (77).

Conversely, for the majority of the world, breast feeding cannot only be compared with adequate feeding with cow's milk—that is with sufficient formula available and with reasonable home hygiene. From a practical point-of-view, it is more usually a comparison of breast feeding and formula feeding as they exist in the nutritional, hygienic, and economic circumstances usually found in villages and urban shanty towns in resource-poor, less developed countries, mainly in the subtropics and tropics (77).

Considerations of the volume and composition of breast milk in poorly nourished communities can only be made in relation to other ecological circumstances affecting both mother and baby (66, 77). However, this paper attempts to draw together the main relevant information from different parts of the world, in which widely varying cultural, genetic, economic, and nutritional circumstances prevail. Differences, when they exist, may be related mainly to nutrition, to physical overwork and/or to environmental psychosocial stress. Other variables such as maternal parasitic diseases and genetic physiological differences may be more relevant than presently appreciated. Variations in results in different studies are difficult to interpret, especially those of minor degree, because of dissimilarities in times and methods of sampling and analysis, in types and levels of maternal under-

[1]From the School of Public Health, University of California, Los Angeles, California 90024.

nutrition, and in degrees of environmental psyshosocial stress.

Methods

Recent work has reemphasized the possibility of very considerable variations in findings as a result of using different biochemical methods. This is particularly so with regard to protein (91).

The actual obtaining of representative samples of human milk poses unique problems as the normal destination is the baby's stomach and not a test-tube or laboratory container. The ejection of breast milk is mediated by the psychosomatic let-down reflex (Fig. 1). Milk production is proportional to the secretion of anterior pituitary hormone, prolactin, resulting from nipple stimulation ("prolactin reflex") (Fig. 2), and to the degree of intra-alveolar tension, related to emptying. Methods used must, therefore, avoid interfering with normal mechanisms as much as possible, but in fact, all do so considerably. As Hytten (48) noted, "the sucking of a baby has, for the mother, psychological overtones beyond the mere local stimulation of the areola and nipple; and the mechanical replacement of this local stimulus cannot hope to be an entirely effective substitute for the baby".

Diurnal variations in milk volume and composition have been noted (50, 104, 105). The invariable and considerable difference in fat content between fore- and hind-milk (1 to 2 g/100 ml) means that the time of sampling during a feeding can be significant.

In addition, in some areas of the world, seasonal variation has been noted—for example, lower levels of ascorbic acid in the "hungry season" in parts of Africa (130). Such seasonal changes have long been recognized by dairy farmers. The stage of lactation is another variable, as is frequency, intensity and duration of

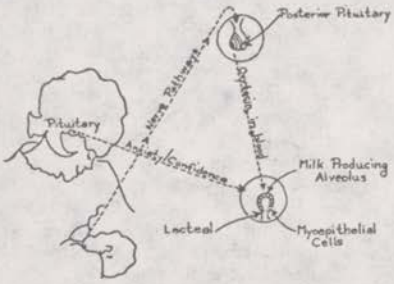

FIG. 1. Letdown reflex: the key to successful lactation. Sucking stimulation on the breast generates nerve impulses that pass to the posterior pituitary that secretes oxytocin. This passes via the bloodstream to the breast, where it acts on the myoepithelial cells, surrounding the milk-containing alveoli, causing their contraction. This expresses the milk from the alveoli into the lacteals. The sequence is also known as the "milk ejection reflex." Importantly, it can be inhibited by anxiety (Fig. 3) and enhanced by confidence.

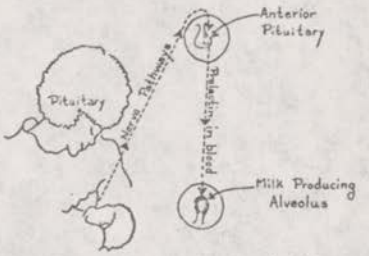

FIG. 2. Prolactin reflex. Sucking stimulation on breast generates nerve impulses which pass to the anterior pituitary, which secretes prolactin. This is carried in the bloodstream to the breast, where it acts in the alveoli causing milk secretion. The prolactin produced is proportional to the amount of sucking stimulus.

nipple stimulation (and reflex prolactin secretion). Important reducers of such stimulation are complementary bottle feeds (allaitement mixte) and the early introduction of semisolid foods.

Likewise, questions of total ouptut are often based on day-time estimations. In fact, in traditional cultures, the baby sleeps by the mother's side and must obtain considerable quantities as "night feedings" (A. Omolulu, personal communication).

Two methods can be used to try to measure the volume produced—test feeding and expression (48):

Test feeding (test weighing)

In this venerable technique, the baby is weighed before and after each feeding. Difficulties are numerous and obvious. Results depend on the vigor of the infant and the success of the mother-baby interaction. To ensure larger, more measurable samples, it may be considered preferable for mothers to nurse their babies at prescribed intervals rather than on demand—as under nonexperimental conditions at home. Expensive, accurate scales are required to measure relatively small weight increases in an uncooperative infant. There is considerable likelihood of interference with the emotionally-sensitive let-down reflex in the unnatural, anxiety-producing circumstances and embarrassment inevitably created by the investigation, which often have been carried out in hospitals. Practically, there may be a need for continuous surveillance to ensure that no feeding takes place between weighings, and, as noted earlier, ideally this should be on a 24-hr basis, which is almost never possible.

Expression

Milk may be expressed from the breast manually and by some form of mechanical or electrical pump. These methods can be used to estimate total output, and, of course, are required if samples are to be obtained for analysis.

The same difficulties exist as with test feeding. Indeed, anxiety can be greater with expression, especially with an unfamiliar, uncomfortable apparatus,

possibly combined with concern over feeding the baby later with the expressed milk. Also, the influence of expression on prolactin secretion, compared with suckling by the baby, is unknown.

Results

Comparative results have varied in different studies. In some, expression has given greater volumes; in others, test weighing. Sometimes daily outputs have been calculated from the amount obtained at one feeding only. In all cases, it is apparent that results are only approximations.

Maternal nutrition

Comparisons are also made more difficult by variables in the nutritional status of mothers, both between mothers in a particular group and between various communities, and by the possibilities of different degrees of adaptation (53). The nutrients involved, the degree and duration of deprivation, methods of nutritional assessment, and the previous nutritional situation and stores can have many and varying combinations. There may, for example, be considerable difference between the nutritional past and present histories in poorer women in Sao Paolo, Brazil, (106a) in Ibadan, Nigeria (8–12), and in Southern India (37).

An aspect of the situation about which nothing is known is the effect of the nutritional status of the pregnant mothers towards the end of gestation on the sensitive, developing mammary glands of the female fetus (89).

More directly, the physiological weight gain in pregnancy, about one-third due to deposition of subcutaneous fat ("lactation stores"[2]); can vary considerably from the 12.5 kg suggested for Western women to 5 kg (or even weight loss) reported in poorly fed communities (53). Dietary inadequacy in pregnancy may sometimes be complicated by associated hard work and by restrictive food customs. However, culturally defined customs or physiological adjustments may lead to less energy expenditure in pregnancy and lactation.

Likewise, in all communities, lactation itself leads to weight loss. In very ill-fed mothers, this can sometimes be as much as 7 kg after a year—even leading to the development of nutritional edema in very poorly nourished women (4). Recent studies in Guatemala have suggested that fat loss may be the main mechanism by which such mothers can continue to lactate (124a).

Many accounts from different parts of the world suggest that malnourished women often lactate with unexpectedly little clinically obvious deterioration of their nutritional status. However, in recent years there may be increasing evidence of shorter periods of satisfactory lactation then previously, at least in some parts of the world. The effect of maternal malnutrition may be partly hormonal, with decreased secretion of cortisol and possibly prolactin (55a). Certainly the cumulative effects of sequential reproductive cycles, including prolonged lactation, can lead to general "maternal depletion," as shown by progressive weight loss and a prematurely aged appearance (78, 124a). More specific nutrient deficiencies may occur with repeated reproductive cycles—for example, an increasingly large goiter, anemia, osteomalacia, or nutritional edema (78).

Environmental psychosocial stress

Under-appreciated in the past has been the effect of environmental psychosocial stress from poverty and unemployment, from poor housing and crime, from illegitimacy and family instability, and from cultural confusion and uncertainty on lactation performance, probably manifested through the effect of anxiety on the let-down reflex—and possibly on the secretion of various hormones, such as cortisol. This is mainly of concern in urban slums and shanty towns. Despite these differences, certain general findings seem to be usual and enable principles to be suggested on which practical action can be based. These can be considered under three headings—volume, composition, and adequacy of breast milk in poorly nourished communities.

Volume

Well-nourished mothers. To interpret the adequacy of yields of breast milk in mothers

[2] An estimated average increase in body fat of 4 kg (9 lb) represents an energy store of some 35,000 kcal, enough to subsidize lactation by nearly 300 kcal daily for 3 to 4 months (53).

in communities with defective nutrition, it is plainly important to compare results with those from well-nourished communities. Unfortunately, such data are scanty, out-of-date, and difficult to compare because of differences in technique and sampling, and because of recent lack of interest in the whole subject of lactation.

In scientific and international literature, the figure of 850 ml/day is usually quoted for the volume of milk produced in the first 6 months. However, review of the literature of 20 to 25 years ago shows that this was an arbitrary estimate and selected as an easy-to-remember round number based on an "assumption" in 1950 in the United Nations Committee on Calorie Requirements (34a). It has become sanctified by repetition in subsequent international reports (34b, 150a) and in the United States, where the first (1953) recommended dietary allowances for babies were based on the assumption that 850 ml of breast milk would be produced from 1 to 3 months and 1400 from 4 to 6 months (139a).

Typical daily outputs of mature breast milk in well-nourished women in the first 6 months of life can often be less than anticipated—between 600 to 700 ml/day rather than the 850 ml/day often quoted, according to a recent interpretation by Thomson and Black (138) of the data collected by Morrison up to 1952 (101). However, much variation occurred between the results of different investigations, depending on the methods used and the type of subjects. For example, a Detroit series of studies and other early investigations contained professional wet-nurses (104, 105), whose "conditioned" lactation performance can be particularly impressive.

Carefully conducted investigation of 363 babies of normal Swedish mothers was undertaken 30 years ago by Wallgren (145), using test-weighing at home for 2 consecutive days (Table 1). Recently, Lönnerdal et al. (91) estimated the yield of 53 mothers in the same country by test-weighing (Table 2). Despite different detailed techniques and the intervening time between the studies, the results are quite similar.

Very recent studies show the difficulty in interpreting variation in results. For example, Picciano determined by test weighing

TABLE 1
Mean intake of breast milk in Swedish babies (1945).

Age	Volume (mean)	
	Girls	Boys
mo	*ml*	
1	576	645
2	704	750
3	733	798
6	740	817

TABLE 2
Daily volume of breast milk in Swedish women (1975) (91).

Month postpartum	No. of mothers	Breast milk volume
-		*ml*
0–1/2	15	558 ± 83
1/2–1 1/2	11	724 ± 117
1 1/2–3 1/2	12	752 ± 177
3 1/2–6 1/2	12	756 ± 140

the intakes of 26 healthy totally breast fed babies in Illinois, with the following results (in ml/day) (111a).

Month	Mean	Min.	Max.
1	606.3	294.5	996.1
2	601.4	322.0	892.4
3	625.5	400.2	899.9

In Sweden, test weighing by mothers gave daily volumes which were higher, with a mean of 838 ml/day (134a).

Various studies have been undertaken which have sometimes shown minor variations between the volume produced by each breast, and on different days or times of nursing. Diurnal variation in the amount secreted has also been noted, often with maximal yields in the early morning and lowest yields towards evening.

Results concerning variation with age or parity of mother have been rightly termed "confused and inconclusive." Variation in volume of milk secreted between individual women is recognized as being considerable, although difficulties in making comparisons are great, including variation in the weight and sucking vigor of the baby. Breast size does not appear to be related to yield, being more an indication of mammary fat. However, the influence of emotional factors on milk yield has recently been reendorsed by Lindblad et al. (88b) who found that hospi-

talization of healthy Swedish mothers merely to collect samples of milk, blood and feces caused a significant drop of 210 ml/24 hr.

Variation in yield with "later" lactation is difficult to judge in well-nourished communities as, until the resurgence of interest in breast feeding of recent years, nursing into the second semester of life or longer has not been usual in Western industrialized countries. Also, there seems little doubt that the main stimulus responsible for the volume of milk produced is the amount of sucking at the breast, and hence of prolactin secreted. This is shown by "induced lactation" in some traditional societies and by recently introduced "adoptive lactation" or relactation in nonlactating American women, who wish to breast feed their adopted babies. (143a) In both, frequent sucking at the breast is the main factor in initiating and continuing milk secretion. Likewise, 24% of a series of twins have been shown to be solely breast-fed adequately for 3 to 6 months (1). Also, the "perpetual," or at least very prolonged, high output by traditional wet-nurses is in part a reflection of continuing vigorous sucking stimulus by successive hungry customers. In fact, the volume of milk secreted has to be viewed against the pattern of infant feeding in the particular family (or culture) and the consequent degree of sucking stimulus and its effect on the prolactin secretion.

The common concept of the "normal pattern" in Western-type cultures is of rise in output in the first month or so, followed by a decline thereafter to a plateau lasting approximately until the baby is about 6 months old, followed by a slow decline thereafter. Consideration of lactation patterns elsewhere and the previously mentioned results in twins, in wet-nurses, in induced lactation, and in relactation, suggest that the Western pattern may not be a biological inevitable, but rather a response to a particular pattern of sucking stimulation.

Very few studies have been undertaken on dietary effects on the volume of milk produced in well-nourished women. By contrast, numerous investigations have shown that variation in water intake between wide limits by the mother has no physiological effect on the volume of milk secreted. This seems endocrinologically explicable in light of the renal antidiuretic, water-sparing effect of prolactin (77). The common belief that fluid intake affects milk yield probably operates more through a "sympathetic magic" effect on confidence ("fluid in = fluid out"), and hence on the psychosomatic "let-down reflex." Conversely, in what has been termed a "low solute, continuous contract species", such as man, human milk with an approximately 87% water content is also the young baby's source of fluid, as well as nourishment, even in solely breast fed infants, including such a hot climate as Jamaica (1a).

Dominating considerations of the "normal range" of milk volume secreted by well-nourished mothers are difficult questions of sampling, very great differences in technique and timing of collection of specimens, and individual variation between women and in the same woman, both from day to day and as lactation progresses. As a generalization, technique and method of calculation often appear to play a major role in the final figure brought forward.

Poorly nourished mothers. Estimations of the volume of breast milk produced have also been undertaken in a variety of countries in Asia and Africa, and in New Guinea. The results have been extracted from published information and these approximations are presented in Table 3. Despite differences in methods of collection, sampling, and analysis, and levels and forms of maternal undernutrition, it seems that the volumes produced were usually somewhat below those reported from well-nourished countries in Europe and North America.

Volumes reported varied greatly and seem to be lowest in communities with poor levels of nutrition and with inadequate living conditions, whether urban (Colombo, Sri Lanka (30)) or rural (New Guinea Highlands (5)). However, working approximations in round figures can be suggested: between 500 to 700 ml/day in the first 6 months of life, 400 to 600 ml/day in the second 6 months and 300 to 500 ml/day in the second year. The few studies under-

TABLE 3
Approximate quantities of milk produced daily at different periods of lactation in some poorly nourished communities[a]

Country reference	1-6 months	6-12 months	12-24 months	24 months and above
India (15, 16)	600 ml	500 ml	350 ml	
India (Baroda) (116, 117)	600 (3 mo) (350-1100) 735 (3 mo) (540-1100)			
New Guinea (Chimbu) (142)	525 ml	525 ml	343 ml	343-142 ml
Biak Island (60)	427 ml	390-430 ml	127-338 ml	243 ml
New Guinea (14)	720 ml	660 ml	705 ml	488 ml
New Guinea (5) Chimbu and Maprik	400 ml	400 ml	400 ml	
New Guinea (5) Baiyer River	600 ml	600 ml	600 ml	
New Guinea (108)		350-480 ml	270-360 ml (12-18 mo) 200-210 ml (12-24 mo)	230-300 ml
Ajamaru Nubuai		310-410 ml	250-340 ml (12-18 mo) 150-210 ml (18-24 mo)	
Egypt (45)				
Healthy	922 ml			
Malnourished	733 ml			
Sri Lanka (30)	475 ml	495 ml	506 ml	
Nigeria (Benin) (81)	555 ml (2-3 mo)	590 ml (6-9 mo)	606 ml (13-18 mo)	
Uganda (122a)	660 ml (2-12 mo)			

[a] Results not strictly comparable as varying collection techniques and methods of sampling used.

taken in the third year of lactation show very considerable differences, varying from 230 to 488 ml/day.

Also, it is well recognized in practice that the output of extremely malnourished mothers in families declines and ultimately ceases, with fatal consequences for the nursing baby (71). The nutritional point at which human lactation becomes seriously inhibited or ceases in famine circumstances is not known, but early marasmus (in the first 9 months of life) a solely breast fed babies may be occurring increasingly in the babies of very poorly nourished women living in conditions of severe psychosocial stress—for example, in Karachi, Pakistan (89). Sometimes in some countries this may be partly "contraceptive marasmus," from further interference with breast milk secretions by oral estrogen-containing contraceptive pills. In parts of the world with seasonal food shortages ("hungry seasons"), as in Central Africa, the daily output may drop by 100 to 200 ml (143a).

Supplementation. Limited studies have been carried out on the effect of supplementation of the mother's diet on output. Gopalan showed an increase in volume secreted, from 420 to 540 ml in poorly nourished Indian women after protein supplementation (from 61 g/day to 90 g/day (36)). Similar results were obtained in Western Nigeria by Bassir using a vegetable protein supplement—30 g of soya flour daily (10). Another study in India, where inadequately nourished mothers were fed with milk biscuits, showed a rise in serum albumen paralleled by increase in albumen in the breast milk, presumably by "spill-over" (26b). Also, an early investigation in 1931, showed that an increase in output could be achieved in New Zealand women by increasing the calorie and/or the protein intake (27). Recently, a study in England seemed to suggest that poor lactation could be related to inadequate energy reserves—in the form of subcutaneous fat laid down in pregnancy, and calorie intakes in lactation. In the United Kingdom, slimming diets in lactating mothers lead to "an immediate reduction in milk supply" (148).

A recent detailed investigation was reported by Edozien and co-workers from Nigeria, (31b) when they showed that pro-

tein supplementation of the lactating mother's diet increased the milk produced and weight in the baby, but not the protein content of the milk (Table 4). Similarly, Sosa et al. (128a) demonstrated a rapid increase in milk production in a malnourished Guatemalan woman following an improved diet, particularly calories and protein.

As usual, those concerned with the production of cow's milk as a business, the dairy farmers, have infinitely more practical knowledge than those concerned with human milk and breast feeding. Thus, Lindblad and colleagues quoted the following aphorism from Morrison's 1948 Handbook of Stockmen (101) which may not be completely correct for the human, but is certainly generally so:

"Any inadequacy in the ration or fault in the methods of care or management will generally manifest itself in the yield of milk, rather than by a change in its chemical composition"

However, the effect of increasing the maternal diet on human milk output may be less than in dairy cows, but it should be remembered that such farm animals have been bred to produce much greater yields than are required by the offspring (138).

TABLE 4
Effect of maternal dietary supplementation with protein on the volume and protein content of breast milk and weight gained by baby (Nigeria) 31b.[a]

Variable[b,c]	Daily protein intake			
	50g initially	100g	25g initially	100g
No. of subjects	7	7	3	3
Total milk solids (g/100 ml)	13.8[d] ±1.3	13.4 ±0.9	12.0 ±0.6	11.9 ±0.5
Milk protein (g/100 ml)	1.61 ±0.15	1.57 ±0.19	1.20 ±0.21	1.25 ±0.23
Milk lactose (g/100 ml)	8.1 ±0.9	7.9 ±1.0	7.3 ±1.4	8.0 ±1.8
Milk produced (g/day)	742 ±16	872[e] ±32	817 ±59	1059[e] ±63
Milk consumed (g/day)	617 ±15	719[e] ±10	777 ±38	996[e] ±74
Weight gained by baby (g/day)	30.4 ±3.6	45.7[e] ±2.0	10.5 ±3.6	32.2[e] ±10.1

[a] Subjects were fed the initial diets for the first 14 days and then a diet providing 100 g protein per day for the next 14 days. Results for each subject represent the mean values for milk samples collected during days 8 to 14 (for initial diet) and days 21 to 28 (for diet providing 100 g protein per day). [b] Duration of lactation for all subjects was between 30 and 90 days. [c] Duration of lactation was over 100 days. [d] Results are mean values + SD. [e] Significantly different at the 0.05 level from the unsupplemented subjects.

Composition

The biochemical composition of human milk has been examined in different parts of the world. Approximate comparisons can be made between various communities, and with well-nourished mothers, for protein, fat, lactose, vitamins, and calcium, keeping in mind previously mentioned difficulties posed by variations with sampling (period in lactation cycle, time of day; single, repeated or 24 hr; seasons; one subject or pooled specimens, etc.), with laboratory techniques and with levels of difficulties in maternal nutrition (Table 5). Interpretation of such comparisons is made much greater by recent realizations of the physiological variations that occur in well-fed healthy women successfully breast feeding their babies.

Protein. The protein content of human milk has been described as varying between 1.0 to 1.6 g/100 ml in well-nourished women. In 1952, Morrison reported the mean of European analyses to be 1.6 g/100 ml and American 1.2 g/100 ml (101). He suggested that differences in methods of estimation may be mainly responsible, and that 1.2 g/100 ml probably represented an overall mean. A study in Britain showed 1.3 g/100 ml (29a). There seems little evidence for significant diurnal variation or fluctuation with age or parity.

However, very recent Swedish studies (1975) have shown the "true protein content" to be only 0.8 to 0.9% in apparently well-nourished women in that country, when determined by amino acid analysis (91). These investigators pointed out that earlier analyses of breast milk were made with the same methods as used for cow's milk. In fact, it is now recognized that the relatively low protein, low solute characteristics of breast milk place the human as a continuous contact, frequent suckling species in infancy, with rather slow growth, and also permits breast milk to be the only supply of water as well as nutrients.

Retrospective examination of analyses undertaken with similar methods in Brus-

TABLE 5
Fat, lactose, protein, and calcium content of mature human milk from some well-nourished and poorly nourished communities[a]

Country (reference)	Fat	Lactose	Protein	Calcium
		g/100 ml		*mg/100 ml*
Well-Nourished				
American (92)	4.5	6.8	1.1	34.0
British (87)	4.78	6.95	1.16	29.9
Australian (150)				28.6–30.7
British (29a)	4.2	7.4	1.3	
Poorly-Nourished				
Indian (17)	3.42	7.51	1.06	34.2
Bantu S. Africa (144)	3.90	7.10	1.35	28.7
Chimbu, New Guinea Highlands (142)	2.36	7.34	1.01	
New Hebrides (111)	3.8	5.0	1.40	25.8
Wuppertal, Germany (Immediately Post World War II) (42)	3.59		1.20	
Nauru (19)			1.60	
Ibadan, Nigeria (88 months) (62)			1.20 (0.59–1.79)	
New Guinea (Biak) (60)			0.83–0.9	
Alexandria, Egypt (45)				
Healthy	4.43	6.65	1.09	
Malnourished	4.01	6.48	0.93	
New Guinea (14)	2.3	6.48	0.93	
Sri Lanka (30)	2.8	6.8	1.5	
Brazil (21)				
High economic	3.9	6.8	1.3	20.8
Low economic	4.2	6.5	1.3	25.7
Pakistan (139)			1.2	
Tanzania (25)	Often below 2%			
Nigeria (Ibadan) (102)	4.05	7.67	1.22	

[a] Modified from Gopalan and Belavady (37), with added data.

sels, Belgium (129) in 1954 and in Tokyo, Japan (123) shows similar "low" levels for "true protein content" as with recent Swedish figures.

In poorer, technically developing countries, the average protein content of the milk of inadequately nourished mothers, *based on previously used methods of total nitrogen assessment*, is usually surprisingly high—in fact, a low normal (1.0 to 1.1 g/100 ml), although the range may be quite wide (Table 5).

In some places with probably poorer nutrition, analyses with older methods have sometimes shown the protein content to be lower (0.8 to 0.9%). However, in a carefully carried out study of poorly nourished women in Karachi, Pakistan, the "true protein content," determined by an exchange chromatography after acid hydrolysis and adding up the calculated amino acid residues, was 0.8 ± 0.1 g/100 ml (89). These results are similar to those obtained by like techniques in Sweden, Belgium, and Japan, although the lysine and methionine levels were lower.

Varying results have been obtained with estimations of the protein content with what is termed by modern Western cultural definition "prolonged lactation"—that is into the second year of life and later. Some have found a decline, some a rise, and others no material change.

The effect of maternal dietary supplementation on protein content does not appear to have been investigated adequately. However, in the protein supplementation study carried out by Gopalan, the increased output of milk was associated with a corresponding fall in protein concentration, with the result that the total protein output in 24 hr was not significantly altered (36, 37). Also, modern laboratory methods such as immunoelectrophoresis, which enables accurate quantities and measurement of the individual proteins of milk to be made were not available at the time of earlier studies.

Recent investigations by Lönnerdal et al.

(91) have shown many unexplained variations in healthy, well-fed women—for example, in "milk-specific proteins," those synthesized by the mammary gland, notably α-lactalbumin and lactoferrin. The decrease in total nitrogen in the first period of lactation, for example in the first month, was mainly due to a dramatic drop in secretory IgA level.

Fat (lipid). The significance of the fat content of milk has been under-emphasized. It is the main source of calories; it contains fat soluble vitamins, especially vitamin A; it is also the source of essential fatty acids needed for the growth and development of the central nervous system (24b). Lastly, the higher fat in the after-milk may act as a physicochemical appetite control for the suckling baby (44).

Earlier estimations of the fat content of milk in well-nourished communities in the United States and Britain showed means of 4.5 (93) and 4.78 g/100 ml (87), respectively. A more recent 1977 study showed a mean of 4.2 g/100 ml (29a).

Results from poorly fed women in developing countries have demonstrated considerable variation (Table 5). However, some recent work has suggested that the fat may sometimes be considerably reduced, even down to 1 g/100 ml (24b). Under these circumstances, the calorie content of the milk may be much decreased with significant lessening of energy intake (24a). The significance of a lower fat content has to be related to inadequate energy intake in pregnancy, with an inadequate subcutaneous "fat bank" (53), as well as to the diet in lactation itself.

The fatty acid pattern of breast milk can be altered to some extent without affecting milk volume or milk fat output by variation in the types of dietary fat (especially if these are extreme) (25a) or by changes in the calorie intake (57, 147). During energy equilibrium, milk fat resembles the fatty acid pattern of dietary fat, but when inadequate calories are eaten, the fat in human milk follows the composition of human subcutaneous depot fat. The major factor influencing the fatty acid composition of milk is the carbohydrate supply in the diet. Ultimately, the fatty acid composition of the breast milk (or cow's milk based formula) appears to be reflected in the fatty acids in the infant's subcutaneous fat.

The relevance of the fatty acid (and cholesterol) contents of human milk is currently under consideration in relation to the development of the central nervous system and atheroma in adults in industrialized countries. In developing regions, the polyenoic fatty acids may be diminished in the breast milk of malnourished mothers, with possible ill-consequences in relation to brain growth (25).

Lactose. The third "proximate principle," lactose, is generally recognized as being most constant in concentration and shows no diurnal variation. Morrison's (101) figure based on 1010 samples examined in various American and European studies showed a mean of 7.2 g/100 ml, while Kon and Mawson found 6.9 g/100 ml in 586 samples of mature milk (87). In poorly nourished mothers, lactose also does not seem to vary very much (Table 5) (range 6.43 to 7.51 g/100 ml), except in one study in the New Hebrides where 5.0 g/100 ml was reported (111).

Calories. The calorie intake from breast milk is a product of the volume (as taken by the baby) and its caloric content, which is primarily derived from fat. In well-fed communities, the caloric content varies greatly. Macy and Kelly (92) give a mean figure of 75 kcal/100 ml (range 45 to 119). The recent United Kingdom report showed a mean of 70 kcal/100 ml (29a).

In poorly nourished communities, both the volume secreted and the fat, the main calorie-containing constituent, (and other nutrients) may be less than in well-fed mothers.

Vitamins

Vitamin A. The concentration is influenced by the adequacy of the diet of the mother in pregnancy and lactation. The vitamin A content of breast milk is often much lower in poorer populations of some developing countries (India, Ceylon, Indonesia, Jordan), where this nutrient is marginal, than in Europe and North America. Maternal serum levels are also low. The intake is generally higher in the spring and

summer months due to greater supplies of dark green leafy and yellow vegetables. Particularly high levels of retinol (vitamin A) have been noted in Western Nigeria, presumably because of the widespread use of palm oil in cooking (102).

In a recent comparative investigation, the vitamin A content of breast milk was significantly higher in normal Swedish mothers than in nonprivileged Ethiopian mothers, whose milk showed greater concentrations of β-carotene (35).

Kon and Mawson (87) found that supplementation with vitamin A, before and after parturition or later during lactation, led to the secretion of milk richer in vitamin A than normally produced. In Central America, Arroyave et al. (3) observed a rise in the breast milk vitamin A levels after the introduction of vitamin A fortified sugar.

Vitamin D. As well-known, levels of fat-soluble vitamin D are low in both human and bovine milks. However, the recent discovery that breast milk contains a water-soluble conjugate of vitamin D with sulphate (87a) producing the same anti-rachitic potential as milk formulas fortified with conventional vitamin D explains the clinically well-recognized rarity of rickets in the breast fed.

Thiamine. The thiamine content of breast milk in areas with a high incidence of infantile beriberi has been found to be low, due to insufficient maternal stores and intake in communities with diets largely based on polished rice (66). Under these circumstances, a specific form of malnutrition—infantile beriberi—occurs exclusively in normal-seeming breast fed babies, and is due to a thiamine-deficient diet in the mother during pregnancy and lactation. It is so characteristic in time of onset that the 2 to 5 month mortality has been suggested as an age-specific rate for this condition in the regions at risk.

Riboflavin. Human milk is a good source of riboflavin, provided the maternal diet is adequate. However, in South India, Gopalan and Belavady (37) found an average of only 17.2 μg/100 ml of riboflavin in breast milk, as compared with a value of about 25 μg/100 ml found by Kon and Mawson in Britain (87).

Niacin. Although human milk is low in actual niacin, it has a high potential niacin value because this vitamin may be synthesized from the amino acid, tryptophan.

Vitamin B_{12}. Low levels of vitamin B_{12} have been found in the milk of poorer vegetarian women in Bombay. Also, in various parts of India the "syndrome of tremors" have been described in solely breast fed babies, and has been ascribed to deficient B_{12} in the mother's milk (59).

Vitamin C. The level of ascorbic acid in breast milk is subject to variations in dietary intake in developing countries, particularly with the seasonal availability of fresh fruits and vegetables. In well-nourished mothers, human milk contains an average of 4 mg/100 ml of vitamin C. In Botswana (formerly Bechuanaland), Squires (130) found the content to be 1.7 mg/100 ml in the dry season and 2.7 mg/100 ml in the wet seasons. The subjects were poorly nourished Tswana women.

Since the ascorbic acid contant of breast milk is greater than that of blood plasma, which is generally below 2.5 mg/100 ml, secretory activity in the mammary glands must play a part in determining the level of vitamin C in milk. Apparent adaptation to low maternal intakes of vitamin C has been noted in Baroda, India (117) and the Philippines (132). The possibility of placental synthesis in pregnancy has been suggested. Certainly both the placenta and the breasts may be able to actively secrete ascorbic acid for the offspring. Levels of folic acid and vitamin B6 seem to reflect maternal nutritional status (106a, 85).

Vitamin supplementation

Deodhar and Ramakrishnan (28) carried out a dietary survey among women in South India with special reference to pantothenic acid, riboflavin, nicotinic acid, ascorbic acid and thiamin. Subsequently, the breast milk was analyzed for the concentrations of the same vitamins. A positive and significant correlation was found between dietary intake and vitamin content of the milk for the vitamins investigated, which underlines the need for an adequate diet for the lactating women. The content of all the vitamins

increased steadily with the dose of supplementation.

In a more recent investigation, supplementation with ascorbic acid, nicotinic acid, riboflavin, thiamin, pantothenic acid, cyanocobalamin, biotin, pyridoxine, and folic acid was undertaken. As a result, the vitamin content of the milk increased steadily with the dose used in supplementation (29).

Calcium. Levels of calcium reported in the milk of well-fed mothers vary considerably. The calcium content in poorly nourished mothers has been reported to range from "normal" levels to somewhat low concentrations (Table 5). Again, differences in sampling and technique may be in part responsible.

Levels of other minerals will not be considered here, but are presented elsewhere (77). Early analyses are given by Morrison and others (101). The question of the content of trace minerals will be much under investigation in coming years, in relation both to nutritional need and to possible effects of environmental pollution.

Adequacy

The nutritional adequacy of breast milk for the infant can be roughly assessed by measuring 24-hr output and chemical composition, or by the recording of satisfactory growth, "good health" and absence of clinical malnutrition.

Adequacy of nutrients. The "nutrient needs" of the baby during the exterogestate fetal stage are not derived only from the diet, but also from fetal stores acquired in utero, from the placental transfusion (iron) and, to a limited and variable extent from ultraviolet irradiation of the skin (vitamin D). The recommended daily dietary allowances (RDA) for babies are estimated mainly "by analogy with breast fed infants," and yet it is agreed increasingly that presently available data on the composition of human milk is incomplete and out-of-date. Fomon (34) rightly notes the need for more modern studies, and remarks that "until such data are available, many of our calculations relating to nutrients in human milk will be likely to be misleading". Recent Swedish studies (91) on the protein content of breast milk give urgency to this comment.

In this regard, it is often insufficiently appreciated that the RDA's given for infants are themselves derived from estimated intakes of breast fed babies, with an additional safety factor added for the less certain situation of infants fed on cow's milk formulas (70). This is the case, for example, with the very high RDA of iron (10 mg/day) for the first 6 months of life, which can not be attained with human milk.

The derivation of RDA's for infants are often not understood by pediatricians or nutritionists, so that the advertising of commercial baby foods can issue the following appeal to "logic":

> "A stimulating exercise for professionals would be sorting one's beliefs about breast feeding into those based on scientific fact and those stemming from hearsay and emotion. One could thus more objectively counsel that growing membership in lay organizations dedicated to breast feeding. Many sincerely believe that breast milk is all sufficient without any supplementation for at least six months if not the full duration of breast feeding. The fallacy of this concept is obvious if one compares the nutrient content of breast milk with recommended RDA for infants."

The inanity of this comment is apparent especially in view of the biological adaptation that has occurred over hundreds of millenia. Carried to extremes, this argument would mean that breast milk was unfit for consumption by human babies, without additional iron and vitamins.

The RDA's of protein and calories suggested for infants have been derived from breast milk estimations, feeding with cow's milk based formulas and from the important, but special, studies by Fomon and May (1958) on babies bottle fed ad libitum with pasteurized breast milk (33). Based on their findings, it has been suggested that infants need: 1st month – 836 ml/day (protein 2.6 g/kg; cal 143kg); 6th month – 990 ml/day (protein 1.7 g/kg; cal 90k).

However, as noted earlier, outputs in well-nourished women actually nursing their babies often supply less than this, a common range being 600–700 ml/day for the first 6 months (138). Among poorly nourished tropical communities estimated volumes often seem to range from 500–700 ml/day during the first six months (Table 4).

As noted earlier, many of the constituents of breast milk can be affected by inadequate maternal nutrition, depending upon its severity, length and the mother's previous nutritional status. Water soluble vitamins are particularly influenced, including ascorbic acid and riboflavin. Likewise, levels of vitamin A and the pattern of fatty acids reflect maternal diet and stores. The fat may be reduced in some malnourished countries. The protein content of human milk in poorly nourished women is usually within "normal" limits (1.0 to 1.1 g/100 ml) or sometimes below this (0.7 to 0.9 g/100 ml) (Table 5).

By comparison with estimates of volume and composition in well-fed mothers, information derived from poorly nourished women suggests that their babies may sometimes receive lesser intakes of nutrients. However, five factors need to be taken into account before making too sweeping conclusions:

First, the figures on volume gained in general studies are often those obtained by expression or following test-feeding with the errors implicit, and often having a risk of underestimations because of interference with the psychosomatic "let-down reflex" and inadequate stimulation of prolactin production.

Second, such investigations are usually based on *daytime* output, when in most traditional cultures, babies sleep by the mothers side with frequent night feedings the normal practice.

Third, there is a possibility of lower calorie intakes being needed by infants in truly tropical areas.

Fourth, smaller babies have a lesser need of nutrients, but also may have less sucking potential.

Fifth, the data on which the RDA are based are inadequate and approximate for infants. The babies in the Fomon and May investigation (33) were receiving pasteurized breast milk from a feeding bottle, with an easier rate of flow and without the possibly appetite-controlling function of high fat found in the hind-milk (44), and other "powerful self-regulatory controls within the infant" (110). In other words, the intake of milk noted, and hence of calories and protein recommended, are probably high. As noted earlier, the reported consumption of milk in direct breast feeding studies are often lower with apparently well-nourished babies.

Also, the difficulties with understanding the nutritional and biochemical meaning of results obtained by analyses of single samples are increased by recent increased awareness of the physiological variation in human milk composition and by the need to recognize breast milk as a biological system with interacting nutrients, which modify each other's absorption and utilization, rather than as a solution of independent chemicals. Recent work on the superior absorption of zinc from human milk may be noted in this respect (31a). In other words, the nutrients and their physiological effects in the human baby vary greatly in the breast fed and the bottle fed.

Physiological variations in the constituents of milk from well-nourished healthy mothers with babies who are being successfully breast fed can be between individuals and/or in the same individual at different times. Similar differences are to be found with other aspects of body physiology—for example, serum biochemistry.

Genetic variations in the composition of cow's milk have been recognized for decades—for example, the high fat content of Jerseys. Also, in the last 10 years or so, genetic variations in the milk of different breeds of cattle has been demonstrated in their "milk protein systems," notably in the forms of α SI casein and the β-lactoglobulin (120). Despite the very large amount of new scientific information that has become available recently, these authorities maintain that "we have barely scratched the surface of the complex behavior and properties of the (cow's) milk system" and other "fundamentals of dairy chemistry." There are even fewer analyses of the detailed structure of the protein systems in human milk (120). No information seems to be available concerning possible genetic difference in milk composition or lactational ability in varying ethnic groups.

The level of some nutrients varies with breast feeding itself or possibly in relation to the stage of maternal digestion. The fat

content increases with an uninhibited let-down reflex (with a possible appetite-controlling significance (44), and the prolactin produced as a result of sucking appear to have a controlling effect on mammary fat synthesis (44). Periprandial variation in constituents secreted may also occur. Blood levels of sugar, fat, amino acids, and other nutrients will rise at different times after the mother's meals according to their speed of digestion and absorption, and this may make supplies to the breast's secretory cells fluctuate also.

Cyclical chronobiological changes are continually occurring in all living organisms, from plankton to flowers to vertebrates. In man, well-recognized cycles include those that occur each 24 hr (circadian rythms), each month (notably menstruation) and each lifetime, as manifest by aging. Circadian changes in humans involved many aspects of body physiology, including for example, the secretion of steroids, body temperature, the rate of cell division and levels of brain electrical activity.

Some chronobiological variations in the constituents of breast milk are well-known, particularly the diurnal fluctuation in fat content (50). It also seems that, as with pregnancy, lactation can be considered as a "free-running biological cycle," although open-ended and without a clear-cut endpoint. During this cycle, marked changes in composition of human milk occur between the colostrum, with its high protein (protective immunoglobulins, etc., high zinc and pattern of fatty acids, and subsequent mature milk. Later, chronobiological changes in the lactation cycle are unclear and need investigation.

Lastly, the needs of individuals for all nutrients varies, and this is certainly the case for infants. This individuality can be partly taken care of by the "demand and supply" nature of the volume of milk produced in breast feeding, with greater sucking stimulus leading to greater secretion. In addition, the composition may vary with the individual need of the baby, possibly on a genetic basis or as a result of feedback mechanisms acquired transplacentally by the mother while the fetus was in utero. Also, it is possible that stimuli from the nursing baby may affect the milk composition, by as yet unappreciated mechanisms, such as alteration in the details of suckling or even the weight of the baby. These suggestions are speculative and seem fanciful. However, the ability of the female kangaroo simultaneously to secrete milks of quite different compositions from two nipples in response to differing stimulation of the young of varying stages of development may be noted (77).

The physiological variation in composition of human milk is unsurprising. Genetic variations and cyclical changes occur in the milks of other mammals, and, as mentioned, in other body fluids in man. The expectation that breast milk will be standardized entity reflects a common fallacy based on "medical education, thought and practice, for the past 100 years (which has placed emphasis on the constancy of physiological systems, (and) inter alia that constancy is a characteristic of life." Rather the normal healthy human being is an "oscillating system" that is fluctuating chronobiologically (127).

In the solely breast fed infants of well nourished mothers with established lactation and unimpaired let-down reflexes, growth is excellent in the first 4 to 6 months of life and nutritional deficiency is virtually nonexistent, despite variation in milk composition between individuals and in any one individual. Breast feeding does not consist of ingesting milk obtained at a single time, but over a continuing period of time. Human milk can, therefore, be considered as physiologically variable in composition, responding to various factors suggested earlier and doubtless to others, but uniformly adapted to supply the nutrients required for the infant, both as an individual and at the particular stage of growth and development.

Finally, the question of possible disadvantages of rigidly constant formula composition needs consideration. Such is the case with regard to absence of a colostrum-surrogate, but whether inability to match the flexible variability of breast milk is significant or not will only become more apparent when more detailed investigations are un-

dertaken into the mechanisms and purpose of physiological chronobiological changes in human milk.

One conclusion seems inescapable—that is that the present RDA for young babies in the "extero-gestate fetal" stage are in urgent need of reconsideration. In view of the unique biochemical components of human milk (and their interactions), the dyadic nature of nutrition in early infancy and the difficulties of obtaining valid breast milk samples, it would appear that these revisions will pose considerable, perhaps insuperable, difficulties in practice.

Adequacy by growth. It is apparent that the ultimate test of the adequacy of human milk output in breast feeding is not reflected by estimates of volume produced or by the composition, but rather by assessment of physical growth, metabolic equilibrium, and "good health and nutrition." From an immediate and rough point-of-view, adequate growth is normally assessed anthropometrically, usually judged approximately by serial weight gain, and by the absence of recognizable nutritional deficiency, as the main practical yardsticks. Laboratory tests for specific nutrients may rarely be possible, but in any case, are often difficult to evaluate. Clinical impressions concerning "good health," vigor and well-being are helpful, but impossible to measure objectively. Indeed, even the weight "standards of reference" used in the assessment of growth may be inappropriate in that they were collected in the United States and Europe in mainly bottle-fed babies. Biologically, standards are needed derived from breast-fed infants.

There is sufficient evidence from widely scattered areas, including such diverse sources as the United States (58), and the People's Republic of China (125), that solely breast fed infants do well and show satisfactory gains in weight during the first 6 months or so of life when the lactating mothers are well nourished. From about 6 months, flattening of the weight curve usually indicates that the intake of calories and protein are no longer adequate—in other words, that the baby has outgrown the breast as a sole source of food.

The adequacy of unsupplemented human milk (and the prolactin-mediated "supply and demand" nature of breast feeding) is indicated by a recent investigation of 173 pairs of twins in Southern California (1). 23.7% pairs were breast fed, and, of these, 59.5% received no food other than human milk for three months or more, and 21.9% for 6 months or more (1). Growth is being investigated in detail, but in general seemed comparable to those bottle fed.

With the babies of poorly nourished mothers in resource-poor, technically developing countries, difficulties in interpreting growth curves exist in relation to the prevalence and significance of low birth weights in the particular community, in the selection of reference standards thought to be the most appropriate genetically for the particular group, the significance of infections (including diarrhea with fluid loss) and the usual problem of sorting out weight gain in relation to increases in fat, muscle or water-electrolyte retention.

Earlier evidence from various parts of Africa and India in the 1950's indicated that breast feeding, with little or no supplementation, resulted in excellent growth for about the first 5 to 6 months of life (36, 66, 146).

However, as a generalization, more recent studies from such varied, but poorly nourished, parts of the world as New Guinea (5), Ethiopia (32), and Tanzania (113), often show comparable weight curves to those of Western standards of reference only up to about 4 months of age. However, in some studies growth has continued to be similar up to 5 months of age as in Malaysia (31), while in other investigations in Jordan (84), in northeastern Tanzania (113), and in Mexico (23, 94) the weight gain in some babies was reported to have become inadequate after only 3 months. It seems possible, then, that decreasing lengths of satisfactory lactation are becoming evident in poorer communities in some less developed countries, perhaps especially in slum areas.

An additional problem is related to the effect of oral contraceptives on reducing milk secretion (especially with the earlier higher dose of estrogens, and on the composition. The possible range of significance

of the latter is emphasized by recent reviews which reveal the complexity of oral contraceptive interactions with vitamin metabolism in general and difficulties in their interpretation (22, 73, 88).

Conclusions

The investigations summarized in the present account of knowledge concerning the quantity and quality of human milk in both well and poorly nourished communities in different ecological circumstances are very far from satisfactory. Understandably, studies have, on the whole, been piecemeal with different emphases and techniques used in various investigations.

Although not usually appreciated, until the 1975 studies in Sweden (89, 91), New Zealand (100), and the 1977 report from the United Kingdom (29a), the most recent investigations in well-nourished communities were made about a quarter of a century ago.

Likewise, the technical difficulties of obtaining representative samples, especially on a 24 hr basis, can be almost insuperable, especially in the field. Also the degrees of severity, chronicity and specificity of maternal malnutrition (and of maternal depletion from numerous previous reproductive cycles) are rarely indicated, and indeed, with many of these variables are difficult to categorize. Lastly, the questions of genetic differences in lactation ability in different human groups has never been explored adequately (138) and would be difficult to undertake, because of variation in diet and forms of environmental psychosocial stress.

At another level altogether is the fact that most research undertaken has been concerned with gross analyses of occasional samples, with no recognition of the degree of variation seen normally of the more newly recognized considerations mentioned elsewhere, such as the pattern of amino acids, the different protein components, polyenoic fatty acids, polyamines, and nucleotides, and the presence of anti-infective substances.

There is, in fact, a need for coordinated comparative modern studies into all aspects of human lactation in well-fed and in poorly nourished communities, using similar sampling methods and analytic techniques. These would include preferably more than one 24 hr sample, and include investigations covering the volume and major nutrients as well as more recently recognized biochemical components and physio-chemical elements (such as the forms of casein present) in different communities with various levels of maternal over- and under-nutrition, including women using oral contraceptives. These should also include longitudinal samples to investigate the dimensions (and purpose) of physiological variation.

Generalizations

Nevertheless, present-day incomplete knowledge appears to warrant the following generalizations for practical action:

1) Unsupplemented human milk is all that is required to sustain growth and good nutrition for the first six months of life in the babies of well-nourished mothers, who have, therefore, produced fetuses with optimal stores, who have themselves laid down adequate nutritional reserves, including subcutaneous fat, in pregnancy, and who are well-fed during lactation (69).

2) The volume and composition of human milk in poorly nourished women is surprisingly good, possibly due to some metabolic adaptations, but probably usually to their cumulative nutritional detriment ("maternal depletion"). However, it is often suboptimal in quantity and in quality with lower values of fat (calories), water soluble vitamins, vitamin A, and somewhat lower calcium and protein, than in well-nourished women.

3) Limited studies with supplementary feeding of poorly nourished lactating women (and common sense probability) have suggested improvement in volume of output and in nutritional quality of breast milk to be feasible.

4) The adequacy of breast milk as the sole food for the baby is related to the mother's diet in pregnancy; to maternal puerperal calorie reserves in the form of subcutaneous fat; to fetal stores, mainly hepatic; to birth weight; and to the iron obtained from the placental transfusion.

5) Breast milk produced in so-called "late lactation" (e.g., 7 months to 2 years or

more) is insufficient by itself for the rising nutrient needs (and declining stores) of the rapidly growing infant, and forms a decreasing, but, valuable supplementary source of "complete" protein, and of fat, calcium and vitamins.[3]

Practical approaches

If growth, as evidenced by the weight curve, becomes inadequate in solely breast fed babies at 4 months or earlier in poor communities in less developed countries, it is necessary to consider why this "failure to thrive" should be the case. Maternal nutrition is often considered as though it was occurring in isolation, with the mother as a temperamentless, disease-free "breast machine" (88b). As Lindblad et al. (88b) noted:

"The most important variable behind lactation failure in poor women, namely milk volume, does not seem to be primarily dependent on food intake, but the combined stress of maternal disease, undernutrition and the increasingly difficult living conditions in rapidly developing city slum areas"

It follows, therefore, that diagnosis of an individual in a community in relation to lactation failure must be concerned with factors considered to be responsible in some measure, including maternal infections and environmental psychosocial stress. Nevertheless, the two main forms of interference with lactation performance appear to be through the maternal reflexes and through her nutrition, so that the relative significance of these two requires consideration in any individual woman or community.

Interference with reflexes

Present-day infant feeding practices in the particular area should be scrutinized to identify possible practices which may be affecting the two main maternal reflexes responsible for the production and ejection of milk—the prolactin and the let-down reflexes (76a).

Various customs may be found in the traditional culture or, more often, in imported Westernized practices in maternity units (Table 6) which reduce sucking stimulus and, hence, diminish the prolactin secretion (such as the separation of mother and baby in the maternity unit or the taboo on breast feeding in public), and/or create uncertainty and anxiety and thus inhibit the let-down reflex (Fig. 3). Conversely, minor changes in regimen can be introduced without cost and make the initiation of lactation easier (Table 7).

TABLE 6

Puerperal practices in orthodox Western maternity ward, which interfere with lactation, via the prolactin and let-down reflexes. In other cultural circumstances, an analysis for practices facilitating or interfering with these lactation reflexes needs to be undertaken (77).

Practice	Effect
Delaying first breast feed	
Sedated newborn (excess maternal anesthesia)	
Supplying prelacteal and complementary feeds	
Regularly, limited feeds (4 hr) (with no night feeds)	Limitation of sucking and prolactin secretion
Separation of mother and infant ("nurseries")	
Automatic free supply of formula and infant food industry literature	
Uninformed, confused mother	
Tired mother (no food or drink)	
Routine episiotomy (pain)	
Weighing before and after (test feeds)	
Restricting visitors	Anxiety and interference with let-down re-
Unsympathetic health staff ("antidoula effect")	
Automatic free supply of formula and infant food industry literature	

There is little doubt that disturbed reflex behavior is often more important in the causation of lactation failure than maternal subnutrition, unless severe. In devising an appropriate program to improve breast feeding, both aspects need consideration. Conversely, failure to gain weight in the breast fed extero-gestate fetus needs investigation into the effects of the techniques employed on lactation reflexes.

[3] Rohde in Indonesia comments that, in domestic terms, the output in the second year means that the child is receiving at least one 8 oz glass of milk daily, with 3 to 5 g of protein (supplementary to the usual vegetable protein weaning diet), essential fatty acids and 200 to 500 IU of vitamin A (121).

Inadequate maternal nutrition

If the infant is judged to be receiving breast milk, which is insufficient in volume and/or composition because of poor maternal nutrition, three approaches need to be considered:

Cow's milk supplementation. A "logical" possible solution may seem to be the introduction of bottle feeds with cow's milk based formulas from just prior to the usual age of flattening of the weight curve.

In the circumstances of most resource-poor, less developed countries, this approach (allaitement mixte) usually needs to be avoided. It introduces the danger of weanling diarrhea at an early and vulnerable age. It decreases the secretion of breast milk, as it interferes with sucking stimulation and proportional secretion of pituitary prolactin. It interferes with lactation amenorrhea. It is an additional endorsement by the pediatric nutritionist of the unfortunate and unaffordable trend away from breast feeding. Lastly, if viewed on a family or on a large-scale community basis, it has economic, agronomic and food production consequences of very considerable dimensions.

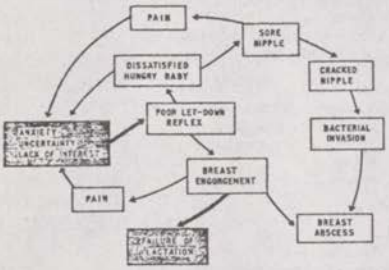

FIG. 3. The anxiety-nursing failure syndrome. Anxiety, uncertainty or lack of interest can inhibit the let-down reflex, often leading to failure of lactation.

Early introduction of semisolids. Again, under majority circumstances in the world, the risks of weanling diarrhea are great if unavoidably unclean semisolid foods are introduced. Also, in average kitchen circumstances in tropical countries and with the foods most often available, it is usually very difficult to prepare digestible, well-tolerated and nutritionally adequate supplementary semisolid foods for an infant in the first semester of life. However, the introduction of semisolids by cup or by spoon would have less effect on the prolactin reflex and hence on lactation performance than cow's milk by bottle and can be based on the use of mixtures of locally available

TABLE 7
Possible modifications in health services designed to promote breastfeeding in a community (77). (1978.)

Health service	Modifications
Prenatal care	Information on breastfeeding (preferably from breastfeeding mothers). Breast preparation. Maternal diet. Emotional preparation for labor.
Puerperal care	Avoid maternal fatigue/anxiety/pain (e.g., allow to eat in early labor; avoid unnecessary episiotomy; relatives and visitors allowed; privacy and relaxed atmosphere; organization of day with breastfeeding in mind). Stimulate lactation (e.g., no prelacteal feeds; first breast feeding as soon as possible; avoid unnecessary maternal anesthesia; permissive schedule; rooming in). Lactation "consultants" (advisers—preferably women who have breast fed); adequate "lying-in-period." In hot weather, extra water to baby by dropper or spoon.
Premature unit	Use of expressed breast milk (preferably fresh). Contact between mother and baby with earliest return to direct breastfeeding.
Children's wards	Accommodation in hospital (or nearby) for mothers of breast fed babies.
Home visiting	Encourage, motivate, support.
Health center	Supplementary food distribution (e.g., formula and weanling foods) according to defined, locally relevant policy.
General	Supportive atmosphere from all staff. Avoid promotion of unwanted commercial infant foods (e.g., samples, posters, calendars, brochures, etc.). Adopt minimal bottle feeding policy and practical health education concerning "biological breastfeeding."

foods, nutritionally blended as "multimixes," particularly based on cereal-legume blends (79).

Supplementation of maternal diet.[4] Current knowledge suggests that the most economical, safe, physiological, and practicable method of approaching the situation is by laying maximum emphasis on feeding the mother during both pregnancy and lactation. Some nutrient stores may be replenished rapidly (e.g., vitamin C); some may take months, particularly calories (subcutaneous fat) and protein (muscle). An optimal diet in pregnancy leads to improved fetal stores and a higher birth weight and more vigorous baby.

Adequate feeding, again based on "multimixes" of locally available foods (79) or sometimes on maternal dietary supplements, during pregnancy (as well as lactation) can assist in insuring adequate maternal weight gain and sufficient nutrient stores, including calorie reserves in the form of subcutaneous fat, as well as a newborn of good weight and with optimal nutritional reserves. Similarly, an appropriate maternal diet, again based on locally available food mixtures, should be the emphasis during lactation, with semisolids slowly introduced to the baby, probably from about the age of 4 to 6 months onwards, depending on local circumstances, particularly the usual weight curve in infancy in the community concerned. Recent studies have shown that the main additional nutrients needed during lactation are less than previously thought (137), and that they can usually be obtained from economical, every-day foods (77).

Evidence for the adequacy of human milk as the sole food for young infants up to 6 months is available, at least in well-nourished communities. There is evidence of improvement in lactation performance, especially the volume of milk produced, with dietary supplementation in less well-fed circumstances, and deterioration with calorie restriction (148).

The message seems clear. As with so much else concerning the health and nutrition of young children, the emphasis should be in large measure on the mother.[5] By feeding her with locally available foods during pregnancy and lactation, it will be possible to optimize the volume and composition of breast milk, to avoid the economic, infective and distributive complexities of introducing cow's milk and bottle feeding unnecessarily, and also to avoid assisting still further a decline in breast feeding on a community basis.

In addition, and at risk of over-repetition, it must be emphasized again that those concerned with infant feeding often do not give adequate appreciation to the associated effects of great nutritional significance of the anti-infective, child spacing and economic significance of human milk and breast feeding.

A quarter of a century ago in 1952, Morrison (101) concluded his painstakingly detailed analysis of available evidence concerning the "yield, proximate principles and inorganic constituents" of human milk by commenting:

> "It is clear that there is plenty of room for work on every constituent. This review may serve to show where special care is needed in sampling technique and the spacing of samples."

The need for further investigations is greater at the present-day in view of the increasing realization of the significance of human milk on a world basis, but especially in resource-poor, less developed countries. Such studies need to take into account modern knowledge of the psychophysiology and endocrinology of lactation, and, if feasible, should be undertaken on a collaborative and comparative basis in various representative ecologies in different parts of the

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[4] In the still relatively affluent Western world, with food increasing greatly in cost but still abundant, probably most mothers obtain their extra calories (and probably most other nutrients also) with little extra expense by taking somewhat larger portions of the dishes in their everyday diet. However, guidance may be needed in widening this diet, and one wonders whether the Nutrition Section, Ministry of Agriculture, or other appropriate body, could suggest economical and culturally acceptable additions to the diet during lactation (and pregnancy). In other words, by advising the mother not only that she needs more calories and protein but also that these can be obtained by eating more mashed potato (with milk) or bread-and-cheese or similar low-cost everyday foods, rather than by consuming large volumes of milk or other relatively costly animal products.

[5] The title of a recent paper by Sosa et al. (128a) encapsulates this approach: "Feed the Nursing Mother: Thereby the Infant".

world. Priority should be given to practical issues of immediate application, particularly the effect of improved maternal diet on lactation and, conversely, the breast's ability to biosynthesize nutrients and to supply these to cover the infant's needs on a continuing basis.

At the same time, within the labyrinth of available data, sufficient knowledge already exists to permit a rational practical approach to be suggested, based on the important information available, on probability and on an understanding of the biological background of man's mammalian needs. As Ounsted and Sleigh (110) comment in a recent paper on "the infant's self-regulation of food intake and weight gain" in the offspring of presumably well-nourished women: "The range of optimal intake and growth rate varies widely, and the individual infant's needs would best be met, if he is allowed to take what he wishes, preferably from his mother only."

Infant feeding is a dyadic phenomenon from many points of view. Nutritionally, an adequate diet in pregnancy, including attention to calories, leads to sufficient fetal stores, an optimal maternal fat bank (needed to cater for a sufficient volume of milk with a "normal" calorie content derived from fat), and a vigorous full-sized neonate (88a) capable of inducing appropriate prolactin secretion. Psychophysiologically, the key roles of the maternal lactation reflexes are also vital to success.

In practice, it may be that Western pediatric nutritionists find themselves in a maze of often conjectural mathematical biochemistry full of circular logic and doubtful data. (The recent halving of the RDA for calories for lactating women seems to give expression to the fundamental uncertainties.)

There is a need for new factual information, although difficulties in obtaining it will be very great. In the well-fed, non-stressed mother it seems increasingly clear that breast feeding represents an unique titration between the mother and baby—a truly dyadic adaptation.

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Addendum

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Dr. JELLIFFE. These are some of the background facts, though, which I think have not been covered, perhaps, by previous speakers.

When it comes to the causes of the decline of breast feeding in developing countries, as you, yourself, sir, and others have said, this is a complex matter, and many people and many factors are involved. Urbanization certainly plays a key role; women going out to work—usually a small number, I stress, in slum areas; the ill-advised, but well-intended distribution of milk through various food aid programs; health services—the maleducation, the lack of education of doctors and nurses and midwives in this regard, and also the regimes in maternity wards which have spread from Western countries to developing countries, which almost seem designed to make breast feeding difficult. Lastly and very importantly is the impact of the infant food industry, and it is this which we are discussing particularly today.

In the time that I have been involved in pediatrics in developing countries, the last 30 years, I have seen this trend develop, and I would stress again that all of these different factors seem to be responsible. More recently, I believe that the impact of the infant food industry has increased, partly, perhaps, because of the decline in the baby boom in the United States and in Europe and the need for finding diversified or alternative markets. To disentangle which factors are responsible in different places is very difficult, indeed, and it is not made any easier by the fact that information on promotional practices of food companies, infant formula companies, obviously, are not disclosed—neither the methods, when they are introduced, the techniques, the effects, and so on.

Promotional practices until recently, I think, have been of two types: direct—and I have a poster here from Nigeria that I would like to pass around—on billboards, radio, TV, through milk nurses, through groceries and stores, and the content and message of these has been extremely subtle and uses the well-known nonnutritional, nonhealth, Madison Avenue type of motivation lure, status, prestige, moderness, and so on. Also—and this is an important point—lactation is dependent physiologically on confidence. It is well known that women who are not confident, who have anxiety are likely to fail. And this is what makes advertising in this regard particularly potent. Once anxiety has been sold, once confidence has been sabotaged, then the road to failure of lactation or inadequate lactation is made very much more easy.

Also, I regret to say that the promotion—and it is not just advertising—through the health services has been a very large part of this whole story. The free samples, the glossy brochures, the assistance, the gifts, the advertising in professional journals, and so forth, have been and still are a very important part of this whole complex.

Recent changes have occurred, I think, because of the pressure brought to bear on infant formula companies, and these have been in some modification of practices, especially direct advertising to the public. How much of this is cosmetic, how much of this is going to continue, time will tell. At the same time, there is no sign whatsoever of there being any substantial change in the promotion, in the persuasion, in the manipulation, in the "courting," as Dr. Jackson called it, of the health profession.

The codes of ethics that have been introduced is certainly a step in the right direction, but at the present moment, as Leah Margulies has

said, these, in fact, are really very feeble, flabby documents which are full of holes, full of inconsistencies, and also, at the same time, the chances of them being carried out in the periphery, where the man on the spot is judged by the sales that he makes, are very slight indeed, in my opinion.

As to the future, I would like to suggest one or two items which might be considered. The question is how to proceed in a free market economy, and I think that three aspects may need some consideration here. First of all, the infant food industry: In my opinion, this has become overdominant insofar as the nutrition and feeding of young children is concerned, both in the industrialized and, certainly, even more so, in the developing countries. There is a basic conflict of interest there which cannot be escaped, the conflict of interest between business and profits and social, nutritional, and health needs.

However, I believe that there is a technological need for some types of infant formulas and infant foods in developing countries. For example, not all women are going to be able to breast feed their babies. For those who cannot for various reasons—going out to work, or for various other reasons—this small number needs some type of formula. They need a low-cost, least-advertised type of formula.

Second, health services need to be revised. The education of health professionals needs to be relooked at. This is beginning to happen, as we heard from the Philippines and elsewhere. There is a need for education and information on biological methods of infant feeding, including breast feeding, and also, I contend, sir, on the dynamics of the marketplace—how to avoid the kind of situations where you find yourself being manipulated by assistance by infant food companies and unwittingly giving endorsement by association to inappropriate products.

Lastly, I think there is a need for consciousness raising in policy makers to make them see that the nutrition of the mother and young child is very important for national development; that the breast feeding is an important component of this; and that the influence of the infant food industry needs scrutiny to see its relevance or otherwise in developing countries. There is a need, I believe, for an extended monitoring process, which has been shown to be needed in a free market enterprise in other industries, such as the tobacco and sugar industries.

I think, for example, we can sometimes learn by looking at the practices of other types of food manufacturers. And I have a tin which I would like to pass around which is for Esbilac, which is a tin of formula designed for puppies. On this, you will note, Mr. Chairman, that there is a warning that this should not be given to puppies in the first few days of life, but, rather, colostrum is recommended to avoid infection. One cannot help but wonder whether humans are not second-class puppies.

There is a need, I believe, for supporting programs, jointly undertaken with colleagues in developing countries, to try to devise methods to repromote, to redevelop breast feeding. I believe this is not a lost concern by any means. There are a large number of examples in reemergence in different parts of the world. I think we ought to be able to contribute something from the United States.

Lastly, I would suggest that the present U.S. policy legislation on international aid and assistance—the Humphrey bill, for example, comments on a large number of things that we have touched on today: nutrition, infection, culturally appropriate family planning, self-sufficiency, food production, avoidance of waste, village-level technology, et cetera. In my contention, sir, all of the matters that we have touched on here and all of this move from breast feeding to bottle feeding is a minus in this regard, is a retreat and ought to be considered when this action from this bill comes into practice.

Lastly, I believe that it would be very useful, indeed, to have a committee or a counsel, or some entity of that sort, which would be advisory on international infant nutrition to the appropriate body in the U.S. Government. I would suggest that this should be under some type of body and with members with considerable experience in this field, and with no link to the infant food industry, but with every opportunity to consult with both the infant food industry representatives and also with the various consumer action groups.

Thank you, sir.

[The prepared statement of Dr. Jelliffe follows:]

FEEDING YOUNG INFANTS IN DEVELOPING COUNTRIES

(Comments on the Current Situation and Future Needs)*

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The consequences of any widespread change from breast feeding to bottle feeding are profound and underappreciated -- both in relatively well-to-do and in poor communities. There are inherent potential side-effects and hazards in bottle feeding with cow's milk-based formulas in all communities, including infantile cow's milk protein allergy, infections (including those in newborn who have not received colostrum), metabolic conditions (excessive intakes of amino acids or sodium) and some cases of infantile obesity, together with a possible role in "disorders of mothering", such as child abuse, and of later subsequent psychological disorders in children and adults. Similar problems exist in fact -- or in potential -- in the elite Westernized minorities in Third World countries.(3)

However, the ill-effects of declining breast feeding -- notably marasmus** and infective diarrhea -- become major causes of disease and death in infancy

*Based on 26 years resident experience in developing countries, including Professor of Child Health, University of Calcutta, India (1954-56), Professor of Pediatrics, University of East Africa, Makerere Medical School, Kampala, Uganda (1959-66) and Professor of Community Nutrition and Director, Caribbean Food and Nutrition Institute, University of the West Indies, Jamaica (1966-72).

**Marasmus: very severe malnutrition in infancy due to very low intakes of calories and protein, reflected by marked wasting and growth failure (body weight 60% or less)(1,2) of standard.

in areas where poverty, poor home hygiene and low levels of parental education make very dilute, contaminated bottle feedings unavoidable. Such circumstances are those of the vast majority in developing countries, and can be relevant to impoverished disadvantaged communities anywhere, including the U.S.A.

It has been estimated that some 10 million cases of marasmus and diarrhea occur annually in infants in developing countries, related in part to inadequate bottle feeding. Also, and not widely recognized, moves from breast to bottle feeding interfere with biological child spacing and, on a community basis, increase the rate of population growth. They also add a very considerable economic burden to both family and country. Details of the magnitude of these (and other) ill-consequences are given in Appendix: I.

High levels of concern with the effects of declining breast feeding in developing countries have been expressed in resolutions by numerous international bodies working for the improvement of the health of young children and for the improvement of world food supplies; these include the World Health Oranization, UNICEF, the Food and Agriculture Organization, the International Pediatric Association, etc.[3]

The present situation with regard to harmful infant feeding practices in developing countries (and especially the changes from breast feeding to bottle feeding) is the result of many forces that have been in operation in recent years. These include the inappropriate training of health professionals and the development of maternity and pediatric services which make

breast feeding difficult to undertake ("iatrogenic malnutrition"); urbanization and the changing role of women, with some (usually a small percentage) with salaried employment away from their home; the well-intentioned distribution of dried milk in supplementary feeding programs; and the marketing policies of the infant formula industry, including U.S. companies ("commerciogenic malnutrition").

Influence of Formula Companies

In recent decades, advertising by infant formula companies from industrialized countries, including the U.S.A., has spread throughout much of the developing world. This has been undertaken with huge budgets through all channels, including those that reach the public directly, such as the radio (and television) in the vernacular, through posters and handouts, and through the use of "milk nurses" (uninformed, salaried, home-visiting sales agents). Such advertising has been based on the use of modern Madison Avenue motivation, including prestige and modernness.

Promotional activities have also been directed through the health services, with, for example, free samples to all mothers discharged from maternity units, and with attractive posters, calendars, booklets, product samples, etc., made widely available in health centers and outpatients. In addition, a great deal of low-cost, often tax-free indirect promotion and opinion molding has been undertaken by lavish assistance to professionals in the forms of social entertainment at conferences, travel and fellowships, and of funds for research.*

*Similar issues were raised by the Senate Subcommittee on Health in 1974 when it was estimated that the 20 largest drug companies in the U.S.A. spent some $58 million annually on gifts and "reminder items" for physicians and nurses.

Such promotional activities are particularly harmful in developing countries, when poverty and poor home hygiene make the use of costly formulas impossible to achieve in sufficient quantities and in a clean manner. Also, and underappreciated, successful breast feeding literally depends physiologically on confidence. Advertising can have the subtle and unique side-effect of causing anxiety and doubt, and thus undermining the production of the rival product, human milk.

Recent Changes

As a result of scientific papers in the 1960s, of discussion by the PAG (Protein-Calorie Advisory Group) of the United Nations in 1971, and of various legal and protest activities in the U.S.A. and elsewhere from 1974, the infant formula industry has come under continuing criticism because of the harmful effects that result from promotion of formulas in developing countries.

As a result of such charges out without conceding that their policies have ever been detrimental, major formula companies, including American companies, have reacted by developing Codes of Ethics, and by modification of some practices (such as advertising on the radio or the use of "milk nurses").

One Code of Ethics has been drawn up by Swiss-headquartered "International Council of Infant Food Industries" (ICIFI), which has one American company (Wyeth International) among its 8 members. Another company (Ross Laboratories) has its own Code.

The development of such Codes has been the cause for self-congratulatory pronouncements by the formula industry and, indeed, represent steps in the right direction, not least because this suggests obliquely that earlier policies were unethical.

However, the present Codes are ambiguous, general and full of high-sounding declarations which are evasive or impossible to achieve. For example, in the ICIFI Code paragraph 4 "without implication that any product is superior to the breast milk of healthy mothers" circumvents the issue of such false advertising as "just like mother's milk"; while paragraph 6 notes the need "to inform mothers of the importance of, and methods of obtaining, safe water for breast milk substitutes", an impossibility in most developing countries. Also, the likelihood of the local sales representative in a distant developing country being seriously concerned with voluntarily taking measures which will limit sales, or will promote the rival product, human milk, would be completely contradictory to business practice.

Future Needs

Improving the nutrition of young children (and their mothers) in developing countries plainly involves many wider social issues, including income distribution, the development of primary health care services, legislation and services for working mothers, and the improvement of water supplies, etc. In the context of improving the feeding of young infants in developing countries, the following three areas need high-lighting:

(i) Role of the infant food industry. The present role of the infant

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food industry in developing countries is over-dominant and inappropriate, as conflicts of interest between profit and social or health issues are bound to occur frequently. However, expertise in food technology is needed in various countries for the production of some of the following: low-cost, minimally advertised formulas, for use when really indicated (e.g. with the mother dead or working away from home, or with abandoned babies, etc.); economical nutritious weaning food mixtures, based as far as possible on ingredients from within the country and with relevance to local customs and needs; low-cost maternal dietary supplements, for use for reinforcing the mother's diet in pregnancy and lactation, etc.

(ii) Role of the Health Professional. A basic need, as in wider issues of nutrition, is for more relevantly educated health professionals. With regard to the present-day flood of new scientific knowledge concerning breast feeding and human milk, there is a great need for the inclusion of up-to-date theoretical and practical information, concerning the psychophysiology and management of lactation (in which much assistance can be obtained from such voluntary groups as La Leche League International), as well as biochemical, nutritional, anti-infective and economic perspectives. Equally, there is as much -- or more -- need for health professionals to be educated concerning the dynamics of the market place, so that they can make informed choices concerning the advisability or otherwise of accepting support, including advertising in professional

journals, from industry without inadvertently finding themselves constrained by "manipulation by assistance" or by "endorsement by association".

(iii) Role of Policy Makers. There is great need for consciousness raising among policy makers in different countries concerning: (a) the great significance of sound infant nutrition with regard to ill-health, mortality and long-term consequences of malnutrition, (b) the current realization that this needs to be striven for mainly through "biological infant feeding" by breast feeding and by using local resources for home-prepared mixtures both for weaning and for pregnant and lactating women, and (c) the relevance of this to national economics, to the best use of foreign exchange, to considerations concerning importation of infant foods and to the relevance (or otherwise) of the activities of infant formula companies to these goals.

In general terms, policy related to processed infant foods in developing countries should take into account the following four principles:

(a) Processed infant foods need to be geared to the real nutritional needs of priority ages of young children and mothers in the area.

(b) Processed infant foods need to be promoted (or not) with regard to their economic feasibility, within the constraints of family budgets and the national income.

(c) Processed infant foods must not be advertised and promoted if and when they are culturally, socially and economically inappropriate for the particular community.

(d) Processed infant foods must not be promoted if they will lead to the destruction of an existing satisfactory pattern of infant feeding, particularly breast feeding, which cannot be replaced by the proposed substitute.

As is normal in the free enterprise system, appropriate forms of legislation and monitoring of activities will need to be developed to correct the inappropriate promotion of formulas. World-wide experience with other industries, such as, for example, tobacco and sugar, indicate that voluntary self-regulation is not effective and that statutory controls are required.

From other points of view, national policy should insist that adequate education in nutrition, including infant feeding, especially breast feeding, to be included in the curricula of medical, nursing and other schools. Also, modern nutrition education for the public needs to be funded from governmental sources and channeled through the mass media, health services, school system, etc.

Conclusions

The widespread use of bottle feeding in developing countries has an adverse effect on child health and nutrition, on attempts to slow population

growth, on increasing local food production and avoiding of waste, and on moves to improve family and national economic levels. All of these effects are exactly contrary to the goals of modern revised U.S. policy legislation currently under consideration by Congress,* which rightly stress improvement in health (including the prevention of infections) and nutrition, culturally acceptable family planning, self-sufficiency in food production, labor intensive village-level approaches to problems, the use of intermediate technology, etc.

In the present-day rethinking and reorganization of U.S. assistance to developing countries, American activities need to be considered that affect infant nutrition in these vast and populous areas, including breast feeding, and how these can be most beneficially incorporated into such countries own programs for national development.

To achieve this substantial support is needed for joint activities by workers from developing countries and from the U.S. into the cost-effectiveness of practical programs of infant feeding designed for villages and slum areas (including both the optimal use of local community resources and of the expertise of food technology), and into methods of information dissemination for policy makers and for health professionals.

To give technical guidance to such endeavors, an international infant nutrition advisory committee is needed. The membership of such a committee should be made up of health professionals and nutritionists, both from developing countries and the U.S., who are highly experienced in community pediatric

*International Development Corporation Act of 1978 -- S.2420.

nutrition in the Third World and who have no conflict of interest as a result of support from the infant food industry. Such a committee should be under the auspices of a prestigious national institution, such as the National Academy of Sciences, which is an independent scientific body without budgetary dependence on the infant food industry. Such a committee would be expected to call on representatives of the infant food industry and on consumer groups to give written or oral reports on appropriate matters.

There is no doubt that with such a committee it would be possible to assist in channeling U.S. governmental assistance and industrial activities to achieve the greatest benefit on the nutrition of young children in developing countries.

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Senator KENNEDY. Thank you very much, Doctor.

Just from your own experience, what kind of monitoring takes place now by companies in the use of formula; do you know?

Dr. JELLIFFE. Well, these various codes of ethics which have been revised recently, Mr. Chairman, are indicators. However, the best response, perhaps the best yardstick, is what is actually happening. In the last few years, as a result of protests and concern by various groups, there has been a cutback in the more overt types of direct advertising to populations through the radio and through the TV, and the like.

Senator KENNEDY. We are still talking about a major industry, though; we are still talking about an industry that is estimated in excess of $1 billion a year.

Dr. JELLIFFE. Right.

Senator KENNEDY. And I understand that you believe that there would be a saving of 10 million infant lives a year with the return of breast feeding, important relief in terms of economic pressures of some families, and important implications in terms of population control with the return of breast feeding.

Dr. JELLIFFE. Yes. I think the 10 million is an estimate of the number of cases of maramus and diarrhea which could be avoided, and of those, many would die. And I think, also, sir, the question of the national and, indeed, world food waste of this move from the breast to bottle needs considerable stress.

Senator KENNEDY. Thank you.

Dr. Horwitz?

Dr. HORWITZ. Thank you very much, Mr. Chairman.

Senator KENNEDY. Let us try and have these statements limited to 10 minutes a piece, if that is possible.

Dr. HORWITZ. Thank you. After what the first panel said, and especially after the comments of Dr. Jelliffe, I do not believe there is much to add; after all, Dr. Jelliffe practically started this movement with his felicitous expression "commerciogenic malnutrition" at the end of the 1960's.

Mr. Chairman, I am afraid there is a need to consider the main determinants of the problem we are facing at present, namely, the decline in breast feeding and the excessive promotion and advertising of infant processed foods. It appears to be the result of four main components:

First, the national and international producers of infant food—and I am going to comment on them later on.

Second, and perhaps the most important, the governments themselves of the developing countries, because either they have not enacted legislation and regulations to deal with the problem, or if they have, these have not been enforced effectively. This may reflect to my mind a more significant fact; namely, that governments do not ascribe priority to nutrition in their plans for social and economic development, and they should.

Third, the health professionals—in particular, physicians, nurses, midwives, nutritionists, and dieticians—who willingly or unwillingly contribute also to dissuade mothers with regard to breast feeding and to impress on them bottle feeding. Some of these professionals may have even been lured by the food industry and spread this wrong gospel.

And, fourth, the lack of organized consumer group movements in most of the developing countries. The poor are usually powerless and cannot exercise the appropriate pressure for their benefit. In this regard, consumer advocate groups in the developed countries, such as the ones we heard this morning, calling the attention of international corporations with reference to their marketing and promotional procedures should be commended. In essence, the efforts of these consumer groups are addressed to human beings, wherever they are in the world, who cannot represent themselves vis-a-vis their local authorities.

For a long range solution, Mr. Chairman, we need the positive interaction of all four of these components. Only governments can, and should, regulate commerce within the boundaries of their countries, and this applies to products of both national and international companies. If governments do not fulfill properly this significant social responsibility, they are bound to be pressured by consumers demanding adequate biologic control of products.

I happen to believe that corporations have a larger role to play than an ethical marketing and advertising among those who can afford their products. They can effectively cooperate with governments in serving the needy. They have the expertise in research, technology, distribution, and advertising that could be applied to the processing of foods, based on traditionally used staples and distributed through the institutional programs sponsored by governments.

The health professionals now must become the main promoters of the "back to breast feeding" movement and physiological weaning—the latter, as Dr. Jelliffe just mentioned, with the simplest and least costly formula. They must keep currently informed of advances in their field. It is, indeed, better for the general practitioners to read scientific literature, and not the propaganda distributed to them personally by the commercial concerns.

Most of the libraries in the developing countries usually do not keep up-to-date scientific information. This is why, Mr. Chairman, I am suggesting once again as an urgent matter, the need for a network of biomedical information in each region of the world.

In the Americas, we have the beginnings in the Regional Library of Medicine, located in Sao Paulo, Brazil, sponsored by the Pan American Health Organization, and with the continuous, efficient, and generous support of the National Library of Medicine of the National Institutes of Health.

Of great value would also be the creation of an international lactation center, as suggested by the Jelliffes, to collect and disseminate information on breast feeding and to evaluate promotional programs to reverse its decline, among other responsibilities.

But, Mr. Chairman, if all of this is done by governments, corporations, and health professionals, with corporations proceeding under ethical codes duly enforced by governments. I submit that the impact on the world's nutrition problem will be only marginal. For the largest source of mothers and children at risk of nutritional deficiencies lies in the urban and rural families living on the fringe of the economic process, just eking out an existence. The usual development programs simply do not reach them, and they should. It is estimated that in the Americas, 40 percent of the population—i.e., 120 million human beings—has no access, or a very difficult one, to a health unit. Their

only recourse lies in the traditional village service, developed through centuries and performed by empiricists and indigenous healers.

Despite the fact that breast feeding is practiced longer in rural areas than in urban ones, weaning is usually incomplete in terms of quantity of the diet and quality of the nutrients.

Therefore, Mr. Chairman, to summarize, although I believe that these hearings are extremely important, I would respectfully submit that the Senate call the attention of governments to the larger problem: The malnutrition of the poor, suggesting that nutrition consideration should be included in national development plans; that agricultural production should be guided to nutrition objectives, therefore, more food crops than cash crops; and that nutrition interventions should be introduced in the health care system, particularly in primary health care. I believe that if governments act on these bases, a start will be made to reduce malnutrition of the real poor in an organized and systematic way. This is not happening today.

[The prepared statement of Dr. Horwitz follows:]

STATEMENT OF

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DIRECTOR EMERITUS

PAN AMERICAN SANITARY BUREAU

REGIONAL OFFICE FOR THE AMERICAS

OF THE WORLD HEALTH ORGANIZATION

BEFORE THE

SENATE SUBCOMMITTEE ON HEALTH AND

SCIENTIFIC RESEARCH

WASHINGTON, D.C.

MAY 23, 1978

PROMOTION AND MARKETING OF INFANT FORMULAS AND THE DECLINE OF BREAST-FEEDING IN UNDERDEVELOPED COUNTRIES

Mr. Chairman: It is indeed a distinction and a pleasure to appear before your Subcommittee to testify on a problem vital to the developing societies of the world. I refer to a balanced diet for vulnerable groups, namely, pregnant and lactating mothers and children under three. This hearing focuses on the advantages and disadvantages of using national and international industrialized baby foods amidst underdevelopment. It is not a new controversy, but rather an ongoing one that has had further overtones since it became clear that excessive--and mostly preventable--early childhood mortality was, among other factors, the result of the substitution of artificial lactation for natural one, the bottle for the breast. It is not that the former is inadequate to fill the nutritional needs of the infant, but in the usual conditions that besiege poor families in terms of income, environment, and education, artificial lactation frequently renders results contrary to those expected. Instead of normal growth and development, it induces morbidity and mortality in children under two.[1] In synthesis, products that are safe and efficient per se become unsafe--even dangerous--and inefficient as a result of misguided and unrestrained promotion and advertising in combination with weak or absent governmental regulations.

Since Jelliffe coined the felicitous expression "commerciogenic malnutrition" at the end of the sixties, the problem has become of world concern. With great lucidity he analyzed its causes and consequences and stated that "the infant food industry is not helping

and, on balance, probably is a deleterious force in regard to the nutrition of young children in technically developing countries." It is time for a dialogue, he said, and he invited the industry to ponder the need for self-regulation of advertising and to pursue less profitable and more constructive means of cooperation with governments in the quest of reducing malnutrition and its resultant mortality.[2]

In discussing the decline of breast-feeding, Berg considers that "in most developing countries, the greater the sophistication, the worse the lactation: the bottle has become a status symbol." He adds that "the silent loss of such a major resource is cause for concern. Steps can be taken and the size and implications of the problem should be examined and techniques be carefully designed to deal with it. For the vulnerable infant and young children, an effective public effort to counter the current trend may be of greater significance than any other form of nutrition intervention."[3]

A rather recent resolution of the World Health Assembly[4] reiterates the importance of natural feeding for child survival and harmonious growth and development. It urges the Member Governments, as well as the Secretariat of the World Health Organization, to promote the practice through the provision of suitable facilities for working mothers, regulation of the marketing of baby foods, and the development of motivational campaigns for the general public and for health personnel. The consensus came in light of the trend toward abandonment of this essential practice in the industrial societies--where it may not be of vital importance--[5] and, by imitation, in the developing ones, where its

increasing decline has exposed children to heightened risks of disease and death.

We shall not attempt to discuss the causes of this change in a behavior pattern shaped to a great extent by the winds of modernization. We doubt that all of them have been identified,[6-7] for they are inherent in the culture and mores of each social setting; hence the need for national information as a basis for rational programs. It can be inferred, however, that among the contributory factors to be considered are the newer systems for the production of goods and services, the increasing participation of women in these systems, the greater opportunities so rightly being opened to them for education and advancement, and the reduced time available to mothers for child-rearing as a result of the stresses brought upon them by large numbers of offspring in rural areas and tensions and constraints in the cities. As we already mentioned, another factor is the competition in the commercial advertising of baby foods by both national and international producers, disrupting breast-feeding and substituting for clean and uncontaminated human milk a costly mixture which is usually prepared by the mother diluting the nutrients and adding bacteria--some of them pathogens, leading to malnutrition and infections, mainly diarrheas. Normal inhibitions, lack of facilities at the place of work for natural lactation, and a tendency to imitate those who, having the means, are feeding their infants artificially--these showing normal growth--are also to be considered in a study of the problem.

The recently created Subcommittee on Nutrition of the United

Nations System has also dealt with the issue and emphasized, inter alia, the need to provide information both, in technical form, to professionals and, through the media, to the public, on the relative merits of different forms of feeding, in particular those based on indigenous crops. It also recognized the significance of exploring the value and effect of laws and regulations as they influence breast-feeding and urged inclusion of the subject of child feeding in formal and informal educational curricula.[8]

Consumer advocate groups constitute a new element in this most singular equation involving peoples of developing societies, governments, and the international concerns that sell infant foods. Their pressures on the companies to restrain marketing and promotional procedures so as to prevent the adverse effects of their products if misused should be commended. For, in essence, the efforts of these consumer groups are addressed to human beings, wherever they are in the world, who are powerless because they are poor. Positive results are beginning to accrue, and this hearing could be included among them. The formulation of a Code of Ethics by the International Council of Infant Food Industries[9] is another indicator of right purposes, provided that it is amended in accordance with the recommendations of the Protein Advisory Group.[10]

The skeptics may believe that there is no hope that a rational balance between profit and social service can ever be established. Corporations are intrinsically unable, they claim, to produce formulas that the poor can afford. Perhaps history serves them well, for ever since ancient times--going as far back as the period of the Phoenicians--commerce has not been the best source of moral

principles, inasmuch as nonregulated profit breeds greed. For the eclectics--and I count myself among them--commerce has a constructive role to play, cooperating with governments in serving the needy. Corporations have the expertise in research, technology, advertising, and the distribution of products which, properly adapted to local conditions and cultural practices, could render very effective assistance to governments in their efforts to ensure a balanced and sufficient diet for all, with particular attention to the vulnerable groups. As a matter of principle, in all their dealings, food industrial concerns, both national and international, must adapt their production and marketing systems to policies, regulations, and the programs of governments. It is indeed unethical to take advantage of the absence of such mechanisms, or of their faulty implementation, as is common in the less developed countries, to increase profit with no regard to the potential consequences in disease and death among those most in need. Only governments can--and they must--enforce legislation related to commerce within their country's boundaries. And business must be held accountable for practices that may induce deleterious effects in human beings misguided by the advertising of products. Dwyer,[11] Berg,[12] and Jelliffe,[13] among others, have analyzed in detail [illegible] actions by governments, manufacturers, voluntary groups, and international agencies designed to promote a "back to breast-feeding movement" and rationalize infant food production and marketing.

We agree with the Jelliffes when they state that "the pediatric nutritionist is left increasingly frustrated by the well

financed, steam roller, marketing techniques of the food industry to sell totally unaffordable and inappropriate infant foods in impoverished communities, while mouthing sanctimonious platitudes about their world role in improving child nutrition."[14] Still, the health professions, particularly medicine, need to review their formal educational process. The latter has been frequently stigmatized as being disease- and not health-oriented, and, as a consequence, emphasis is placed on treatment rather than on prevention, on individual more than on community care. Furthermore, health problems of high incidence are not always analyzed in depth or with an ecologic approach that covers the entire spectrum of biologic and socioeconomic causes and consequences as a basis for solution. Malnutrition is a singular case in point, and within it the decline of breast-feeding can be attributed, to some extent, to the negligence of health professionals--mostly for lack of up-to-date scientific information.[15] Some may have been lured by the food industry into spreading the gospel of baby formulas as equivalent to breast-feeding. Fortunately, a reaction--long overdue--is already occurring. However, it will not be successful unless: (1) governments actively enforce commercial regulations in this field and implement nutrition programs with increasing coverage; (2) consumer advocates in each country organize themselves for adequate actions; and (3) the health professions contribute to the government's policies, plans, and practices and keep currently informed on advances in their areas of specialization. The need for a network of biomedical information in each region of the world has become urgent. In the Americas, we already

have a beginning in the Regional Library of Medicine, located in Sao Paulo, Brazil, and sponsored by the Pan American Health Organization with the continuous, efficient, and generous support of the National Library of Medicine of the U.S. National Institutes of Health. As part of its general functions, this network could concentrate in the distribution of specific references on infant nutrition to pediatricians, general practitioners, and other health professionals in the Americas. Of great value, also, would be the creation of an international lactation center, as suggested by the Jelliffes,[16] to collect and disseminate information, to encourage operational research on the magnitude and consequences of the decline of breast-feeding as well as the spread of artificial lactation, and to evaluate promotional programs to reverse this trend, among other responsibilities.

Whether or not it is true that the self-reformed corporations, as they claim, are marketing their products only among people who can purchase and use them properly, the fact remains that families in this category in the developing countries constitute a small proportion of the total population and their children therefore represent a minority of those exposed to the risk of malnutrition. Health professionals with a preventive outlook, convinced of the irreplaceable value of breast-feeding, still will practice, at least, within the realm of the health care system; and this is limited. For instance, at present it is estimated that in the Americas 40 percent of the population has no access to a health post or else great difficulty in reaching one. This is equivalent to approximately 120 million human beings, most of whom live in

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communities of less than 2000 inhabitants scattered in rural Latin America and the Carribbean area. Their only health recourse lies in the traditional village service, developed through centuries and performed by empiricists and indigenous healers. Despite the fact that breast-feeding is practiced in these communities for a much longer time than in urban ones, weaning is usually incomplete in terms of quantity of the diet and quality of the nutrients. As a result, severe protein-calorie malnutrition prevails and infant and early childhood mortality is high. Breast-feeding tends to be less common and of shorter duration as these groups become more urbanized and medical advice is more readily available.[17] We believe that a similar situation exists in the other regions of the developing world.

The lack of an infrastructure makes the distribution of industrialized products extremly difficult. A logical alternative would be to facilitate the production of enough of the traditional staples at the household ground or plot as part of rural development efforts. This is a most important responsibility of governments, with the assistance, when requested, of the international agencies--bilateral and multilateral, technical, and financial.

We submit that the incidence of malnutrition remains unchanged and is even growing in the poverty-stricken countries of the world, because programs are not addressed to the vulnerable groups in the rural areas and the shantytowns, and where they are, they are fragmented and have low coverage.

Measures proposed do not usually fit local conditions, dietary

practices, financial possibilities, and cultural traits. Nutrition objectives are either absent or have no priority in health policy and programs, and no well-tested methodology is available to introduce them into primary health care. The role of the communities through their natural leaders has not been clearly defined, and it is important to enlist their cooperation. Most significant of all, nutrition considerations are not included in development strategies, and agriculture production is not consistently guided toward improvement of the nutritional status of the people. Few governments in the developing countries with a market or mixed economy show the political will to take and maintain the series of decisions that are essential to progressively reduce malnutrition and to ensure sufficient diet for all the people.

We do not believe that anything as vital to society as [illegible]tion should be left to the whims of commerce and to the vagaries of the international market, for it is the first item on the social agenda of every country. Although we are more precise at present in our language, we still seem to be too long on rhetoric and too short on accomplishments--and accomplishments in this field mean better maternal nutrition, healthier offspring, and the normal intellectual and physical growth of children.

Mr. Chairman, the importance of these hearings is evident. It is to be hoped that governments in the developing countries will create or strengthen their systems for the regulation of commerce of baby foods. It is also to be expected that the [illegible]porations will market and advertise their products only among

those families that can afford them and with due respect for national legislation. It is imperative that the health professionals become the main promoters of "the back to breast-feeding movement" and of a weaning process that is consonant with local dietary characteristics and possibilities. However, when all of this is done, the impact on the nutrition problem in the world will be only marginal. For the larger source of mothers and children at risk of nutritional deficiencies corresponds to those urban and rural families who live on the fringe of the economic process, barely eking out an existence. The usual development programs simply do not reach them--and they should. I would respectfully suggest, Mr. Chairman, that your Subcommittee, while emphasizing the purpose of these hearings in terms of a more humane marketing and advertising of infant foods, call the attention of governments to the larger problem: malnutrition of the real poor and its consequences, and the urgency of assigning top priority to this matter in their social and economic development plans.

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Senator KENNEDY. Dr. Carballo?

Dr. CARBALLO. Thank you. The World Health Organization is one of the specialized agencies of the U.N. system. It is composed of 151 member states, and its objective is the attainment by all peoples of the highest possible level of health. As the U.N. agency for planning and coordinating health activities on a global basis, the WHO promotes medical and health-related research, develops health regulations, undertakes surveillance of communicable diseases, collects and disseminates data on health and health-related issues, and sets standards for the quality control of drugs, vaccines, and other substances related to health.

The position of the World Health Organization on the question of infant feeding has always been, and continues to be, that breast feeding is ideally suited to the overall health and well-being of the young infant, and that breast milk is the food of choice during early infancy.

In 1974, the World Health Assembly, the highest governing body of the organization, voiced concern for the general decline in breast feeding as one of the factors contributing to high rates of infant mortality and malnutrition. It resolved that the Organization intensify its activities in this area.

In response to this, the World Health Organization initiated a number of studies in nine countries. The objective of these studies was to measure the proportion of mothers breast feeding, how long they breast feed for, and to identify factors associated with the patterns of breast feeding in order to define and direct intervention measures designed to promote and maintain breast feeding.

Nine countries participated in these collaborative studies. They were Guatemala, Chile, Ethiopia, Zaire, Nigeria, India, the Philippines, Hungary, and Sweden. In each of the counties that were studied, population groups were taken from traditionally rural areas, urban poor and urban advantaged backgrounds. All together, 24,000 mother-child pairs were studied. The format that was used was a standardized approach followed by all investigators in all nine countries. The data collected represented the period 1975 to 1977.

A number of factors were taken into account: background characteristics——

Senator KENNEDY. If you would be good enough to summarize at least the principal conclusions or findings of these studies.

Dr. CARBALLO. Fine. Then, let me emphasize, first of all, that this is a brief and preliminary overview of the data we collected.

The major differentiating variable was whether the mother belonged and functioned within a rural or urban community; within urban communities, the degree of breast feeding, the prevalence of breast feeding varied considerably by socioeconomic background and educational status. This said, we can report now on the patterns observed between the countries.

The lowest percentage of mothers initiating breast feeding was found in the Philippines and Guatemala. The highest percentages were in Nigeria and Zaire. In the Philippines, the trend away from breast feeding appears to have become pronounced throughout the urban community. Our data show, for example, that one-third of all mothers in the area sampled who came from economically advantaged backgrounds never attempted to initiate breast feeding, and in the

urban poor community, one-sixth of all the mothers interviewed indicated again never having breast fed. Although the proportion of mothers in the area sampletd who came from economically advantaged not breast feed is much lower—6 percent—the significance of this situation is best appreciated if one considers that the percentages of mothers not breast feeding among all social groups studied in Hungary and in Sweden, both of which are industrialized countries, were 3 percent and 7 percent, respectively. In other words, if one compares the situation of the Philippines with that of Hungary, 10 times as many Filipino mothers coming from an economically advantaged background did not breast feed, and in the case of the urban poor, five times as many did not breast feed.

Similarly, in Guatemala, 23 percent of mothers coming from an urban economically advantaged background said that they had never breast fed the index child, and the corresponding percentage for the urban poor in Guatemala was 9 percent. Again, the contrast with the situation, for example, in Hungary is marked.

On the other extreme, we have the situation in Nigeria, Zaire, and India, where in all social groups studied, virtually all mothers breast fed. All the other countries fell within these two extremes. The situation among the urban community of Chile and the economically advantaged groups of Ethiopia approximated those observed in Sweden.

When mothers who had never breast fed were asked why they had not done so, the most frequent response given was that they had "no milk" or "insufficient milk." Such a high percentage of nonbreast feeding as is reported above, however, is difficult to explain on purely biological grounds, and this is confirmed most clearly by the corresponding data from Nigeria, Zaire, and India. The data, moreover, indicate that such factors as the age, parity and material health of the mother during pregnancy had little to do with breast feeding performance. Similarly, the data suggest that, in general, there was no significant association between initiation of breast feeding and family background and residential stability.

In the case of Guatemala and the Philippines, mothers who delivered at home were more inclined to breast feed than those who delivered in hospitals. In Sweden, on the other hand, where almost all deliveries took place in hospitals, and where it is also hospital policy to encourage and support breast feeding, mothers who had a shorter than average stay in hospital tended to show the lowest inclination to breast feed.

The practice of rooming-in—in other words, of keeping the newly born infant with the mother rather than separating them for long periods—was almost universal in Nigeria, India, and urban Zaire. It was also common among the urban economically advantaged groups of Ethiopia and in the case of the urban poor and rural populations of Chile. In those countries where the data permit any discriminatory evaluation of this practice with respect to its effect on breast feeding, there is a consistent indication that rooming-in lends itself to the initiation of breast feeding.

Similarly, among the factors that appear to be important in determining whether a mother initiates breast feeding and how long she breast feeds for is the timing of the first breast feed. Mothers who put the infant to the breast in the first 12 hours after birth show a significantly higher tendency to breast feed and to breast feed for

longer than those who started breast feeding after the first 12 hours.

With respect to the provision of free samples of milk and feeding bottles in hospitals, our data indicate that this practice was rare in Sweden, Hungary, Zaire, India, and Chile in the case of urban poor and rural populations. In the other settings that were studied, the practice of giving free samples appears to have been relatively common.

In the Philippines, 27 percent of mothers coming from urban economically advantaged backgrounds were given free milk samples while in hospital. Among the urban poor, 9 percent received free samples and, significantly, in the case of the rural population that was studied, 41 percent of those who had delivered in hospitals had been given milk samples.

In Guatemala, the social group most exposed to this practice was the urban poor. Nineteen percent of those who had delivered in hospital were given samples. In Nigeria, 23 percent of the urban economically advantaged were given samples, and 10 percent of the urban poor.

Our data also indicate that the exposure of mothers to industrially processed and commercially marketed infant foods was extensive. Knowledge of brand names was almost universal throughout the economically advantaged populations in all nine countries. This was also true of the urban poor and rural communities of Chile, Guatemala, and the Philippines. In the case of the Philippines, for example, all the mothers in the urban poor and rural communities knew products by their name, and in Nigeria, 72 percent of the urban poor mothers also knew products by their brand name.

The observed pattern of breast feeding can be classified into three categories. In the first, we see the incidence of breast feeding falling steeply over the first 6 months. Within this category, with the exception of India, Zaire, Hungary, and Sweden, we find all urban economically advantaged groups. Significantly, however, into this category also falls the urban poor of Chile.

In the second category, the percentages of infants being breast fed falls progressively over an 18-month period, and here we find the rural and urban poor of the Philippines, the rural group of Chile, the urban poor of Guatemala and the urban economically advantaged of India.

Within the third category, in which breast feeding is well maintained, we find the urban poor and rural groups of Ethiopia, Nigeria, Zaire, and India, as well as that of Guatemala.

The data on the subject of marketing and distribution of infant foods were collected and analyzed for WHO by Prof. Bo Wickstrom, professor of marketing and business administartion at the University of Gothenberg in Sweden. Four countries, Ethiopia, Nigeria, the Philippines, and India, were covered in this survey. In these four countries altogether, 42 transnational companies representing 13 countries were operating. In the case of Ethiopia, Nigeria, and the Philippines, the infant food market was almost totally supported by imported products. In India, there was a significant national production.

A wide variety of distribution networks were used. In different settings and to varying degrees, infant foods were distributed through

food stores, including kiosks and market stalls, pharmacies, hospitals, and health services. All together, about half of the companies that were studied used nurses as part of the distribution network.

The range of brand products on the market in these four countries varied considerably. In India, which had the lowest number, 20 brand products were identified. In the other three countries, the number ranged between 40 and 60. While not all products were designed expressly as infant food, many of them, such as condensed milk and powdered milk, were presented in packages that contained bottle feeding tables.

In the specific case of infant formulas, again the range of products varied. In India, 8 products were identified, in Ethiopia, there were 23; in Nigeria, 20; and in the Philippines, 24. The total amount of infant formulas alone—that is to say not other milk products—sold in these four countries during the 1-year period that was covered by this particular part of the study was estimated at 40,000 tons, with a sales value of U.S. $125 million.

To conclude, then, we can say that in the Philippines and in Guatemala the situation with respect to breast feeding is critical. In these two countries, the overall percentage of mothers who never initiated breast feeding is far higher than that of Hungary or Sweden, and while the situation in Chile and Ethiopia is by no means as critical as that in the Philippines and Guatemala, it, too, compares unfavorably with the patterns observed in Hungary and Sweden.

Senator KENNEDY. Let me ask you why you use the word "critical." You say, "while the situation in Chile and Ethiopia is by no means as critical as that in the Philippines and Guatemala." Why is it critical in the Philippines and Guatemala?

Dr. CARBALLO. Talking purely in terms of proportions, we feel that the very high percentages of mothers who are not breast feeding in the Philippines and Guatemala deserves special attention.

Senator KENNEDY. Well, why is that? Does that get back to what you said earlier on page 7—in the Philippines, 27 percent of the urban economically advantaged; others among the urban poor, 9 percent; and in the case of the rural population, 41 percent had been given milk samples. Does this tie into the fact that the water conditions, the illiteracy, and all the other factors, all the complexities that we have heard about earlier, are more severe in that kind of a situation than in Guatemala?

Dr. CARBALLO. I think there are two conditions that have to be considered. The first is that the urban economically advantaged, who clearly do have access to good water and probably good health care coverage, are a trendsetting group; therefore, we feel it may represent a detrimental example to the rest of the society.

With respect to the urban poor and the rural communities, clearly the lack of clean water and health care coverage exacerbates the impact of a decrease in breast feeding.

Senator KENNEDY. Well, what is the danger that you speak of? I mean, how do you perceive the danger to the population?

Dr. CARBALLO. Danger in terms of malnutrition and infant mortality.

Senator KENNEDY. In relationship to breast feeding, you mean?

Dr. CARBALLO. Yes; in terms of the decrease in breast feeding.

Senator KENNEDY. So, you think there is a correlation? I mean, you draw those conclusions on the basis of this study?

Dr. CARBALLO. On the basis of this study, we could not correlate infant mortality and malnutrition with the pattern of breast feeding, no. But I think there is sufficient data from other sources to suggest that the two are interrelated.

Senator KENNEDY. You draw that conclusion on the basis of what you know as a professional?

Dr. CARBALLO. Yes, sir.

Senator KENNEDY. All right.

Dr. CARBALLO. May I go on?

Senator KENNEDY. Yes.

Dr. CARBALLO. Thus, while it is difficult to isolate factors that can be said to determine these patterns, it is possible to identify characteristics that are associated with them. Urbanization and socioeconomic and educational background are clearly of importance. Whether and when the mother returns to work is also associated with the patterns of breast feding. A number of health-related practices, such as whether mothers are allowed to keep their infants in the same room with them and when the mothers first put the child to the breast, are important factors. The data also suggest that the policy of hospitals with respect to breast feeding, and presumably reflected in the encouragement provided by staff, can also contribute to whether a mother initiates breast feeding.

While no attempt has been made in this study to correlate patterns of breast feeding with the type and degree of marketing of industrially processed infant foods, it appears significant that in settings where mothers were provided with free samples of milk, there was also a marked low incidence of breast feeding. Similarly, the extent to which knowledge about brand products has extended into urban poor and rural communities, and the diverse network of distribution channels utilized in the marketing and distribution of infant foods, would also seem significant. The possible association of these practices with patterns of breast feeding cannot and should not be overlooked.

Senator KENNEDY. I just have a brief question for you. There is a resolution, as I understand, that is going to be introduced either today or tomorrow at the World Health Organization—you are familiar with that resolution dealing with nutrition and breast feeding?

Dr. CARBALLO. Yes.

Senator KENNEDY. I will include it all in the record. On points 3, 4 and 5 of the recommendations, it says, "Urges member countries to review sales promotion activities on baby foods and to introduce appropriate remedial measures, including advertisement codes and legislation where necessary." Why is that important?

First of all, do you believe it is going to pass?

Dr. CARBALLO. Let me just clarify something. The resolution that you are reading is a resolution that was passed in 1974. A new resolution is being introduced.

Senator KENNEDY. There is a new one? [Laughter.]

Dr. CARBALLO. I am sorry I do not have a copy right here with me.

Senator KENNEDY. This did pass in 1974; is that correct?

Dr. CARBALLO. Yes.

Senator KENNEDY. And can you tell us, is there still a need in terms of member countries dealing with those same types of problems today?

Dr. CARBALLO. I believe so, and I think that the resolution that is being presented this afternoon in Geneva more or less reflects the same points as were indicated here.

Senator KENNEDY. And that is on sales promotion activities on baby foods; remedial measures, including advertisement codes and legislation where necessary?

Dr. CARBALLO. Yes.

Senator KENNEDY. Why does that continue to be necessary today, to deal with that problem?

Dr. CARBALLO. I believe that the Assembly probably feels that the situation has not changed significantly since that time.

Senator KENNEDY. And what was the situation then. What were the dangers and concerns that the Assembly had at the time when they considered it in 1974?

Dr. CARBALLO. I think the presentation to mothers of information that was not clear, that was possibly misleading, as well as the general encouragement to turn away from breast feeding and use infant formulas and bottle feeding.

Senator KENNEDY. And it was the conclusion then of the World Health Organization that that type of activity was not in the best interests of infant nutrition?

Dr. CARBALLO. That is correct.

Senator KENNEDY. That was the position in 1974 and, as I understand, it will be the position later on in the day.

The resolution, to continue,

> Urges the Director-General to intensify activities relevant to the promotion of breast feeding, to bring those matters to the notice of the medical profession and health administrators and to emphasize the need for health personnel, mothers and the general public to be educated accordingly.

Is there still a need for that as well?

Dr. CARBALLO. I believe there is; yes.

Senator KENNEDY. Can you elaborate on the need and why that is important?

Dr. CARBALLO. Yes; I think health workers, in general, need to be sensitized to their responsibility to encourage breast feeding and to support breast feeding. Many health workers have not been trained sufficiently well in this area; others have tended to forget the significance of breast feeding for infant nutrition and health.

In the area of health administrators and legislators, for example, there is also a need to facilitate breast feeding by introducing new legislation on such things as maternity leave and working conditions.

Senator KENNEDY. Do you think it would be inappropriate to predict that a similar resolution will be passed overwhelmingly by the World Health Organization this afternoon?

Dr. CARBALLO. I do not think it would be inappropriate; no.

Senator KENNEDY. I do not, either.

[The prepared statement of Dr. Carballo follows:]

Statement of
Dr Manuel Carballo, Scientist, Maternal and Child
Health, Division of Family Health of the World
Health Organization
before the
Sub-Committee on Health and Scientific Research,
U.S. House of Representatives

23 May 1978

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1. Personal Résumé

My name is Manuel Carballo. I am a native of Gibraltar. My background is in the social sciences, epidemiology and public health. I have been with the World Health Organization for five years. I am based in the unit of Maternal and Child Health and am the responsible officer for the World Health Organization's study on breast feeding.

2. The World Health Organization

The World Health Organization is one of the specialized agencies of the United Nations system. It is composed of its 151 Member States. Its objective is the attainment by all peoples of the highest possible level of health. The World Health Organization is the UN agency responsible for planning and coordinating health activities on a global basis, promoting technical cooperation with and among its Member States, and the exchange of scientific information. At the request of Member States it assists in planning and coordinating health programmes, strengthening health services and training health workers. It promotes medical and health-related research, develops health regulations, undertakes surveillance of communicable diseases, collects and disseminates data on health and health-related issues, sets standards for the quality control of drugs, vaccines, and other substances relating to health.

Member States of the World Health Organization through its governing bodies, which are the World Health Assembly, the Executive Board and the Regional Committees, determine health policies and doctrines in international health work.

3. The Work of WHO in The Field of Breast Feeding

3.1 The position of the World Health Organization on the question of infant feeding has always been, and continues to be, that breast feeding is ideally suited to the overall health and well-being of the young infant and that breast milk is the food of choice during early infancy. Advocacy and the active promotion of breast feeding as a necessary component of healthy growth and development is thus an integral part of all WHO's activities concerned with the improvement of the health and well-being of mothers and children.

3.2 In 1974 the World Health Assembly, as the highest governing body of the Organization, voiced concern for the general decline of breast feeding as a factor contributing to high rates of infant mortality and malnutrition. It resolved that the Organization should intensify its activities in the ... promotion of breast feeding. The full text of this resolution is appended.

3.3 In response to this resolution the World Health Organization initiated, together with other related activities, a series of collaborative studies. These studies were conducted in cooperation with national research institutions in countries reflecting a wide spectrum of geographical, climatic and developmental conditions. The objective of these studies was to measure the proportion of mothers who breast feed, how long they breast feed for and to identify factors associated with these patterns of breast feeding in order to define and direct intervention measures designed to promote and maintain breast feeding.

3.4 Nine countries - Guatemala, Chile, Ethiopia, Zaire, Nigeria, India, Philippines, Hungary and Sweden - participated in these collaborative studies.

In each of the countries the groups studied were selected so as to provide as broad a population representation as possible. In all, over 24,000 mother/child pairs coming from rural traditional areas, urban poor and urban advantaged backgrounds have been systematically studied using a standardized approach that was followed by all the investigators in all nine countries. The data were collected during the period 1975-77.

3.5 The studies have taken into consideration, in each of the nine countries, such characteristics as the age and parity of the mothers, their education and occupational background, the type of family configuration from which they come, their residential stability, the antenatal care that they received during pregnancy, maternal health during pregnancy as perceived by the mother herself, the place of delivery, the length of time the mother stayed in hospital for and after delivery, the timing of the first breast feed and the exposure which mothers received to such things as free gifts of milk and/or feeding bottles while they were hospitalized. They have also focussed on such things as the relationship between lactation and postpartum amenorrhea, the type of contraceptive practice being followed, the birthweight of the child and the pattern of infant mortality in previous children in the same family, the pattern of supplementation and types of foods used, the mother's knowledge about commercially distributed baby foods and the presence of commercially distributed baby foods in the home.

A series of additional surveys have examined the way in which health services are organized with respect to the facilitation of breast feeding, the degree of attention that is placed on breast feeding in the training of health and health-related personnel, the nature of social and health legislation as it pertains to maternity and child care, and finally the marketing and distribution of industrially processed infant foods.

3.6 The data we shall present here necessarily represent only a brief and preliminary overview of some of our findings. This overview has been prepared for the purpose of this Hearing. Analysis of data is continuing and further interpretation will be undertaken with the participation of the collaborating national investigators before any final results of the work are published later this year.

4. Findings of the Studies

4.1 Proportion of mothers initiating breast feeding

First a number of general points deserve mention. Our data indicate that the major differentiating variable was whether the mother belonged to, and functioned within, a rural or an urban community. In the urban settings, moreover, the proportions of mothers who initiated breast feeding varied considerably by socioeconomic background and by educational status. This said we shall now report on the considerable variation that was observed in patterns of breast feeding within the nine countries. The lowest percentages of mothers initiating breast feeding were found in the Philippines and Guatemala. The highest percentages were in Nigeria and Zaire.

In the Philippines the trend away from breast feeding appears to have become pronounced throughout the urban community. Our data show, for example, that one-third of those mothers coming from economically advantaged backgrounds never initiated breast feeding, and that in the urban poor community one-sixth of mothers interviewed similarly indicated never having breast fed. Although the

proportion of mothers coming from a rural background in the Philippines and who did not breast feed is much smaller - 6%, the significance of this situation is best appreciated if one considers that the percentages of mothers not breast feeding among all social groups in Hungary and in Sweden, both of which are industrialized societies, were 3% and 7% respectively. In other words if one compares the situation of the Philippines with that of Hungary, 10 times as many Filipino mothers coming from an economically advantaged background did not breast feed. In the case of the urban poor, five times as many Filipino mothers did not breast feed.

In Guatemala 23% of mothers coming from an urban economically advantaged background similarly indicate that they had never breast fed their index child; the corresponding percentage for the urban poor in Guatemala was 9%. Again the contrast with the situation in, for example, Hungary is marked.

On the other extreme we have the situation in Nigeria, Zaire and India where, in all social groups, there was almost 100% initiation of breast feeding. All other countries fell within these two extremes. The situation among the urban community and the economically advantaged group of Ethiopia and Chile approximated that of Sweden.

4.2 Factors

When mothers who had never breast fed were asked why they had not done so the most frequent response given was that they had "no milk" or "insufficient milk". Such a high percentage of non-breast feeding as is reported above, however, is difficult to explain on purely biological grounds and this is confirmed most clearly by the corresponding data from Nigeria, Zaire and India. The data, moreover, indicate that such factors as the age, parity and maternal health as perceived by the mother during pregnancy had little or no impact on the pattern of breast feeding.

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Similarly our analysis of the data thus far suggests that in general there was no significant association between the initiation of breast feeding and such variables as residential stability, and type of family background.

In the case of Guatemala and the Philippines there appeared to be a tendency for mothers who delivered at home to more inclined to breast feed than were those who delivered in hospitals.
In Sweden where almost all deliveries took place in hospitals, and where it is hospital policy to encourage and support breast feeding, mothers who had a shorter than average stay in hospital tended to show the lowest inclination to initiate breast feeding.

The practice of rooming-in, in other words of keeping the newly born infant with the mother rather than separating them for long periods, was almost universal in Nigeria, India and urban Zaire. It was also common among the urban economically advantaged groups of Ethiopia and the urban poor and rural population of Chile. In those countries where the data permit any discriminatory evaluation of this practice with respect to its effect on breast feeding, there is a consistent indication that rooming-in lends itself to the initiation of breast feeding.

Similarly among the factors that appear to be important in determining whether a mother initiates breast feeding and how long she continues breast feeding was the timing of the first breast feed. Mothers who put the infant to the breast during the first 12 hours after birth show a significantly higher tendency to breast feed and to breast feed for longer than do mothers initiating breast feeding later than the first 12 hour period.

With respect to the provision of free samples of milk and feeding bottles in hospitals, our data indicate that this practice was rare in Sweden, Hungary, Zaire, India and in Chile in the case of urban poor and rural population groups. In the other settings that were studied the practice of giving free samples appears to have been relatively common.

In the Philippines 27% of mothers coming from urban economically advantaged backgrounds were given free milk samples while in hospital. Among the urban poor 9% had received free samples and in the case of the rural population sampled 41% had been given milk samples.

In Guatemala the social group most exposed to this practice was the urban poor and 19% of those who had delivered in hospital stated that they had received free milk samples. Free bottles were also given in a number of settings but by no means to the same extent as were milk samples.

In Nigeria 23% of the urban economically advantaged and 10% of the urban poor received milk samples.

Our data also indicate that the overall exposure of mothers to industrially processed and commercially marketed infant foods was extensive. Knowledge of brand names was almost universal throughout the economically advantaged populations in all nine countries. This was also true of the urban poor and rural communities of Chile, Guatemala and the philippines. In the case of the Philippines, for example, all the mothers interviewed in the urban poor and rural communities that were studied knew products by their brand name. In Nigeria 72% of urban poor mothers studied knew products of their brand name.

Although our data on the question of the work of the mother and her breast feeding performance are limited there is evidence that working away from home clearly interfered with the continuation of breast feeding.

4.3 Duration of Breast Feeding

The observed pattern of breast feeding can be classified into three categories. In the first we see the incidence of breast feeding falling steeply over the first six months. Within this category, with the exception of India, Zaire, Hungary and Sweden, we find urban economically advantaged groups. Significantly this category also includes the urban poor of Chile.

In the second category the percentages of infants being breast fed falls progressively over an 18-month period and here we find the rural and urban poor of the Philippines, the rural group of Chile, the urban poor of Guatemala and the urban economically advantaged of India.

Within the third category in which breast feeding is well maintained we find the urban poor and rural groups from Ethiopia, Nigeria, Zaire and India as well as the rural group of Guatemala.

Expressed in more detail and with respect only to the urban poor and the rural populations included in the study, we find that only 50% of the Chilean urban poor infants and 46% of the Chilean rural children 6 months of age were still being breast fed. Corresponding percentages for the rural poor of Guatemala

and the urban poor and rural infants of the Philippines were 63%, 66% and 76%. In Ethiopia 86% of the urban poor infants were still being breast fed at six months and in Nigeria, Zaire and India there were still between 93% and 100% breast feeding.

4.4 Marketing and Distribution of Infant Foods

The data on the subject of marketing and distribution of infant foods were collected and analyzed for WHO by Professor Bo Wickström, Professor of Marketing and Business Administration at the University of Gothenberg in Sweden. Four countries, Ethiopia, Nigeria, the Philippines and India, were covered by this survey. In these four countries altogether 42 transnational companies representing 13 different countries were operating. In the case of Ethiopia, Nigeria and the Philippines the infant food market was almost totally supported by imported products, while in India there was a significant national production.

A wide variety of distribution networks were used. In different settings and to varying degrees infant foods were distributed through food stores including kiosks and market stalls, pharmacies, hospitals and health services. Altogether about half of the companies that were studied used nurses as part of the distribution network.

The range of brand products on the market in these four countries varied considerably. In India which had the lowest number, 20 brand products were identified. In the other three countries the number ranged between 40 and 60. While not all products were designed expressly as infant foods many of them such as condensed milk and milk powders were presented in packages that contained bottle feeding tables.

In the specific case of infant formulae again the range of products varied. In India eight products were identified; in Ethiopia there were 23, in Nigeria 20 and in the Philippines 24. The total amount of infant formulae alone sold in these four countries during the one year period that was covered by this particular part of the study was estimated at 40,000 tons. Its sales value was estimated at 125 million US dollars.

5. Conclusions

To conclude then we can say thatin the Philippines and in Guatemala the situation with respect to breast feeding is considerably more critial than in any of the other countries that participated in this study. In these two countries the overall percentage of mothers who never initiated breast feeding is far higher than that of either Hungary of Sweden. While the situation in Chile and Ethiopia is by no means as critical as that in the Philippines and Guatemala, it too compares unfavourably with the patterns observed in Hungary and Sweden. In Chile, moreover, even among those who do initiate breast feeding, the overall pattern of duration is short.

In India, Zaire, and Nigeria on the other hand there is virtually 100% initiation of breast feeding and breast feeding is maintained for long periods, particularly in the rural population.

While it is difficult to isolate factors that can be said to determine these patterns it is possible to identify characteristics that are associated with them. On a more general level, for example, the degree of urbanization and the socioeconomic and educational background of the mother are important variables. Whether and when the mother returns to work is also associated with the patterns of breast feeding. A number of health-related practices, such as whether mothers are allowed to keep their infants in the same room with them

after delivery and when mothers first put the child to the breast are important factors. The data also suggest that the policy of hospitals with respect to breast feeding and presumably reflected in the encouragement provided by staff can also contribute to whether a mother initiates breast feeding.

While no attempt has been made in this study to correlate patterns of breast feeding with the type and degree of marketing of industrially processed infant foods, it appears significant that in two of the settings where mothers were provided with free samples of milk there was also a marked low incidence of breast feeding. Similarly the extent to which knowledge about brand products had extended into urban poor and rural communities, and the diverse network of distribution channels utilized in the marketing and distribution of infant foods would also seem significant. The possible association of these practices with patterns of breast feeding cannot be overlooked.

On the basis of the work that has so far been undertaken the World Health Organization is collaborating with a number of countries to develop and implement a more intensified programme of activities to encourage mothers to breast feed and to provide an environment which facilitates and supports breast feeding.

6.

The question of maternal and infant health and nutrition is one of paramount importance for overall health, well-being and quality of life. The challenge it presents, particularly in developing countries, is a matter of great concern. In respect to this breast feeding clearly plays a significant role in promoting the healthy growth and development of children, and in facilitating appropriate

child spacing and thus the maintenance of good maternal health, and must be actively supported.

Breast feeding, however, is one of many factors that must be taken into account when considering the health of mothers and children. Sound environmental conditions including clean water and appropriate health care coverage with an emphasis on maternal nutrition, appropriate weaning, prevention of infections, and birth spacing are all inter-related factors that play an important role in the ultimate determination of health. The achievement of all these requisites is a goal towards which we must increasingly address ourselves.

TWENTY-SEVENTH WORLD HEALTH ASSEMBLY

WHA27.43

23 May 1974

INFANT NUTRITION AND BREAST-FEEDING

The Twenty-seventh World Health Assembly,

Reaffirming that breast-feeding has proved to be the most appropriate and successful nutritional solution for the harmonious development of the child;

Noting the general decline in breast-feeding, related to sociocultural and environmental factors, including the mistaken idea caused by misleading sales promotion that breast-feeding is inferior to feeding with manufactured breast-milk substitutes;

Observing that this decline is one of the factors contributing to infant mortality and malnutrition, in particular in the developing world; and

Realizing that mothers who feed their babies with manufactured foods are often unable to afford an adequate supply of such foods and that even if they can afford such foods the tendency to malnutrition is frequently aggravated because of lack of understanding of the amount and correct and hygienic preparation of the food which should be given to the child,

1. RECOMMENDS strongly the encouragement of breast-feeding as the ideal feeding in order to promote harmonious physical and mental development of children;

2. CALLS the attention of countries to the necessity of taking adequate social measures for mothers working away from their homes during the lactation period, such as arranging special work timetables so that they can breast-feed their children;

3. URGES Member countries to review sales promotion activities on baby foods and to introduce appropriate remedial measures, including advertisement codes and legislation where necessary;

4. URGES the Director-General to intensify activities relevant to the promotion of breast-feeding, to bring those matters to the notice of the medical profession and health administrators and to emphasize the need for health personnel, mothers and the general public to be educated accordingly; and

5. REQUESTS the Director-General to promote and further support activities related to the preparation and use of weaning foods based on local products.

Fourteenth plenary meeting, 23 May 1974
A27/VR/14

Senator KENNEDY. Dr. Post? I am going to give you 10 minutes and then try, maybe, to get one or two questions, but we really have to get into our final panel.

Dr. POST. Thank you, Senator. I will try to paraphrase my written testimony, and it will be well within 10 minutes.

As you indicated when you introduced me, I have studied the infant formula industry since 1976 with the support of the Rockefeller Foundation, which has had a longstanding interest in health-related matters in the developing world.

Data relating to the infant formula industry is difficult to acquire. Most information on sales volume, profits, market share of manufacturers, and even the manner in which they do business, is regularly denied researchers because of its proprietary nature. Published information is very limited in the United States, and even more scarce in the developing world. This is certainly frustrating to researchers such as myself, but I think it also frustrates those who want to understand the magnitude of the problem on which these hearings are focused. And I would like to note that the data presented in my testimony are derived from a base of information and set of calculations that comprise the best estimates of which I am aware.

A bit of background and the history of the industry might be in order here, and I will paraphrase this from my written testimony. There are two distinct orientations among the firms that sell infant formula products in the world. The three American companies operating in the developing world are successors to early medical research labs which first developed humanized formulas between 1910 and 1920. A second group of sellers includes food processing firms that originally sold formula as extensions of their powdered milk businesses. With the exception of Nestlé, food companies entered the infant formula industry when humanized formula began to replace evaporated, sweetened condensed, and powdered whole milk as the basic artificial food for infants.

The industry grew rapidly after World War II, and expansion into international markets, and especially the developing world, occurred very rapidly from the 1950's on.

The orientations are significant. Food companies prefer to use consumer advertising; pharmaceutical companies prefer to use medical promotion. What we see in the industrialized nations—in the United States, for example—is a preference for one of those two alternatives. What we see in the developing nations are both. So, we have both consumer promotion and medical promotion.

This promotion to both consumers and medical personnel has positioned the industry to take advantage of other development-related trends. Concentration of population in urban areas pays dividends for a radio advertising program; growth in medical services, hospitals, and live births in health clinics coincide with medical promotion and endorsement policies; and market presence in developing nations where births are rising is opportune when birth rates in industrialized nations are stable or falling. It is true, as the manufacturers assert, that many trends contribute to increases in women bottle feeding their babies, but it is naive to believe that these firms have not deliberately positioned themselves to take advantage of such social change.

Each of the American firms has expanded its presence in the developing world significantly since the 1960's through the effort of international marketing divisions. In marketing the many products of these manufacturers, this organization arm operates as a broker, deciding on combinations of products that will sell best in a national market. Different considerations determine final choices, of course, but infant formula meets the important criteria of potential sales volume and profitability.

The current world market for infant formula products in approximately $1.5 billion. The nations of Latin America, Africa, the Middle East, and southern Asia may account for as much as 40 to 50 percent of that amount. Using conservative projections of population growth, I have estimated that before 1980, the developing world will be spending more than $1 billion per year for infant formula. That is more than the World Bank loaned to all the nations of the Caribbean and Latin America in 1974, or to all African nations south of the Sahara in 1977.

In light of such commercial opportunity, it is not surprising that the manufacturers have been sensitive to public criticism of their promotional practices. There has not been a uniform industry response, but, rather, widely varied responses, ranging from outright refusals to acknowledge the existence of a problem to affirmative initiative-taking. Ironically, American firms represent both poles in this continuum.

This diversity of response seems to depend on the orientations and the business strategies of each firm. Pharmaceutical firms have been willing to make a commitment to abandon consumer-oriented advertising. This would allow them to continue their medical promotion. Food companies, on the other hand, have been reluctant to abandon all consumer advertising, given their constraints on approaching medical personnel. Their preferences are limitation of uniformed personnel and medical promotion.

The importance of corporate policy is perhaps best seen in examining the marketing codes of conduct, which most of the manufacturers have adopted in one of several forms. Neither the codes, nor any other response, has a chance of succeeding without a genuine commitment by management to effective implementation. Without a firm internal policy, the codes will mean very little in the real world of corporate marketing.

The principal problem in implementing these codes is convincing sales personnel in the field that the well-drafted, carefully drawn code should really guide their conduct. Management must take code compliance into account in rewarding these field personnel, and must act to leave no doubt as to the consequences of deviation.

Regional marketing managers, country managers and each field representative must believe that they, too, are bound when labels read "breast feeding is best." Recently, a Nigerian graduate student from Boston University was interviewed by the country manager and regional manager of a company, an infant formula company operating in Nigeria. Both referred to the code as a "nuisance," leaving a clear impression on my student that compliance was required only as long as the pressure surrounding this issue continued. A clergyman at, the recent annual meeting of an American firm reported his conversation with a company manager in the Far East who could not reconcile

the restrictions of the marketing code with the unabated management pressure to generate sales volume and meet profit goals. What we have here, in management terms, are "double signals," and they undermine the formal commitment to restrained marketing behavior incorporated in the code.

It seems to me that no single person, organization, or institution—I think not even the U.S. Senate—can force a management to be creative and imaginative in dealing with a problem as difficult as this one. These companies are in the business of selling products to anyone willing to buy. In analyzing the deviations from stated corporate policy, the question that continuously reemerges is how great is the managerial will to implement public commitments. These firms are renowned for their efficient administrative systems, yet evidence accumulates that implementation of the codes is pursued with less fervor than the pursuit of sales. There are some examples of creative responses. These need to be acknowledged and the companies cited for their leadership. But they are few in number and, more importantly, they come from only a few firms.

The competitive marketing of infant formula produces no inherent benefits for the population of a developing nation. Price competition is rarely vigorous in LDC markets, creating little of the consumer benefit economists normally attribute to market competition. In the past, the industry has argued that freedom of consumer choice was reason enough to allow its products to be sold, and that they were not responsible for the lack of pure water, the poverty, or the illiteracy of the population. But that argument cannot legitimize a product whose misuse is predictable and calculable.

In our research in Colombia, for example, it was learned that only 29 percent of rural populations and 72 percent of urban populations have the potable water required for mixing with powered infant formula, and yet formula was available to consumers and promoted to health personnel throughout that nation. No manager familiar with this issue could authorize distribution and marketing in Colombia without also knowing that there was a high probability of misuse by as much as 71 percent of the rural population and 28 percent of the urban population.

Senator KENNEDY. Well, isn't that really the crux of the problem? I mean, how do you justify the promotion of a product when you know, as your figures point out here, that 72 percent of the urban population do not have the potable water to be able to mix it with the infant formula, and yet there is the promotion for that particular formula? Isn't that really the issue in terms of what the corporate responsibility is?

Dr. POST. I think that is the issue; that has come to be the issue.

Senator KENNEDY. Nobody who is in charge of marketing could not know those particular facts, I would expect. That cannot be much of a mystery, is it?

Dr. POST. This data regarding Colombia was taken from published Colombian governmental information, so it was available. I think you have raised the central issue of vulnerability, though, Senator. For 8 years, the industry's critics have borne the burden of providing that there was a connection between commercial marketing practices and

the infant malnutrition and morbidity which have been discussed this morning. These hearings seem to me to signal a turning point, because from this time forward, the sellers will have to bear the burden of proving that their products are not only desired, but actually serve a public purpose in the developing world.

The industry has made some changes. Recently, they have become much more supportive of scientific research into the medical need for formula products. There is evidence of some new willingness among firms to truly promote breast feeding as the first choice for newborns, revising their emphasis on formula as a nutritional supplement, and this may signal a new business strategy for firms in the industry. If so, it can still produce large markets for infant formula in countries where births are rising. The industry has a history of creative adaptation to scientific and medical information. Certainly, the body of evidence available now suggests that a new response is required again.

Looking ahead, there is little doubt that medical promotion will continue to increase as consumer promotion declines, but there is no assurance that intensive medical promotion will be without adverse public consequences. In addition, free sampling looms as perhaps the most suspect of trade practices, for it does not distinguish among those who may be able to afford the product and those who are not.

Careful segmentation of the market by degree of consumer vulnerability is vital if the industry is to retain its legitimacy. And I might add, Senator, that the kind of segmentation is well within the capability of the companies. In the near future, the industry must bear the burden of proving that only the target audiences for their promotion are being induced to use the product; that only the upper income segments of an LDC population are buying infant formula; that the mixing instruction on infant formula cans really do communicate with the marginally literate and illiterate customs. Without such actions, the international infant formula industry will continue to be associated with this most tragic and poignant of public issues.

[The prepared statement of Dr. Post follows:]

TESITMONY OF DR. JAMES E. POST, BOSTON UNIVERSITY, BEFORE THE U.S. SENATE SUB-COMMITTEE ON HEALTH AND SCIENTIFIC RESEARCH OF THE COMMITTEE ON HUMAN RESOURCES

WASHINGTON, D.C. May 23, 1978

My name is James E. Post, and I am professor of Management Policy at Boston University. Since 1976 I have directed a research project supported by the Rockefeller Foundation, focusing on the infant-formula industry and its alleged involvement in the crisis in infant-feeding practices. My testimony will draw on this research in order to answer three questions:

(1) To what extent has the normal competitive conduct of multinational manufacturers contributed to the crisis in infant-feeding practices in developing nations?

(2) To what extent has the industry curbed and/or eliminated questionable marketing practices?

(3) What can reasonably be expected from the industry in the future?

Competitive Conduct in Developing Nations

Data relating to the infant-formula industry is difficult to acquire. Most information on sales volume, profits, market share of manufacturers, and even the manner in which firms do business is regularly denied researchers because of its proprietary nature. Published information is very limited in the United States, and even more scarce in developing nations. This void is frustrating to researchers such as myself; it also frustrates those who want to understand the magnitude of the problem on which these hearings are focused. In this context, I wish to note that the data presented in my testimony are derived from a base of information and set of calculations that comprise the best available estimates of which I am aware. Specific substantiation of these figures will be included in my written submission.

The international infant-formula industry is composed of firms with two distinct orientations, histories, and competitive approaches. The three American companies which sell infant-formula products in the developing world are successors to early

medical research laboratories which developed humanized formulas between 1910 and 1920. A second group of sellers includes food processing firms which originally sold infant formula as extensions of their powdered milk businesses. With the exception of Nestle, S.A., the food companies entered the infant-formula industry when humanized formula began to replace evaporated, sweetened condensed, and powdered whole milk as the basic artificial food for infants. In both the United States and Europe, the market for infant formula grew rapidly after World War II. Two pharmaceutically oriented firms now dominate the U.S. market, while a variety of food companies compete against pharmaceuticals in Western Europe.

In the developing nations of Africa, Latin America, the Caribbean, and Southern Asia, both consumer advertising and medical promotion have been used to convince new mothers that formula feeding is a superior way to feed their babies. For the most part, infant formula competes against powdered milks of varying types and quality. In the physician's mind, the infant formula is superior because it has been specially formulated to approximate human breastmilk. In the consumer's mind, however, distinctions depend on external information. Distinctions are made in only two ways: direct promotion to consumers by the formula seller (manufacturer or distributor) or physician's recommendation. Experience in the industrialized nations has proven either can be effective in convincing consumers.

Consumer advertising and medical promotion has positioned infant formula to take advantage of other developmental trends. Concentration of population in urban and peri-urban areas pays dividends for a radio advertising campaign; growth in medical services, hospitals, and live births in health clinics coincide with medical promotion and endorsement policies; and market presence in developing nations where births are rising is opportune when birth rates in industrialized nations are stable or falling. It is true, as the manufacturers assert, that many trends contribute to increases in women bottlefeeding their babies. But it is naive to believe that these firms have not deliberately positioned themselves

to take advantage of such social change.

Each of the American firms has expanded its presence in the developing world significantly since the 1960s through the effort of international marketing divisions. In marketing the many products of these manufacturers, this organizational arm operates as a broker, deciding on combinations of products that will sell best in a national market. Different considerations determine final choices, of course, but infant formula meets the important criteria of potential sales volume and profitability.

The current world market for infant-formula products is approximately $1.5 billion. The nations of Latin America, Africa, the Middle East, and Southern Asia may account for as much as 40-50 percent of that amount. Using conservative projections of population growth, I have estimated that before 1980, the developing world will be spending more than $1 billion per year for infant formula. That is more than the World Bank loaned to all the nations of the Caribbean and Latin America in 1974 or to all African nations south of the Sahara in 1977.

Modified Marketing Practices

In light of such commercial opportunity, it is not surprising that the manufacturers have been sensitive to public criticism of promotional practices. There has not been a uniform industry response to this matter, but widely varied responses, ranging from an outright refusal to acknowledge the existence of a problem to affirmative initiative-taking. Ironically, American firms represent both poles in this continuum.

This diversity of response seems to depend on the orientations and business strategies of each firm. Pharmaceutical firms have been willing to make a commitment to abandon consumer-oriented advertising. This would allow them to continue their medical promotion. Food companies, on the other hand, have been reluctant to abandon all consumer advertising, given their constraints on approaching medical

personnel. Their preferences are limitation of uniformed personnel and medical promotion.

The importance of corporate policy is perhaps best seen in examining the marketing codes of conduct which most multinational manufacturers have adopted in one of several forms. Neither the codes, nor any other response, has a chance of succeeding without a genuine commitment by management to effective implementation. Without a firm internal policy, the codes will mean very little in the real world of corporate marketing.

Obstacles to Implementation

The principal problem in implementing these codes is convincing sales personnel in the field that the well-drafted, carefully drawn codes should really guide their conduct. Management must take code compliance into account in rewarding these field personnel and must act to leave no doubt as to the consequences of deviance.

Regional marketing managers, local country managers, and each field representative must believe that they too are bound when labels read "breast-feeding is best." Recently, a Nigerian graduate student of mine was interviewed by the country manager and regional manager of an infant-formula company operating in Nigeria. Both referred to the code as a "nuisance," leaving a clear impression on my student that compliance was required only as long as the pressure surrounding this issue continued. A clergyman at the recent annual meeting of an American firm reported his conversation with a company manager in the Far East who could not reconcile the restrictions of the marketing code with the unabated management pressure to generate sales volume and meet profit goals. "Double signals" of this type serve to undermine the formal commitment to restrained marketing behavior.

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Future Industry Performance

No single person, organization, or institution can force a management to be creative and imaginative in responding to this issue. It is a difficult and complex issue for people who are in the business of selling products to anyone willing to buy. In analyzing deviations from stated corporate policies, the question that emerges is how great is the managerial will to implement public commitments. These firms are renowned for their efficient administrative systems. Evidence accumulates that implementation of the codes is pursued with less fervor than the pursuit of sales. There are some examples of creative responses; these need to be acknowledged and the companies cited for their leadership. But they are few in number, and more importantly, come from only a few firms.

The competitive marketing of infant formula produces no inherent benefits for the population of a developing nation. Price competition is rarely vigorous in LDC markets, creating little of the consumer benefit economists normally attribute to market competition. In the past, the industry has argued that freedom of consumer choice was reason enough to allow its products to be sold, and that they were not responsible for the lack of pure water, the poverty, or the illiteracy of the population. But that argument cannot legitimize a product whose misuse is predictable and calculable.

In our research in Colombia, it was learned that only 29% of rural populations and 72% of urban populations have the potable water required for mixing with powdered infant formula. And yet, formula was available to consumers and promoted to health personnel throughout that nation. No manager familiar with this issue could authorize distribution and marketing in Colombia without also knowing that there was a high probability of misuse by as much as 71% of the rural population and 28% of the urban population. And this only refers to potable water, leaving aside the question of how many Colombians have adequate incomes to afford the $100 it would take to feed an infant properly for six months on formula or how many are illiterate and unable

to accurately follow mixing instructions on labels. Similar information comes from other nations throughout the developing world.

For eight years, the industry's critics have borne the burden of proving that commerical marketing practices were actually contributing to infant malnutition and morbidity. I believe these hearings signal a turning point in the evolution of this issue. From this time forward, the sellers of infant formula must bear the burden of proving that their products are not only desired, but actually serve a public purpose in the developing world.

Looking to the future, the industry has recently become supportive of new scientific research into the medical need for formula products. There is evidence of a willingness among some firms to promote breastfeeding as the first choice for newborns, with a new emphasis on formula as a nutritional supplement. This may signal a new business strategy for these firms. If so, it can still produce large markets for infant formula in countries where births are rising. This industry has a history of creative adaptation to new scientific and medical information. The current body of evidence suggests that a new corporate response is required again.

There is little doubt that medical promotion will continue to increase as consumer promotion declines. There is no assurance that intensive medical promotion will be without public consequences. In addition, free sampling looms as the most suspect of trade practices, for it does not distinguish among those who may be able to afford the product and those who are not.

Careful segmentation of the market by degree of consumer vulnerability is vital if the industry is to retain its legitimacy. In the near future, the industry must bear the burden of proving that only the target audiences for their promotion are being induced to use the product; that only the upper income segments of an LDC population are buying infant formula; that the mixing instructions on infant formula cans really do communicate with marginally literate and illiterate customers. Without such actions, the international infant formula industry will continue to be associated with this most tragic and poignant of public issues.

Senator KENNEDY. Thank you very much, Dr. Post. I do not have any further questions.

Senator CHAFEE. Dr. Carballo, I have been looking over your statement which seems to indicate that women in India, Nigeria, and Zaire continue to breast-feed as compared to the Philippines and Guatemala, which you have cited as areas where there is use of these formulas.

What are the statistics on infant mortality in those five countries? Do they support your point that there is a far higher infant mortality among formula users?

Dr. CARBALLO. I am sorry; I do not have those statistics with me. I could not say offhand.

Senator CHAFEE. But is that not of some consequence? In other words, I believe there are a number of factors that contribute to infant mortality. I believe breast feeding should be encouraged, but the suggestion that infant mortality stems from lack of breast feeding does not quite follow.

Dr. CARBALLO. The last statement on this paper, which I have not had time to read, indicates that we feel that breast feeding is one of the factors; but that there are many other factors involved in infant mortality and malnutrition.

Senator CHAFEE. I could not agree with you more, and this is a part of it. I notice Dr. Horwitz is shaking his head. Do you agree with that point Dr. Horwitz?

Dr. HORWITZ. Yes.

Senator CHAFEE. Thank you, Mr. Chairman.

Senator KENNEDY. Thank you very much.

We have a final panel composed of representatives of the companies which manufacture, market and promote the infant formula for use in developing countries. Representing four such companies are Dr. Oswaldo Ballarin, who is chairman and president of Nestlé-Brazil, which is part of the Nestlé Co.; Mr. John Stafford, senior vice president of American Home Products Corp.—Wyeth International, a subsidiary of American Home Products, manufactures and markets infant formula—Mr. Frank A. Sprole, vice chairman of the board of Bristol-Myers Co.—its subsidiary, Mead Johnson, manufacturers their infant formula—and Mr. David Cox, president of the Ross division of Abbott Labs.

Dr. Ballarin, would you like to start?

STATEMENT OF OSWALDO BALLARIN, Ph. D., CHAIRMAN AND PRESIDENT OF NESTLÉ-BRAZIL, THE NESTLÉ CO.; JOHN R. STAFFORD, SENIOR VICE PRESIDENT, AMERICAN HOME PRODUCTS CORP., ACCOMPANIED BY CHARLES H. HAGEN, GENERAL COUNSEL; FRANK A. SPROLE, VICE CHAIRMAN OF THE BOARD, BRISTOL-MYERS CO.; AND DAVID O. COX, PRESIDENT OF THE ROSS DIVISION, ABBOTT LABORATORIES; A PANEL

Dr. BALLARIN. Senator Kennedy——

Senator KENNEDY. We will be in order now. We want to give the witnesses the attention they deserve.

Mr. BALLARIN. My name is Oswaldo Ballarin; I am a Brazilian, and chairman of the board of the company that manufactures and sells

Nestlé products in Brazil. I have been concerned with problems of nutrition in the Third World for many years, having been a member of the Protein Advisory Group of the United Nations system.

Senator Kennedy's invitation to testify here today was directed to the Nestlé Co., Inc. of White Plains, N.Y. The White Plains company is a New York corporation and it does not manufacture or sell infant formula products. Since I have more than 50 years of experience in this field, my friends at White Plains asked me to appear before you to discuss the manufacture and distribution of infant formula products in developing countries.

I came here, therefore, of my own free will, with the understanding that this committee does not have jurisdiction over me or over the Nestlé parent company in Switzerland.

Although the U.S. Nestlé Co. does not manufacture or sell any infant food products, it is my understanding that certain groups are boycotting the sale of U.S. Nestlé products, such as coffee and chocolate. The boycott is for the avowed purpose of putting pressure on Nestlé's Swiss parent company to stop alleged misconduct in the marketing of infant formula in the Third World.

I am aware of the specific charges made by these groups, and can state, based on my personal experience in many developing countries, that they are quite misleading and inaccurate.

The U.S. Nestlé Co. has advised me that their research indicates this is actually an indirect attack on the free world's economic system. A worldwide church organization, with the stated purpose of undermining the free enterprise system, is in the forefront of this activity.

Senator KENNEDY. Now, you cannot seriously——

[Laughter and applause.]

Senator KENNEDY. We will be in order now, please; we will be in order.

You do not seriously expect us to accept that on face value, after we have heard, as you must have——

Dr. BALLARIN. I——

Senator KENNEDY. If I can just finish my question—the testimony of probably nine different witnesses—nurses, doctors who have served in the Third World, many of them in some of the most remote areas of the world—who related their own kinds of personal experiences, their own studies, and then listen to a distinguished group of panelists that represent the World Health Organization, which commented and testified that the World Health Organization was expected to pass a resolution again today, as it passed in 1974, that draws attention to these same kinds of conclusions that we have heard from distinguished former directors of the Pan American Health Organization, director emeritus of the Pan American Sanitary Bureau, that these groups, the Interfaith Center for Corporate Responsibility, which is sponsored by the National Council of Churches and supported by 14 Protestant denominations, including the Presbyterian Church, the Episcopal Church, the Lutheran Church, the Baptist Church, the Methodist Church, the United Church of Christ, as well as 150 orders of the Roman Catholic Church, that they are involved in some worldwide conspiracy to undermine or attack the free world's economic system?

It seemed to me that they were expressing a very deep compassion and concern about the well-being of infants, the most vulnerable people on the face of this world, and expressing it on the basis of information and scientific knowledge, understanding and care and compassion.

Senator CHAFEE. I would just like to join in that, if I may. I just don't see how we are getting anywhere by your making such an allegation. This is a serious matter, and as the chairman has said, we have had very distinguished people here who indicate a deep concern. To make the charge that the worldwide church organization has the stated purpose of undermining the free enterprise system, just does not advance the cause at all, nor your argument.

Dr. BALLARIN. I appreciate and thank you for these comments. However, I must say that I was led to them because I was surprised with two things: One, the boycott which is made against one company which does not manufacture these products in the United States; and, second, because of the film which has been distributed, under the title of "Bottle Babies," to many local churches and schools, where the emotional responses necessary for the boycott attempt are made. And this film has hurt, really, those who fight in a world of free enterprise. Moreover, the pediatrician that appears in the film recently discredited the film in a letter, too, in fact, and therefore, I felt there was something beyond the pure nutritional scope. However, I accept your comments, Senator Kennedy.

Senator KENNEDY. The only point, since you reminded us at the outset that you are a friend from Brazil, is that the boycott is a recognized tool in a free economic, democratic system, and it is used in our society, and it is not recognized as being a part of an international kind of conspiracy to bring the free world's economic system down. It is a system which has been used, and used quite effectively in many instances, and sometimes it has not been effective.

Now, with regards to the film, I have no particular knowledge of what is represented, but that brings us some distance away from, at least, what the subject matter is that is before us here today.

Dr. BALLARIN. All right. I agree with you, and we can come back to this point, if you wish, later on.

Senator KENNEDY. I really do not care to spend a great deal more time on it.

Dr. BALLARIN. But the point is that that film is—and all these boycotts to which we are referring to—issues from a movement which has its origin in the National Council of Churches, where it is said in a report of the Geneva consultation: "The attempt within a Christian framework to evaluate and offer an adequate response to the reality of transnational corporations must be a radically new approach to the political and economic structure of society, and demands liberation from the present unjust international economic system."

That is why I thought there was something there.

Senator CHAFFE. Mr. Chairman, I think we should move on with the testimony Dr. Ballarin. I do not understand your objection to a boycott against U.S. Nestlé operations: what better way of getting at the Swiss parent company. But let's not debate that now. We are interested in what you have to say. If I were you, I would skip over the part on undermining the world's economic system.

Dr. BALLARIN. Nestlé started operations in the Third World nearly 60 years ago with the main purpose of making milk of good quality available wherever it was needed. Doctors had been concerned by the use of inadequate foods when breast milk alone was insufficient to meet the needs of babies. In those days, bottle feeding was already practiced and was not introduced by the infant food companies. Many mothers bottle fed their babies with a milk-looking fluid obtained by simply extracting flour with water, manioc flour with water, or sometimes with fresh cow's milk of poor quality. This point has not been emphasized here. But very often, and the case was that children were brought to the hospital, after they had just started being fed with a formula, late, too late after they had been fed for a long time in a very wrong way, and the results were adverse because of the complete inadequacy of the food both from the nutritional and hygienic standpoint.

Doctors, therefore—and I am a witness of that, in 1942, when I went to the Amazon, and I said, "Now, we can have formula here"—they welcomed the possibility of prescribing a safe and nutritious product for babies whose mothers had to supplement or replace breast milk. This is a well-known fact, sir, to which any doctor in those regions can testify.

Senator KENNEDY. If I could ask you, what is the extent of the misuse of the formula in that part of the world?

Dr. BALLARIN. It is very difficult to measure. There is some misuse, but not as much as has been pointed out here.

Senator KENNEDY. Well, tell us what you know about it, or what your information is about the misuse of it. We heard testimony here this morning from people who have been involved. What is your information? Do you follow it; do you do market surveys of the misuse of it?

Dr. BALLARIN. I agree there is a misuse, which we cannot avoid, but not to the extent which has been presented here.

Sentaor KENNEDY. Well, how do you know the extent of it?

Dr. BALLARIN. Because I used to—as I told you, I have been 50 years with the company there, and I had contact with the hospitals and doctors and learned from them what was going on.

Senator KENNEDY. Do you have any survey; do you do any market surveys to determine the extent of it?

Dr. BALLARIN. No, senator, I have no market survey. However, what I do have—and I can supply it to you—are some theses made by doctors, like Alvarado Santos, who studied the case of Kwashiokor. And in this thesis, he said he cannot attribute any case of Kwashiokor to the children who had been bottle fed with formulas.

Senator KENNEDY. How are we going to know whether you are right or whether these witnesses who have been serving in these communities are correct? You say that there is not an overuse, am I correct?

Dr. BALLARIN. Yes.

Senator KENNEDY. And now we have the World Health Organization that has recognized this as being a sufficient matter of concern; that they have addressed this and passed the resolution unanimously in 1974, and I dare say it will be passed unanimously again.

Why do the witnesses, the distinguished scientists, the World Health Organization all reach different conclusions than you reach? And if you reach a different conclusion, what is your evidence?

Dr. BALLARIN. My answer is, first of all, we have to be very cautious in over-generalizing facts which occur in some small regions. A county like Brazil——

Senator KENNEDY. Small regions?

Dr. BALLARIN. Yes.

Senator KENNEDY. Small regions? We heard from Venezuela, from the Philippines, Peru, Jamaica.

Dr. BALLARIN. There, two—with your permission, Senator—there, too, the studies do not cover and they cannot cover the whole country. They are made in small regions; they cannot cover all the countries.

And anyway, it might interest you that some time ago, we received from the Latin American Association of Pediatricians a letter, and with your permission, I would first read the original in Spanish and then the translation of a small part of it.

Senator KENNEDY. Why do you not read it in English, and we will take it on faith that it is the same.

Dr. BALLARIN. All right. And that paragraph says, "Within the context of"——

Senator KENNEDY. What is this letter? Have you got a copy of it?

Dr. BALLARIN. Yes.

Senator KENNEDY. Can your attorney give us copies to follow it?

Dr. BALLARIN. Yes. Do you want me to read it?

Senator KENNEDY. Why do you not read it, and let us just have a copy, too.

A VOICE. It is No. 30.

Senator KENNEDY. No. 30. Thank you. Why do you not read it?

Dr. BALLARIN. It says:

> We recognize with great satisfaction, and take the liberty of giving our official patronage to the teaching activities and scientific communications which are being made by the Nestle Co. in the different Latin American countries through their seminars and training programs.

That is why we try to overcome these difficulties of misuse by a correct education.

Senator KENNEDY. Well, let me ask, just briefly: Would you agree with me that your product should not be used where there is impure water? Yes or no?

Dr. BALLARIN. We give all the instructions——

Senator KENNEDY. Just answer. What is your position?

Dr. BALLARIN. Of course not, but we cannot cope with that.

Senator KENNEDY. Of course not. Do you think that your product ought to be used in areas where there is illiteracy, vast illiteracy?

Dr. BALLARIN. Pardon?

Senator KENNEDY. Where there is illiteracy, people cannot read.

Dr. BALLARIN. But that is very difficult to control, Senator, because you go into a region and they are not all literate—there are some who are. How can you control that the product goes to one rather than to the other?

Senator KENNEDY. Should an illiterate person use your product?

Dr. BALLARIN. Pardon?

Senator KENNEDY. Should an illiterate person——

Dr. BALLARIN. Of course; they have children, too. But there is one point, Senator, which I should like to point out: In those places where there are high birth rates and you have many children in the same

house, these children, anyhow, are infected by poor water, whatever they do, and, that, we cannot—we cannot cope with that.

Now, there is one point which has been raised here, for instance, that the tribes of the Amazon—we have been asked by the sisters of different hospitals in the Amazon to send powdered milk there to help them. Should we refuse in the future and ask them whether what they want is good before sending it? It is a very difficult position for us.

Senator KENNEDY. Well, are you advertising down in those areas?

Dr. BALLARIN. No, we do not advertise.

Senator KENNEDY. Do you give samples down in those areas?

Dr. BALLARIN. We give samples to hospitals when requested and to doctors when requested, either for making tests, as I said in my paper, or else sometimes for their own welfare work.

Senator KENNEDY. Well, as I understand what you say, where there is impure water, it should not be used?

Dr. BALLARIN. Yes.

Senator KENNEDY. Where the people are so poor that they are not, realistically, going to be able to continue to purchase it, which is going to mean that they are going to dilute it to a point, which is going to endanger health, it should not be used?

Dr. BALLARIN. Yes.

Senator KENNEDY. And my final question is, what do you do, or what do you feel is your corporate responsibility to find out the extent of the use of your product in those circumstances in the developing part of the world? Do you feel that you have any responsibility?

Dr. BALLARIN. We cannot have that responsibility, sir. May I make a reference to——

Senator KENNEDY. You cannot have that responsibility?

Dr. BALLARIN. No. How can I be responsible for the water system?

Senator KENNEDY. I am talking about the use of your product in those areas. Do you feel that the corporation has any responsibility to know whether your product is being just occasionally used in those areas or widely used in those areas, or do you feel that your corporation does not have any responsibility whatsoever?

Dr. BALLARIN. With your permission, sir, even in the State of São Paulo, where we have 10 million people today, a great part of the water system is no good. I cannot help it. We have a tremendous problem in developing countries where, because of the high birth rate and other factors, the population has increased.

The case of the town of São Paulo is a case in point. We were 2.5 million people in 1945; we are 10 million today. There is no civil service that can follow that.

Senator KENNEDY. Let me take rural Colombia, 72 percent poor water, what are you distributing down there? Do you think you should be distributing down there?

Dr. BALLARIN. Well, that is a difficult question, sir.

Senator KENNEDY. Well, just give me an answer.

Dr. BALLARIN. It is almost philosophical, with your permission, because if we do not distribute the product where we suppose the water is no good, also the persons who have the possibility of having good water will not have access to this product.

Senator KENNEDY. Well, you can obviously make a judgment about the numbers of people that are going to be able to have decent water,

even within those general kinds of areas, now, versus the great numbers of people who are not going to have it. You have been around long enough to understand that distinction.

Dr. BALLARIN. Yes; I do.

Senator KENNEDY. Well, I am just wondering what you think your corporation ought to be doing in terms of reviewing, to the extent that it is being used in those areas.

Dr. BALLARIN. Well, of course, we can study and we can review.

Senator KENNEDY. Well, are you doing that?

Dr. BALLARIN. Not yet. We cannot review that; from that standpoint, to be very frank, we cannot do it for the time being.

Senator CHAFEE. Did you say your corporation does not advertise?

Dr. BALLARIN. I was asked if we advertise in the Amazon.

Senator KENNEDY. In developing countries; excuse me.

Dr. BALLARIN. Of course, we advertise, I understand, according to the computer characteristics of the market. But our investment is not of the type that is going to push the replacement of breast milk, direct.

May I go on, sir?

Senator CHAFEE. Then you do advertise?

Dr. BALLARIN. Yes.

Senator CHAFEE. But you do not advertise in the Amazon. Maybe there is no way to advertise. [Laughter.]

Dr. BALLARIN. Well, in the Amazon, you may advertise by radio. We advertise other products, but not infant formula. I think that was the question, unless I misunderstood.

Senator KENNEDY. Yes; if you would like to summarize your comments, and then we will get back into the others.

Dr. BALLARIN. I say here in my paper that in Brazil, and in many other developing countries——

Senator KENNEDY. We can include all of it, the entirety in the record, if you feel comfortable, as if read, and then move on to the other witnesses. If there is a summary comment you would like to make, you may.

Dr. BALLARIN. Yes; what I wanted to focus on, Senator, is the fact that a company like Nestle went in many developing countries—in Brazil, 60 years ago—and it did go there to help develop local dairies so that milk could be available to people. And Nestle has not waited, as some people believe—that we had waited until the whole market was saturated before going to developing countries. Thank God, they came earlier and did something, which, thanks to them, today, milk is available in many places.

Our work has been always concentrated both in cooperating with doctors—all the formulas we have were established with doctors' approvals and sometimes with doctors' wishes. And as I said just a few moments ago, this work has received approval. We have devoted always, always in our advertising and in our material—we have always focused on the importance of breast feeding. We did that already many, many years ago. We stopped distributing samples direct to hospitals in 1972 or 1973, much before this movement started.

Of course, it must be stressed that many problems remains to be solved and, as was said here, they are all connected. Our production, even in Brazil, is far from reaching the total needs of the population.

However, there is one point which has not been raised here—is that, also, in the hinter—land, there is very often a great lack of medical assistance, and this makes the work of education very difficult.

We are perfectly conscious of our responsibility to encourage breast feeding, while researching new foods and safer methods for feeding babies who cannot be exclusively breast fed. The dilemma facing industry and the health services alike is how to teach these methods without discouraging breast feeding.

It is precisely for this reason that the International Council of Infant Food Industries was established in order to reach international agreement on the role and modus operandi of the infant industry. Its recommendations were contained in PAG statement No. 23.

Nestlé makes no claim to perfection, and we are always willing to accept valid suggestions or criticism and make changes accordingly. As Dr. Jelliffe's successor at the Caribbean Food and Nutrition Institute in Jamaica said in a letter to Nestlé, "This institute, with the international agencies supporting it (PAHO/WHO, FAO, and UNICEF), feels that public recrimination and reprobation is likely to be most unfruitful." He pointed out that the institute's aim is cooperation with the infant formula companies rather than conflict. We agree with these sentiments, and feel that it is counterproductive to cater to the demands of those who distort facts and oversimplify the complex issues of infant health as a means to attack our own system.

Thank you.

Senator KENNEDY. Thank you very much.

[The prepared statement of Dr. Ballarin follows:]

STATEMENT OF OSWALDO BALLARIN,

CHAIRMAN OF NESTLÉ-BRAZIL

TO THE

UNITED STATES SUBCOMMITTEE ON

HEALTH AND SCIENTIFIC RESEARCH

May 23, 1978

Senator Kennedy, Senator Javits and members of the Health and Scientific Research Subcommittee:

My name is Oswaldo Ballarin and I am Chairman of the Board of the company that manufactures and sells Nestlé products in Brazil. I have been concerned with problems of nutrition in the Third World for many years, having been a member of the Protein Advisory Group of United Nations System.

Senator Kennedy's invitation to testify here today was directed to The Nestlé Company, Inc. of White Plains, N. Y. The White Plains company is a New York corporation and it does not manufacture or sell infant formula products. Since I have more than 50 years of experience in this field, my friends at White Plains asked me to appear before you to discuss the manufacture and distribution of infant formula products in the developing countries.

I came here of my own free will with the understanding that this Committee does not have jurisdiction over me or over the Nestlé parent company in Switzerland.

Although the U.S. Nestlé company does not manufacture or sell any infant food products, it is my understanding that certain groups are boycotting the sale of U.S. Nestlé products such as coffee and chocolate. The boycott is for the avowed purpose of putting pressure on Nestlé's Swiss parent company to stop alleged misconduct in the marketing of infant formula in the Third World.

I am aware of the specific charges made by these groups and can state that they are quite misleading and inaccurate based on my personal experience in many developing countries.

The U.S. Nestlé company has advised me that their research indicates this is actually an indirect attack on the free world's economic system. A worldwide church organization with the stated purpose of undermining the free enterprise system is in the forefront of this activity.

To this end, the European and American working affiliates of this organization, including the activist group called Infact, have been distributing a completely distorted and misleading film entitled "Bottle Babies" to many local churches and schools to incite the emotional responses necessary for the boycott attempt. Literature and advertisements I have seen, with equally erroneous data, have also been distributed in the U.S.

Because of the very questionable credibility of the accusations, it is somewhat difficult to give them recognition. However, I am happy that the U.S. Nestlé company has invited me to speak about my personal knowledge of Nestlé activities in a developing country.

Nestlé started operations in the Third World nearly 60 years ago with the main purpose of making milk of good quality available wherever it was needed. Doctors had been concerned by the use of inadequate foods when breast milk alone was insufficient to meet the needs of babies. In those days bottle-feeding was already practiced and was not introduced by the infant food companies. Many mothers bottle-fed their babies with a milky-looking fluid obtained by simply extracting manioc flour with water, or sometimes with fresh cow's milk of poor quality. The results were adverse because of the complete inadequacy of the food both from the nutritional and hygienic standpoint. Doctors therefore welcomed the possibility of prescribing a safe and nutritious product for babies whose mothers had to supplement or replace breast milk. This is a well-known fact to which any doctor in those regions could testify.

In Brazil, and in many other developing countries, Nestlé responded to the challenge by pioneering the establishment of local milk processing facilities based on the encourage-

ment of local dairy farming. This made a positive contribution to the development of the country and helped to raise standards of living. There is no correlation therefore, as has been suggested in some quarters, between Nestlé's presence in Brazil and other developing countries and the declining birth rates in the industrialized countries.

Nestlé recognized that even the best products will not give the desired results if used incorrectly. We, therefore, placed great weight on educational efforts aimed at explaining the correct use of our products. Our work in this field has received the public recognition and approval of the official Pediatric Associations in many countries. Such educational efforts never attempt to infer that our product is superior to breast milk. Indeed, we have devoted much attention to the promotion of breast-feeding, and educational material has always insisted that breast-feeding is best for the baby.

Nevertheless, many factors militate against exclusive breast-feeding in the rapidly growing cities of Brazil as well as other developing countries, and our products are seen today as filling a valid need, just as they did when they were first introduced over 50 years ago. In recognition of this, all such products are subject to strict price control, while in many countries which do not have a local dairy industry, they are classified as essential goods and imported free of duty. In many cases, official agencies establish what they

consider to be a fair margin for the manufacturers.

It must be stressed that many problems remain to be solved. Our production is far from reaching the total needs of the population. Hence, many mothers in the poorer population groups continue to supplement breast-feeding with foods of doubtful quality. Owing to the lack of adequate medical services, especially in the rural areas, misuse of any supplement can occur and we are very conscious of the need to improve our efforts. These efforts depend on continued cooperation between the infant food industry and health professionals. We have to be more and more conscious of our responsibility to encourage breast-feeding while researching new foods and safer methods for feeding babies who cannot be exclusively breast-fed. The dilemma facing industry and the health services alike, is how to teach these methods without discouraging breast-feeding.

It is precisely for this reason that the International Council of Infant Food Industries (ICIFI) was established in order to reach international agreement on the role and "modus operandi" of the Infant Food Industry. Nestlé is a founder member of the Council which has commenced consultation with a view to implementing the recommendations to the Infant Food Industry. These recommendations were contained in PAG Statement No. 23 and constitute the only official United Nations guidelines

directed at governments, the health professions and industry on their responsibilities in promoting the use of supplementary foods to the vulnerable groups.

Nestlé makes no claim to perfection, and we are always willing to accept valid suggestions and criticism and make changes accordingly. As Dr. Jelliffe's successor at the Caribbean Food and Nutrition Institute in Jamaica said in a letter to Nestlé, "This Institute with the international agencies supporting it (PAHO/WHO, FAO and UNICEF) feels that public recrimination and reprobation is likely to be most unfruitful". He pointed out that the Institute's aim is cooperation with the infant formula companies rather than conflict. We agree with these sentiments and feel that it is counterproductive to cater to the demands of those who distort facts and oversimplify the complex issues of infant health as a means to attack the free world's economic system.

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Senator KENNEDY. Mr. Sprole?

Mr. SPROLE. Yes, sir. Mr. Chairman and Senator Chafee, I am pleased to have this opportunity to speak to you on behalf of Bristol-Myers Co. and Mead Johnson. With the permission of the Senator, I will read my statement; I believe it is fairly short.

Bristol-Myers Co., through——

Senator KENNEDY. I want to make sure we hear from all the others, too; we have another 25 minutes on it.

I think that we are trying to get at an understanding of what the corporate responsibilities are in this area; how your own company or corporation is viewing those responsibilities and what they are doing about it, based on the types of testimony that we have heard earlier in the course of the day and on what I am sure are common issues that have been presented to you.

I would like you to focus on that. That is really what this committee is interested in. You can do it in whatever way that you want. I am, obviously, interested in what your companies have been doing in terms of the development of this whole process. But that really is what we are dealing with, and if you can come to grips with that problem, I think we can move along the hearing a good deal more rapidly.

Mr. SPROLE. I will be pleased to, Mr. Chairman. I can give you, really, a two-page summary of what our viewpoints are.

Senator KENNEDY. All right.

Mr. SPROLE. First of all, we believe it is simplistic and dangerous to contend that more breast feeding and less formula feeding will solve the nutritional and health problems of infants in the developing world. We believe that the effects of poverty—lack of food and safe drinking water, the absence of sanitation and the shortage of health care—are the primary causes of disease and death of infants in the developing world.

Senator KENNEDY. Of course, no one has said that this morning. I am glad to have you say it to start off, but no one has maintained that or stated that this is going to resolve all the problems. Everybody has been very clear that there are scores of problems that exist, in terms of bad water, bad nutrition, starvation, and all the rest. The issue is a conflict between breast feeding and formula, and the whole range of different circumstances which have been illustrated here—bad water, inadequate income, poor literacy.

We are interested in what you believe is to be the corporate responsibility in attempting to deal with those issues; that is what we are trying to assess.

Mr. SPROLE. All right, Senator. We believe breast milk is best for the infant, but where it is not appropriate or sufficient, we believe our products are among the finest substitutes or supplements for breast milk anywhere. We endeavor to promote and market our infant formula products overseas according to very stringent and strictly enforced guidelines. Breast feeding is encouraged on product labels and in special pamphlets. For example, we have furnished them to the committee.

Labels contain advisory warning statements against improper use of the product, and simplified instructions for preparation in both written and graphic form. We have, for example, one in Spanish

here where we do it entirely by pictures on how to prepare the product. And we have separate pamphlets with photographic directions.

Direct advertising to consumers in developing countries is forbidden by company policy, as is distribution of free samples to mothers. Regular independent advertising audits are commissioned to insure that our policy is faithfully followed. We have one in process at the present time, with Louis Harris & Associates, throughout the world.

We promote our products through the medical and nursing professions. The decision to breast feed or not rests with the medical professional and the mother alone. Although many doctors have praised "Mothercraft" nursing services as a valuable adjunct to their work—and we have statements from about 60 doctors attached as exhibits and furnished to the committee—there has been criticism that these nurses may not always have followed our policies and practices. In 1977, our management decided to embark on a program to discontinue Mothercraft nurses in an orderly business fashion. The first such service was discontinued in December 1977, and at this time, all of our Mothercraft nursing services have been discontinued.

Statistics indicate that many developing countries have an infant mortality rate about equal to that of the United States little more than 50 years ago. There is the realistic hope that as these countries become better developed economically, as medical services and sanitation methods are improved and expanded, as literacy increases and food becomes generally more plentiful, these countries, too, will see a dramatic decline in the tragedy of infant mortality and morbidity.

In the meantime, we are doing what we can—as carefully and as diligently as we can—to provide the nutrition essential to good health and to life itself. This is the business we are in, and we are proud of it.

And I will cut my remarks at that, Senator, to allow some of the others to speak.

[The prepared statement of Mr. Sprole follows:]

Statement of

FRANK A. SPROLE

on behalf of

BRISTOL-MYERS COMPANY

before the

Subcommittee on Health and Scientific Research
Senate Human Resources Committee

May 23, 1978

Bristol-Myers Company, through its Mead Johnson subsidiary, has been a pioneer in the field of infant nutrition for almost 70 years, introducing Dextri-Maltose in 1910, Standardized Cod Liver Oil in 1924, Sobee -- the first soybean-based formula -- in 1929, Pablum in 1933, and many other medically significant infant formula products over the years, culminating in Enfamil.

Our research efforts have led to the development of an infant formula which physicians recognize as a quality, nutritious food for normal babies when breast feeding is unsuccessful, inappropriate or stopped early. These efforts have also fostered the development of a broad line of formulas that meet the special needs of infants who are ill, who cannot tolerate or digest conventional sources of food, or who have inherited metabolic defects which do not allow them to use some of the components of regular formulas or even breast milk.

We believe breast milk is best for the infant, but where it is not appropriate or sufficient, we believe our products are among the finest substitutes or supplements for breast milk to be found anywhere.

The need for alternatives to breast milk is not confined to mothers who cannot breastfeed successfully for medical reasons. It is also a pressing need for women throughout the world who must work to help support their families.

The United Nations Protein Advisory Group, referring specifically to nutritional problems in developing countries, declared in 1973: "It is urgent that infant formulas be developed and introduced to satisfy the special needs of infants who are not breast fed." It is important to remember that mothers throughout the world have bottle-fed their infants for many years, but the "formula" inside the bottle was often nothing more than flour pap, green tea, arrowroot, ricewater or some other nutritionally inferior food substance. The introduction of formula products represented a significant advance in nutritional quality in many less developed countries.

We recognize, however, that in many developing countries there are serious and chronic problems of poverty, unsanitary conditions and illiteracy which could subject our products to abuse.

For this reason, we take care to promote and market our infant formula products overseas according to very stringent and strictly enforced guidelines. These guidelines, which incorporate many of the Protein Advisory Group's 1973 Recommendations to Industry, were formally codified as Bristol-Myers Policies and Practices in March 1976, and are subject to periodic review and revision. We have just completed such a revision, and copies of our new Policies and Practices have been submitted to the Committee.

All Bristol-Myers managers overseas are bound by these guidelines, and contract distributors are required to comply with them as well, as a condition of doing business with us.

Among the most important of our policies and practices are these:

-- As mentioned, we recognize that breastfeeding is best for the newborn baby in most cases, and we have prepared a pamphlet explaining the advantages of breastfeeding for new mothers. No product advertisements appear in this pamphlet.

-- The labels on our products contain advisory statements that breastmilk is best for the infant in most cases and that harm may come to the infant if our product is used improperly. Simplified directions for proper use are given in both written and graphic form on the label, and we have also prepared and distributed a pamphlet giving visual directions for preparation, as well.

-- Direct advertising to consumers in developing countries is strictly forbidden, as is the distribution of free samples to mothers. We commission regular independent audits to insure that these policies are faithfully followed, as we have done for the past two years and as we are doing this year with Louis Harris and Associates. Where we have found that our policies were not being followed, we have swiftly taken corrective action.

-- We promote our products through the medical and nursing profession. We believe the decision to breast feed or not to breastfeed clearly rests with the medical professional and the mother, and with them alone.

Our promotion consists principally of providing infant formula as free goods for hospital use, free samples for distribution at doctors' discretion, the donation of incubators, scales and other equipment for hospital use, and the support of medical symposia for the continuing education of physicians.

During a recent on-site inspection of our operations in several countries, I was told by a prominent pediatrician at a clinic in Santo Domingo that the products we supply and the continuing education we undertake are desperately needed, and that any suggestion that professional judgment is compromised by such promotion is unjustified and offensive.

For several years, we provided a Mothercraft nursing service in certain countries for mothers in their homes, to instruct them on proper methods of infant care. Physicians in a number of countries have written us, praising the vital contributions made by these nurses in educating mothers, and copies of the statements made by these physicians have been filed with this Committee.

Nevertheless, we have also been mindful of the criticism that the nurses may not have always followed our policies and practices. Therefore, in 1977 our management decided to embark on a program to discontinue Mothercraft nurses in an orderly business fashion. The first such service was discontinued in December 1977, and at this time all of our Mothercraft nurses have been discontinued. I must tell you that we made this decision reluctantly. As you will see from the signed statements by physicians in these countries overseas, many of them consider Mothercraft nurses a valuable adjunct to the services provided by hospitals and doctors. Frankly, we are not sure we made the right decision. We may subsequently find that in discontinuing Mothercraft nurses, we have truly deprived some mothers of a vital service not available to them anywhere else.

We are confident that these regulations for marketing and promotion substantially reduce the risk that our products will be abused.

We also believe it is simplistic and dangerous to contend that more breastfeeding and less formula feeding will solve the nutritional and health problems of infants in the developing world.

We believe that the effects of proverty -- lack of food and safe drinking water, the absence of sanitation and the shortage of health care -- are the primary determinants of disease and death of infants in the developing world. This is not our opinion alone, but that of such independent authorities as the Human Lactation Center, which has conducted extensive anthropological studies in underdeveloped countries and whose board of directors include the eminent anthropologist Maragret Mead.

Finally, Mr. Chairman, it should be noted that while reliable statistics in the underdeveloped world are hard to come by, the United Nations itself has reported that infant mortality throughout the world has been going down, not up, over the last three decades.

The statistics we have indicate that many of the developing countries have an infant mortality rate about equal to that of the United States little more than fifty years ago. There is the realistic hope that as these countries become better developed economically, as medical services and sanitation methods are improved and expanded, as literacy increases and food becomes generally more plentiful, these countries too will see a dramatic decline in the tragedy of infant mortality and morbidity.

In the meantime, we are doing what we can -- as carefully and as diligently as we can -- to ease the suffering, nourish the bodies and save the lives of babies around the world. That is the business we are in, and we are proud to be in it.

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Senator KENNEDY. Well, what you have done in terms of the advertising, samples, and the mothercraft, seems impressive. It seems to me that if you have been able to do that, then why haven't the other companies been able to do that.

But the question that continues to concern me, and I think it did the earlier witnesses, is what the corporate responsibility is in terms of the misuse of this product, with recognition of the financial limitations of the poor in the developing parts of the world, poor water, and the other kinds of complexities, illiteracy, et cetera. What do you know about how your product is used in great, vast areas of the world and all the implications, adverse implications in terms of the health of the infant, and what does your company and corporation believe its responsibility is?

Mr. SPROLE. We have stated in our policies—we feel we must assure the best we can that these products are not abused.

I might comment on bottle feeding, which is mentioned so often. So often it is the case, that there may not be an infant formula product such as those represented at this table in the bottle. It may be flour pap, arrowroot, rice water, green tea, and it is very difficult to know what may have been in the bottle that the baby got if the baby was brought into the hospital unwell.

Senator KENNEDY. In the earlier exchanges, Senator Chafee brought that up with the earlier witnesses. We are talking about infant formula, but we will come back to that.

Mr. Stafford?

Mr. STAFFORD. Senator, my statement is brief, only about four and a half pages, but I will try to cut it down. I think it does address our feelings on these subjects.

Senator KENNEDY. I think you understand what we are driving at. We will, obviously, include all the statements in their entirety in the record. If you could address those particular issues, you can proceed.

Mr. STAFFORD. Thank you. I am accompanied today by Charles F. Hagan, our general counsel.

We export from the United States only about 17 percent of the infant formulas which we supply in developing countries. The remaining 83 percent are made locally themselves or supplied from our other international production facilities. In marketing of these products, here and abroad, we have for many years emphasized that breast feeding is the preferred method of feeding infants. I have attached to my statement a declaration of policy on this very point published by the then president of Wyeth in 1955. I also have samples with me today of our promotional materials to doctors, which I would like to make available to the Senator. You will note that these promotional pieces emphasize breast feeding very clearly.

In every country of the world, however, there are many women who are unable to breast feed. For this, there are many reasons: either physical, or because of the need to work, or because of material malnutrition or endemic diseases. There are also many women who simply choose not to breast feed. Many of such women can afford and do properly prepare and use infant formula. Our products provide these women with an excellent nutritional alternative to breast feeding.

During recent years, manufacturers of infant formula products who market in underdeveloped countries have come under attack from

groups in the United States and certain European countries. These groups assert that the use of infant formula products by poor or non-literate mothers leads to malnutrition and death. They contend this comes about in two ways:

First, they assert that the lack of facilities or the ability to sterilize the formula may cause diarrhea, which could lead to malnutrition. They assert this happens where drinking water is contaminated. Everyone knows that unsafe drinking water can pose a serious problem, but this is so whether a child receives infant formula, dried skim milk powder provided under our own AID programs or, even more importantly, any of the many local products and food stuffs which mothers mix with the same water to feed their babies. It is even a problem for babies who are breast fed, because water is given to infants to prevent dehydration in tropical areas, although the transfer of antibodies in breast milk may lessen the problem.

We are aware of these problems, and we help to prevent them by emphasizing the importance of breast feeding in our promotion to physicians, in instructional materials provided to professionals to be given to new mothers, and in the additional materials which we furnish. With prior professional consent, we do the same for new mothers through contacts by our professional service representatives, sometimes called mothercraft personnel.

I have attached to my statement a typical example of lecture material used by our PSR's, as well as a copy of their job description.

As part of these efforts, an educational film designed solely to teach breast feeding was produced by Wyeth in 1974 and has been shown widely ever since.

Senator KENNEDY. Bristol-Myers is phasing out mothercraft. Are you still using it, and can you tell me why?

Mr. STAFFORD. Well, I would respond to that in this way, Senator: I think the real question is what the mothercraft nurses do. I do not believe that mothercraft nurses are bad, per se. The question would be whether or not these personnel are providing a useful service to the health professionals where they work and to the mothers that they come in contact with.

In our situation, we believe that in those countries where we do have mothercraft personnel, that they are supervised and they are responsive to our corporate policies and provide useful services by educating those women who have decide to bottle feed; they give them instructions on the care of their baby and how to prepare the formula.

Senator KENNEDY. Are there shortages of nurses in those situations?

Mr. STAFFORD. As I understand it, in many countries, the local health professionals are very pleased to have the help, the services of the mothercraft nurses in the care of mothers who have recently had babies.

In addition, they provide lectures to groups of mothers in the clinics on breast feeding.

Senator KENNEDY. Would they not be better off if they were just regular nurses rather than employees of the company?

Mr. STAFFORD. Well, I guess that is a choice that they make make. If the services are useful, we would need personnel to do this. By using nurses, we have people who are qualified to deal with these kinds of problems; they are not laymen.

Senator KENNEDY. Mr. Sprole, why did your company drop mothercraft?

Mr. SPROLE. We were mindful, Senator Kennedy, of some of the criticisms of mothercraft nurses. And since we have made the decision—and you will note in the various statements attached by the doctors from the Philippines—we would be reluctant about it now, but we have done it. We may have made a mistake, because of the services that they offer. Doctors indicated that they were helping greatly as an adjunct to the health care system in the country, very much the way the visiting nurse might be doing in this country in the areas where there are not enough doctors. But we have made the decision to discontinue.

Senator KENNEDY. Why do you not go ahead?

Mr. STAFFORD. Another way by which we try to help is by including instructions for the use of boiled water on the labeling of our products, in instructional materials for new mothers, and in the advice and lectures by our PSR's. Because of the problems of literacy, we are devising new and hopefully better leaflets and audio-visual material. Attached to my statement are some prepublication samples of new, nonverbal instructional materials on how to prepare baby formula.

The second problem charged against use of infant formulas is that because of their cost, many mothers cannot afford adequate quantities and they overdilute the product, thus leading to malnutrition. We are not aware of even one controlled study which documents this event with the use of our products. We do know that Third World mothers frequently use mixed feeding for many months and later supplement infant formula with other food stuffs.

Senator CHAFEE. Could I just interrupt there. You say you are not aware of any controlled study showing that overdilution takes place. Are you aware of any controlled study on the other side?

Mr. STAFFORD. I am not aware of any controlled study on the other side, but we do have personnel in these countries, many personnel, and they are in the field; they are in contact with the health professionals. We are not receiving—I know that the critics make this point—but we are not receiving that that is occurring with our products.

Senator CHAFEE. You mean the dilution of it?

Mr. STAFFORD. The overdilution, and that as a cause of malnutrition. But we do understand the comments made by the people, but we have not seen it with our products.

Those who indict the use of infant formula products generally refer to them broadly as bottle feeding. They assert that bottle feeding is bad per se, and that the marketing or infant formula is bad. We urge more discrimination. Under the term "bottle feeding," critics constantly fail to distinguish between good infant formula and the thousand and one other things fed to infants from bottles and made with the same water. Others have charged that the marketing practices of all infant formula manufacturers persuade mothers who can breast feed to bottle feed instead.

To the degree that their statements are intended to apply to our company, we would disagree, and we urge that you carefully scrutinize the basis for such charges. Wyeth does not use mass media to promote its products to lay persons and, with only few exceptions, does not engage in any advertising to the laity.

The practice of sampling has also come under attack, again on the assumed basis that it encourages mothers to bottle feed rather than breast feed. Wyeth's samples of infant formulas are provided to hospitals and clinics for use at their discretion. It is our policy that samples are to be provided directly to mothers only with the permission of professional personnel and only for mothers for whom a formula feeding regimen has been chosen.

It has been urged that the U.S. based industry should discontinue sampling, as well as professional promotion. For the reasons already mentioned, we are convinced that this would not benefit Third World mothers or their babies. In our view, the only thing that would be accomplished would be to hinder severely our ability to compete with foreign producers in international markets. The share of the market which we would lose would simply be taken over by other manufacturers and often by nutritionally inferior products.

Our marketing practices are in conformity with the code of ethics of the International Council of Infant Food Industries, a copy of which is attached to my statement. There are now 12 major enterprises which are members of this council, from seven nations. Wyeth's practices are in full accord with the statement on infant feeding contained in the recommended international standards for foods for infants, as issued by the joint FAO/WHO Codex Alimentarius Commission. This document states precisely what the proper place for infant formula is as a necessary alternative food to overcome the lack of breast milk. I have attached the pertinent portion of this to my statement.

We care as much as anyone about the health of Third World babies, and we are convinced that our products, and the way me market them, are of real benefit to infants in need of good nutrition. The problems of malnutrition and disease in the Third World are rooted in sad poverty, poor sanitation, and insufficient medical care and education.

Senator, without prolonging my statement, there were a couple of things that were mentioned earlier with respect to our company specifically, which if I could comment on, I would appreciate it.

[The prepared statement of Mr. Stafford and additional material referred to follows:]

Statement Of
Wyeth International, A Subsidiary Of
American Home Products Corporation
Before The
Senate Subcommittee on Health and Scientific Research
Senate Committee on Human Resources
May 23, 1978

My name is John R. Stafford, a Senior Vice President of American Home Products Corporation. Appearing with me is Charles F. Hagan, general counsel of the company. Wyeth International, a subsidiary of American Home Products Corporation, has been making pharmaceuticals since 1860. We market a broad line of pharmaceuticals and vaccines and we also make infant formula products. These latter are known as SMA, S-26, and Nursoy. We make Bonna and Bonimil in two foreign markets. We also provide special infant formulas for newborns with serious metabolic disorders. Wyeth does business in the United States and some 135 countries abroad. Our infant formula products are manufactured in the U.S. and in 14 foreign countries and marketed in about 90 countries. None of these countries has ever asked us to cease marketing of our infant formula products -- we market in many of the countries with the specific approval of the governments. One African country is presently seeking our know-how and technical assistance to construct an infant formula manufacturing plant in that country. Our infant formula product SMA was developed in 1914. Since that time we have been engaged in continuous research to improve our products, seeking to make them nutritionally as close as possible to human milk. We believe no infant formula on the market comes closer nutritionally to mother's milk than our product formula S-26.

My comments hereafter will relate to our company's involvement with infant formula in developing areas of the world. We export from the United States only about 17% of the infant formulas which we supply in developing countries. The remaining 83% are either made locally in the countries themselves or they are supplied from our other international production facilities. In marketing of these products, here and abroad, we have for many years emphasized that breast feeding is the preferred method of feeding infants. I have attached to my statement a declaration of policy on this very point published by the then president of Wyeth in 1955. I have with me today samples of our promotional materials. You will note the prominent and consistent reference to the superiority of breast feeding. This superiority exists partly because the passive immunity conferred with the serum portion of breast milk helps to protect newborns from certain pathogens until the child's own defensive mechanisms can be activated. In every country of the world, however, there

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are many women who are unable to breast feed. For this there are many reasons; either physical or because of the need to work or because of maternal malnutrition or endemic diseases. There are also many women who simply choose not to breast feed. Many of such women can afford and do properly prepare and use infant formula. Our products provide these women with an excellent nutritional alternative to breast feeding.

During recent years, manufacturers of infant formula products who market in underdeveloped countries have come under attack from groups in the United States and certain European countries. These groups assert that use of infant formula products by poor or non-literate mothers leads to malnutrition and death. They contend this comes about in two ways:

First, they assert that the lack of facilities or the ability to sterilize the formula may cause diarrhea which could lead to malnutrition. They assert this happens where drinking water is contaminated. Everyone knows that unsafe drinking water can pose a serious problem. But this is so whether a child receives infant formula, dried skim milk powder provided under our own AID programs or even more importantly, any of the many local products and food stuffs which mothers mix with the same water to feed their babies. It is even a problem for babies who are breast fed, because water is given to infants to prevent dehydration in tropical areas, although the transfer of antibodies in breast milk may lessen the problem. We are aware of these problems and we help to prevent them by emphasizing the importance of breast feeding in our promotion to physicians, in instructional materials provided to professionals to be given to new mothers and in the additional materials which we furnish. With prior professional consent, we do the same for new mothers through contacts by our professional service representatives (PSR's), sometimes called mothercraft personnel. I have attached to my statement a typical example of lecture material used by our PSR's as well as a copy of their job description. As part of these efforts, an educational film designed solely to teach breast feeding was produced by Wyeth in 1974 and has been shown widely ever since. Another way by which we try to help is by including instructions for the use of boiled water on the labeling of our products, in instructional materials for new mothers, and in the advice and lectures by

our PSR's. Because of problems of literacy, we are devising new and hopefully better leaflets and audio visual material. Attached to my statement are some pre-publication samples of new, nonverbal instructional materials on how to prepare baby formula.

The second problem charged against use of infant formulas is that because of their costs, many mothers cannot afford adequate quantities and they overdilute the product, thus leading to malnutrition. We are not aware of even one controlled study which documents this event with the use of our products. We do know that third world mothers frequently use "mixed feeding" for many months and later supplement infant formula with other food stuffs. We vigorously contend that the availability of our infant formula products in the developing countries and our ethical promotion to professionals and the services of our PSR's are of distinct benefit to many mothers and their infants in these countries.

Those who indict the use of infant formula products generally refer to them broadly as "bottle feeding". They assert that bottle feeding is bad per se and that the marketing of infant formula is bad. We urge more discrimination. Under the collective term "bottle feeding", critics constantly fail to distinguish between good infant formula and the thousand and one other things fed to infants from bottles and made with the same water. Others have charged that the marketing practices of all infant formula manufacturers persuade mothers who can breast feed to bottle feed instead. To the degree that their statements are intended to apply to our company, we would disagree and we urge that you carefully scrutinize the basis for such charges. Wyeth does not use mass media to promote its products to lay persons and, with only few exceptions, does not engage in any advertising to the laity.

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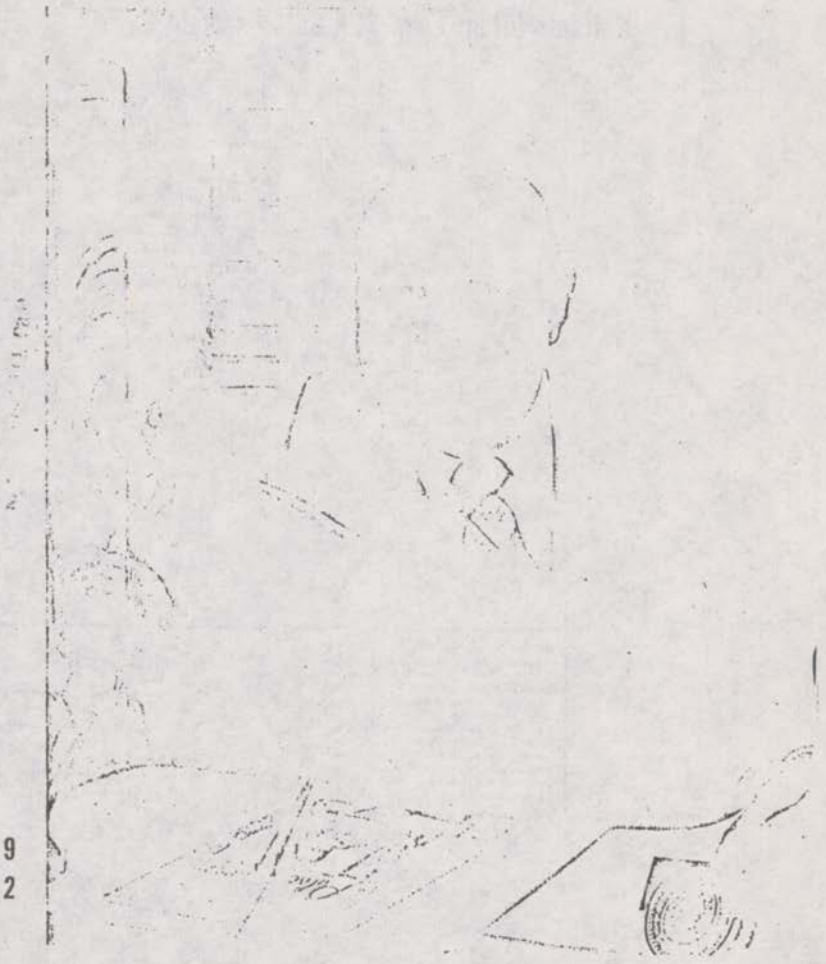
We care as much as anyone about the health of third world babies and we are convinced that our products, and the way we market them are of real benefit to infants in need of good nutrition. The problems of malnutrition and disease in the third world are rooted in sad poverty, poor sanitation and insufficient medical care and education.

We appreciated the opportunity to appear before this Committee today.

Attachments

Pulse OF PHARMACY



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Pulse OF PHARMACY

PUBLISHED BY WYETH LABORATORIES
DIVISION OF AMERICAN HOME PRODUCTS CORPORATION
PHILADELPHIA, PENNSYLVANIA
PHILIP H. VAN ITALLIE, EDITOR

Nature's Infant Food Still Sets Example

The knowledge that human milk is superior to all other foods for young infants is as old as history itself. In the past, infants nourished by their mothers survived with notable freedom from infection while those who were artificially fed on other milks had a precarious early life.

Not only is the composition of human milk more suited to the infant's requirements, but, more important, it is free from harmful bacteria and not subject to contamination.

The search for a scientific replacement for human milk, when this ideal nutrient is unavailable, is keeping pace with the march of science. Today modern techniques in the laboratory and the home make possible a food closely approaching human milk in both composition and purity. The crucial test for a successful infant food is that almost all normal babies thrive on it. The nutritional history of S-M-A® fed infants closely approximates that of breast fed infants.

H. B. Howard

President

Dr. Lowell David Hiner, Dean of the College of Pharmacy of the University of Utah in Salt Lake City since 1947, hails from South Dakota and completed his education (Ph.D. 1938) in Florida. His specialty is pharmacognosy. Dean Hiner's many responsibilities as an educator and administrator have never dimmed the cheery informality of his greeting. Radiating both good will and authority, Dr. Hiner has made an ideal chairman of pharmaceutical committees and effectively represents his college at many official functions.

Posing by Herman L. Finch, of New York and Philadelphia.

IN THIS ISSUE:

- When Breast Feeding Was the Price of Survival
- Ar erica's Unsanitary Past
- Unravelling the Mysteries of Breast Milk
- Why Don't We Abolish the Trial by Milk?

BREAST FEEDING

PRE-NATAL AND POST-NATAL ORIENTATION

GUIDELINES FOR IMPLEMENTATION

I. WHY WE SUPPORT BREAST FEEDING

II. EDUCATIONAL AIDS

III. STEPS TO FOLLOW

IV. LECTURE OUTLINE

An Infant Nutrition Education Program
Sponsored by Wyeth International Limited

I. Wyeth's and Your Support Of
BREAST FEEDING AS THE FOUNDATION OF OPTIMUM INFANT NUTRITION

Today the providing of adequate nutrition, especially to the newborn, is reaching the stage of worldwide crisis. Population is increasing. Protein and other essential nutriments are becoming scarce as well as costly.

In the face of this great problem there is at least one practical solution, at least for many newborns. That is BREAST MILK - nature's oldest solution to providing the best start in life.

From the start Wyeth's position in infant nutrition has supported breast milk as the foundation of optimum infant nutrition. Following this concept, Wyeth has taken the leading position...

In research

In nutritional education

In customer relations

In channeling its promotion, ethically, through the Medical Profession

In support of BREAST FEEDING

Wyeth has built a position in praise of Breast Milk for good reasons:

Because Breast Milk is the best, most practical and most economical diet for the newborn.

Because we gain respect and credibility in the eyes of the Doctor, Nurse, Midwife and the Mother by recommending breast feeding and by expending our time and effort in helping educate Mothers on breast feeding as well as on general proper care for the Mother and her baby.

And, because, if there are good medical reasons why a woman cannot breast feed, we believe there should be a suitable formula which most closely approximates breast milk.

The Wyeth philosophy of good nutrition and proper education of the new Mother should guide the activities of Wyeth

personnel at every level of contact. In this program we are especially concerned with our day-to-day activities at the clinic level with the Nurse, Midwife and the Mother.

In our work at pre- and post-natal clinics, we should be guided by our philosophy and standards in the service of good nutrition and good health.

Wyeth is the leader and you represent this leadership.

The following guidelines are presented as Wyeth International policies for providing nutritional counsel of value to the baby-feeder and to the Mother - especially in our day-to-day contacts at the clinic level.

II. EDUCATIONAL AIDS

The aids described below are made available by Wyeth International for the education of the new Mother, who has an important decision to make and much to learn in the caring for her new baby.

We will first describe the content and purposes of the various aids, and in the following section we will recommend how and when these aids may be used as a part of a comprehensive service program.

16 mm Film: "BREAST FEEDING"

We believe this 20-minute film is one of the best programs ever developed to motivate the expectant Mother to choose breast feeding. This film opens with some of the common reasons why women may choose bottle feeding over breast feeding - and then goes on to show how breast feeding is usually more satisfying from almost every respect.

Consideration is briefly given to legitimate reasons why the Mother may not be able to breast feed. In such instances professional advice is given on formula selection but without specific product endorsement.

The original film has been produced in English language version. However, copies are also available with a second sound track which may be magnetically dubbed with a local language or dialect that is most likely to be understood by the Mothers attending pre- or post-natal clinic training.

"Breast Feeding" Leaflet

This leaflet pertains to the above film and presents essential information on using the film. Included in this leaflet are possible points to be discussed during the clinic training, based on comments from Mothers in the film who are not breast feeding.

This leaflet should be provided to clinic personnel, when encouraging their use of the film (and related educational programs prepared by Wyeth) in the regular clinic training program.

Pamphlet: "What You Should Know About Nursing Your Baby"

This pamphlet is designed for distribution to Mothers following the showing of the film and/or audio visual program.

This provides practical "How To's" of breast feeding in simplified terms and reinforces information presented visually in the film and slide/tape program.

Slide/Tape Audio-Visual: "Caring For Your New Baby"

This 4-part audio visual reviews in more detail the practical "how to's" of breast feeding. Thus, Part 1 of this audio-visual may be used during the initial clinic visit by the expectant Mother to reinforce the presentation of the motion picture film described above. Some clinics may prefer to show this audio-visual to the Mother on a subsequent visit to review with her the techniques described.

The other three parts of this audio-visual are also educational in nature and are recommended for showing to the Mother in either follow-up visits to the pre-natal clinic or even, preferably, at the post-natal clinic after the baby's delivery.

"My Baby Book"

This baby booklet, which we believe is the best of its kind in the industry, has been traditionally used to inform new and expectant Mothers on many aspects of nutrition and infant health care. In addition to encouraging breast feeding, this booklet includes general advice in preparing for and caring for the baby. We recommend its continued use in keeping with Wyeth policies in properly educating the Mother, either whether she has chosen to breast feed - or when, for whatever reasons, she has decided to use a Wyeth formula either on a supplemental or full-time basis.

III. GUIDELINES FOR WYETH ACTIVITIES AT THE CLINIC LEVEL

10 Steps to Follow

5 Activities to Avoid

The "Do's"

1. Select clinics or other locations where instruction is given to groups of Mothers - or to the individual Mother. These will especially include pre-natal and post-natal clinics.

2. Know who is responsible for instruction to the Mother. This may be a Nurse, Midwife, Health Visitor, etc.

3. Determine the proper role Wyeth personnel should play in this instruction:

   a) to provide the educational tools;

   b) to assist or lead the actual instruction.

4. Assess the educational objectives and needs of the individual clinic, as well as the needs and attitudes of the attending Mother (where possible).

5. Know the best time of week and the best hours to see or assist the medical and paramedical personnel involved in your educational program.

6. Always make sure you have checked with the Doctor, Nurse or other person-in-charge before proceeding with contacts with other personnel.

7. Make sure that all educational materials (films, leaflets, and booklets) are available when required and in the appropriate quantities.

8. Offer direct assistance, if appropriate, and be personnaly available when your services are required.

   A lecture outline is provided in the following section for use by Wyeth personnel in instructing new Mothers. This lecture outline may also be offered for the use of the clinic personnel if they so desire it.

9. If a film or audio-visual is to be shown, check the facilities in advance to assure that everything is in order.

10. When authorized by the clinic person-in-charge, conduct appropriate followup with Mothers who may be feeding a Wyeth formula on a supplemental or full-time basis.

The Don'ts"

1. Do not promote Wyeth formulas during clinic visits in situations where only breast feeding should be strongly emphasized.

2. Do not conduct any commercial activities at clinics which would undermine recommendations by clinic personnel on proper feeding practice.

3. Do not engage in any other public advertising or promotion of Wyeth formulas which would influence expectant Mothers to decide against breast feeding.

4. Do not discuss infant formula directly with the Mother:

   a) unless authorized by the clinic, physician, nurse, health visitor, midwife, etc.

   b) if the Mother has chosen breast feeding and supplemental formula feeding would not be indicated.

5. Do not initiate contacts with the Mother, unless the infant will be fed with a Wyeth formula and Wyeth personnel are invited to provide educational assistance to the new Mother.

IV. OUTLINE

WYETH MOTHERCRAFT NURSE LECTURE ON BREAST FEEDING

A. Introduction - Breast Feeding - The First Choice

1. Advantages
2. Obtain Doctor's or Nurse's Advice
3. The Need for Competent Instructions to Ensure Success

B. General Considerations

1. Privacy, calm, comfortable atmosphere
2. Feedings spaced 3-4 hours
3. Baby sets own hunger pattern

C. Your Personal Care

1. Wholesome diet for mother
2. Rest between feedings
3. Keep nipples dry, but a little soreness is natural - see doctor if very sore
4. Press nipple to remove excess milk in first week - also relieves pain if there is soreness
5. Describe brassiere, nipple pad, front-buttoned dress
6. Avoid aspirin, laxatives, sedatives, smoking and alcohol
7. When ill do not breast feed without consulting doctor

D. How to Breast Feed

1. Thoroughly cleanse
2. Make sure baby's mouth covers full areola
3. After emptying breast alternate to other if still hungry - otherwise at next feeding

4. Average feeding takes 10-15 minutes, but during first days, try to empty breast if baby fails to do so

5. Discourage idle sucking which causes soreness

6. Describe burping - a necessary procedure - expect some regurgitation

7. After burping, resume feeding unless he show's he's no longer hungry

8. Have bottles available for water and mixed feeding when necessary

9. Weaning to whole milk may begin between 6 and 18 months of age - check with your doctor

E. "Part-time" Breast Feeding Mixed With Artificial Feeding, "Full-time" Artificial Feeding When Breast Feeding Is Not The Choice

1. Sometimes artificial feeding necessary

2. Cows milk unsuitable

3. S-26 best matched for mixed feeding

4. Sugar in breast milk, cow milk, S-26 - benefits

5. Fat in breast milk, cow milk, S-26 - benefits

6. Protein in breast milk, cow milk, S-26 - benefits

7. Vitamins, minerals, fluids

8. Compare growth, sleep, digestion, bowel movements, skin, disposition, same taste!

9. Recommend breast feeding again, with doctor's endorsement

10. Offer literature and call for questions

SUGGESTED VERBALIZATION

(A) The staff at this clinic (maternity, hospital, etc.) has a program for providing you with the most modern instructions on caring for yourself and your newborn baby. I have been invited to visit you today to discuss what is probably the most important aspect of your baby's health in the early months of life: the feeding of your baby.

Although I represent the manufacturer of a very high-quality infant milk formula, I will speak to you as an experienced maternal and child care nurse and will devote most of this discussion to a subject which receives too little attention in these times: breast feeding. There is no question that your own breast milk is the best nourishment for your baby as long as your own health and nutritional state are at their best, and your baby has no allergies or digestive disorders. Nature programs your milk to the exact biological needs of your baby and this assures healthy growth, firm tissue, excellent development of the brain and nervous system, a contented youngster, high resistance to infection, and a beautiful relationship between mother and child from the very beginning of life.

We find that many mothers never even consider breast feeding for their babies because they think it is unfashionable, because they have other children to care for, may have employment, or believe that it will have a harmful effect on their figure. There is nothing old-fashioned about breast feeding, and today more and more women are taking an interest in nursing their own babies. Even if you have a job or other children to take care of, it is possible to breast feed your baby at least part-time in a relaxed private atmosphere, and you will find it a very fulfilling experience. With normal care, breast feeding will not have any effect on your figure.

You should not make any decision on the feeding of your baby without professional advice. Your doctor or nurse will give you sound advice on what is best for your baby and you. They will probably recommend that you breast feed your baby, and because my company, Wyeth International, has prepared the most complete instructional materials on this subject, I would like to give you some pointers which can help you succeed in nursing your baby with confidence.

(B) In the beginning, it is especially important to choose a place in your home where there is quiet and privacy so that baby and you can adjust to this experience calmly and without

interruptions. You should use a comfortable chair and be in a relaxed mood. During the first week or so, you may find that your baby only takes a little milk at a time and therefore requires frequent feedings. Probably once every 2&1/2 to 4 hours, day and night. But pretty soon the feedings will be spaced more regularly between three and four hours. You should not try to dictate the times of day to nurse your baby. Instead, baby will tell you when he or she needs to be fed.

(C) Your own diet and health are extremely important when you become the only source of baby's nutrition. You should have a balanced diet including green vegetables, lean meat, plenty of fluid, and extra fresh or powdered whole milk. Your doctor or nurse will advise you on permitted exercise, but you should have time for resting between your baby's feedings. The nipples should be dried carefully after each feeding, and a clean pad held in place by the brassiere will keep them dry between feedings. Some women feel soreness of the nipples; this is natural in the beginning. But if it continues or there is cracking, your doctor or nurse should be consulted.

During the first week, when baby's intake is not too high, you may wish to press your nipples to remove excess milk. This relieves pain and tightness and stimulates continuous production of milk for later feedings. It is easier to feed your baby without fuss if you wear a dress or blouse that buttons from the front and also use a nursing brassiere (illustrate a nursing brassiere).

I am sure you understand that foreign substances taken into your own body can be carried in your milk to the baby. Therefore, aspirin, laxatives, tranquilizers, and alcohol should be avoided when breast feeding. If you smoke, it may be harmful to do so during the months you will be breast feeding. Also, if you require medication for any reason, the doctor's advice should be consulted as to whether or not it is safe for your baby to continue breast feeding while using such medication. Advice is also needed if you become ill at any time during this period; your doctor may not want you to continue breast feeding. The return of your menstrual cycle might be delayed because of breast feeding, but this will only be temporary. This means, of course, that it will soon be possible to conceive another baby whether or not you are breast feeding, unless you follow a contraceptive method recommended by the doctor or nurse.

(D) I will now comment on the actual steps you should follow in breast feeding your baby. First of all you should wash your hands and gently swab the nipples with cotton or washcloth first using soapy water and then clear rinse water. The water used in this step should first be boiled and then cooled before use. Holding the baby in the arm, lift the breast in such

a way that the nipple is touching his cheek, getting him to turn towards you. Help him to get his lips well past the nipple onto the surrounding darkened area known as the areola. When he presses on this area milk is ejected through the nipple, but when he sucks only the tip he is not likely to get much milk. Incidentally, during the first few days a yellowish liquid known as colostrum is secreted. This will change to more typical white milk very soon. The colostrum is a valuable transition food which contains important protein components that build resistance to infection.

It is a good idea to start each feeding with a different breast. After emptying one, if the baby is still hungry, you should offer the second. It is helpful to remember which breast to start the next feeding with by placing a safety pin on your dress on the right or left side.

In the beginning, your baby may only suck for 3 to 5 minutes, but after a few days he will take most of your milk in 10 to 15 minutes. If he does not completely empty your breast during the first days, remember you should remove the excess milk yourself; this ensures you greater comfort and stimulates milk production for the next feeding. After the breasts are emptied you may find that your baby sucks idly for a longer time. This should be discouraged as it will cause soreness.

After feeding the baby from the first breast he should be "burped". This expels swallowed air and permits easier digestion. Place a diaper (nappy) on your shoulder and lift baby's head to it while patting him on the back. Or, instead, you could lay him across your knee, stomach down, and rub or pat, with the diaper (nappy) under his cheek. Some milk can come up with the swallowed air, however, this should cause no concern. You should burp the baby twice during the feeding and again when feeding is completed. If he does not actually burp, lay him on his right side when you return him to the crib.

Your baby will let you know when he has had enough milk. When he falls asleep or turns away from the nipple, do not force him. He will let you know when he is hungry again.

You should keep a sterilized nursing bottle handy so that water (or juices when recommended by the doctor or nurse) may be fed between breast feedings. The water should be boiled and kept sealed in the nursing bottles, and warmed slightly before use. Feeding bottles may also be used for your own breast milk if there are occasions when it would not be practical for you to nurse directly.

Teething usually starts around 6 months of age, so it would seem that this is when nature intended that baby begin taking more complex foods. But, your doctor or nurse are best qualified to advise you when to add additional food supplements or to wean the baby from breast milk to fresh (or powdered) whole cows milk.

(E) With breast milk nature has set a standard which precisely matches the health and growth needs of your baby. There are situations when a mother's milk supply is inadequate for full-time breast feeding, and there are conditions when it is even impractical for part-time breast feeding. In these circumstances a substitute is called for that comes as close as possible to your own milk. You may have the notion that all of the substitutes in the market are similar. This simply is not true. Cows milk in powdered or liquid form is very poor for newborn babies. It has indigestible butterfat, too little sugar, and too much protein of a type that is rubbery and very difficult to digest.

It is comforting to know that there is one formula that you can give to your baby even when alternating between breast feeding and bottle feeding during the day (mixed feeding) without forcing his system to conform to an unnatural diet. This formula is our S-26 (show package and visual aid).

Your milk, like all food, is made up of six ingredients: sugar, fat, protein, vitamins, minerals and water. But the sugar in your milk is a special type known as lactose which is very low in sweetness, and it has very special properties necessary for firm growth and good digestion. Too many of the breast milk substitutes sold in the stores use sweet vegetable sugar instead. And this is poor for the digestion and stools, and will not help build firm tissue like lactose does. The only sugar in S-26 is lactose, and it is there in the same amounts as in your own breast milk.

I could say the same about fats in most of the packaged baby milk products. They usually contain butterfat which is taken from cows milk. This is very difficult for your baby to digest, is deficient in certain essential oils, is high in unhealthy cholesterol and can be harmful to the smooth baby-soft skin texture which is seen with breast feeding. S-26 has absolutely no butterfat in it. Instead it has a delicately balanced blend of oils which closely matches the fats of your own breast milk. I should also mention that S-26 has <u>enough</u> fat (just as in breast milk). Most other products provide too little fat simply because they are composed of butter which could not be tolerated if given in the same amount as in breast milk. This means that with S-26 the fat will be well digested, and all of it will be taken up by the body for healthy growth and beautiful smooth skin.

The protein of breast milk forms a soft easily digested curd. The amount is lower than in cows milk, so that the metabolism and kidney are not overworked. The amount and chemical composition of the protein in S-26 comes closest

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to the protein of breast milk. It is much higher in quality than cows milk and is so easy to digest. This means that the formation of solid tissue, blood components, and your baby's resistance will follow the pattern observed with breast-fed babies.

When mixed according to directions, S-26 also gives all of the daily requirements in vitamins, minerals and fluids. There really is no need to give supplementary vitamin/mineral preparations or any other foods.

I visit many maternity nurses in my work, and invariably they will comment on the typical differences between bottle-fed and breast-fed infants. Breast-fed babies always seem to have a balanced sleep pattern, are less cranky and have easy bowel movements. Their skin is soft, seldom dried out, and you seldom see any rash in the diaper area. They look solid and pink and you can feel this firmness when you pinch their thighs or little arms. But the typical bottle-fed baby is constipated, often cranky, sleeps less and does not show the same robustness. The nurses tell us, though, that an S-26 baby develops like a breast-fed baby, and like no other bottle-fed baby. And this should be expected! Since S-26 is chemically and physicially the closest to mother's own breast milk, babies who are given mixed feeding or full-time feeding with S-26 have the same type stools, the same firm growth, smooth skin, good sleep, and respond vigorously to their environment.

By all means, try to breast feed your baby so long as your doctor or nurse recommend it. When mixed feeding is necessary, it's much less a challenge to the baby's tolerance to use S-26 - it even tastes the same! And, when full-time bottle feeding is the only choice, I can promise you a baby as happy and healthy with S-26 as he would be if you could nurse him yourself.

I have brought you instruction leaflets on breast feeding which will be distributed at the end of this class. And now, I and the clinic staff would be happy to answer any of your questions.

JOB DESCRIPTION

Professional Service Representative - S.E.Asia

Responsibilities

I. To supplement WIL's promotion of infant formulas to doctors and para-medical personnel through personal contacts for the purpose of disseminating product information and current knowledge on infant nutrition.

II. To support the promotion of Wyeth infant formulas by providing special services to antenatal and postnatal women either directly or indirectly, at the request of doctors or nursing staff.

III. To provide educational service material on family planning and contraception at the various levels of contacts.

Functions

1. Supplementing promotion to doctors and maternity nursing staff.

   a) Maintain regular contact with professional staffs in assigned hospitals and clinics with the objective of providing complete product information, consulting on infant feeding and formula preparation where Wyeth products are in use.

   b) Keep hospital and clinic staffs informed regarding current knowledge and trends in infant nutrition.

   c) Assist in scheduling, planning and conducting Clinical Meetings for hospital and clinic staffs.

2. Direct and codirect contact with mothers:

   a) Conduct Mothercraft classes in hospitals and maternity clinics where such service is requested. The content of these classes include instruction in breast-feeding, self-care for the expectant mother, and the importance of proper nutrition in the first weeks of an infant's life. For women who will not be breast-feeding the newborn, instruction is given in preparation of artificial formula.

   b) On request from physicians, nurses or from mothers with newborns, make home visits for the purpose of consulting with mothers on the progress of infants being fed with Wyeth formulas. During these home visits PSRS will also advise on specific feeding problems and answer questions about infant nutrition and general infant care. (Feeding problems and questions outside the scope of PSR's knowledge will be referred to a physician.)

   c) Be available for a period each day to handle telephone inquiries and requests from mothers, nurses, and physicians.

   d) Promptly investigate and take appropriate action regarding any product complaints and file timely report regarding any such incidents.

PHILIPPINES

PROFILE OF HSR ACTIVITIES

1. The basic educational requirement for HSRS is a college degree from a four-year course in an accredited institution. HSRS' educational background covers a variety of courses, most common of which are: Liberal Arts, Business, Medical Technology, Nutrition, Nursing and Education. Majority of HSRS in our employ have had previous experience as detailwomen of pharmaceutical companies, medical technologists, teachers, hospital and clinic nurses. Other HSRS in our employ have had no previous experience.

2. When making home visits, HSRS do and say the following:

   a. Introduce self/company working with and purpose of visit;

   b. Check on the following:

      (1) Condition of mother and baby

      (2) Work of mother and/or father of baby

      (3) Instruction given to mothers by doctors/ nursery personnel

      (4) Materials given to mothers by nursery personnel

      (5) Procedure in preparing milk and care of baby

   c. HSRS explain to mothers:

      (1) Proper preparation and care of formula

      (2) Schedule of feeding

      (3) Benefits of keeping baby on formula for at least six months

(4) Where to buy milk at best price nearest mother's residence

(5) Care of baby/mother as explained in baby book

(6) Family planning and visit to doctor for mother's health

3. When making bedside calls at maternities, HSRS do and say the following:

a. Introduce self/company working with and explain purpose of visit

b. Fact finding regarding:

(1) Condition of mother and baby

(2) Work of mother and/or father of baby

(3) If multipara, history of milk feeding of previous babies

(4) If multipara, previous practice of milk preparation/feeding

c. HSRS explain to mothers:

(1) Proper preparation and care of milk formulas

(2) Schedule of feeding

(3) Benefits of keeping baby on formula for at least six months

(4) Where mother can buy milk formula nearest her residence at best prices

(5) Care of baby/mother, as explained in Baby Book

(6) Schedule of well-baby check-up by MDS/Health Center

The normal procedure is that they talk only to mothers whose babies have already been put on our formulae. However, there are exceptions caused by the administration requesting that the HSRS explain to all the women

as a group the meaning and use of an infant food formula, proper preparation and sterilization. Hospital administrations normally ask this when it has not yet decided upon the formula to be recommended to the mother if she is unable to breast feed when she takes the infant home.

4. HSRS and TMS constantly remind doctors, nurses and midwives during each visit that only babies whose parents can afford our nutritionals should be started on our formula. In addition, the selection of maternities to be serviced is made on the basis of purchasing power of patients. For example, we generally promote and recommend Bonna in the charity nurseries of hospitals - because of its relatively low price.

5. HSRS can be distinguished from the hospital staff by the ICIFI insignia and the Wyeth pin which we provide. HSRS do not have prescribed dress or uniform but are generally dressed in white when making hospital visits but not nurses' dresses.

6. a. Activities of territory managers (TMS) differing from those of HSRS:

   (1) TM sells and collects, HSR does not

   (2) HSR calls on mothers at bedside and at home, TM does not

   (3) HSR conducts mother's class/pre-natal calls, TM does not

   b. Similar activities of TMS and HSRS:

   (1) Detail WSLI nutritionals to doctors, nurses and midwives

   (2) Service nurseries/maternity plans

   (3) Conduct milk stock availability/price surveys of trade outlets

7. There are no specific government requirements concerning promotion of nutritionals.

8. Estimated total number of babies in 1977 is 1,200,000. Estimated number of babies on WSLI formulae is 150,000. Because of economic reasons, however, many of the babies started on our formulae are shifted to less expensive substitutes. We estimate 20 to 30 percent of babies started on our formulae to be lost after one or two months of any of our products, particularly Bonna.

9. HSRS submit two types of reports, namely: Daily Call Report (DCR) and Hospital Activity Report (HAR).

Following are the contents of the DCRs and the HARs:

DCR

a. Name of doctor/nurse/midwife called

b. Date of call

c. Specialty

d. Product/s promoted

e. Type of call, whether detail or sampling only

f. Quantity of samples given

g. Type of institution visited, i.e., whether hospital, health center, etc.

h. Where sample will be used, i.e., whether in nursery or for take-home.

HAR

a. Name and address of entity

b. Date of report

c. Number of babies started on various formulas including human milk

d. Sample stocks on hand

e. Sample stocks issued.

Joint FAO/WHO Food Standards Programme
CODEX ALIMENTARIUS COMMISSION

CAC/RS 72/74-1976

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RECOMMENDED INTERNATIONAL STANDARDS FOR FOODS FOR INFANTS AND CHILDREN

FOOD AND AGRICULTURE ORGANIZATION
OF THE UNITED NATIONS
WORLD HEALTH ORGANIZATION

- 1 -

INTRODUCTION

The FAO/WHO Codex Alimentarius Commission was established to implement the Joint FAO/WHO Food Standards Programme. Membership of the Commission comprises those Member Nations and Associate Members of FAO and/or WHO which have notified the Organizations of their wish to be considered as Members. By 30 April 1976, 114 countries had become Members of the Commission. Other countries which participate in the work of the Commission or of its subsidiary bodies in an observer capacity are expected to become Members in the near future.

The purpose of the Joint FAO/WHO Food Standards Programme is to protect the health of consumers and to ensure fair practices in the food trade; to promote coordination of all food standards work undertaken by international governmental and non-governmental organizations; to determine priorities and initiate and guide the preparation of draft standards through and with the aid of appropriate organizations; to finalize standards and after acceptance by governments, publish them in a Codex Alimentarius either as regional or world-wide standards.

The Commission has held eleven sessions, the most recent being in March/April 1976. At the eleventh session, the Commission adopted as recommended standards to be sent to all Member Nations and Associate Members of FAO and/or WHO three world-wide standards, i.e. for Infant Formula, for Canned Baby Foods and for Cereal-Based Foods for Infants and Children. In adopting the recommended standard for Infant Formula, the Commission agreed that the standard represented an acceptable international opinion based on present knowledge. It also agreed that the standard would be reviewed at a later stage, should new information justify a review.

Members of the Commission are requested to notify the Secretariat of the Codex Alimentarius Commission - Joint FAO/WHO Food Standards Programme, FAO, Rome - of their acceptance of the recommended standards in accordance with the acceptance procedure for Codex Commodity Standards contained in paragraph 4 of the General Principles of the Codex Alimentarius, the full text of which is given in the Fourth Edition of the Commission's Procedural Manual. Member Nations and Associate Members of FAO and/or WHO which are not Members of the Commission are also invited to notify the Secretariat if they wish to accept the recommended standards. The recommended standards will be published in the Codex Alimentarius as world-wide Codex standards when the Commission determines that it is appropriate to do so in the light of acceptances received.

The methods of analysis included in this publication are not necessarily intended to replace routine methods of analysis, but are for acceptance and use as international referee methods of analysis by governments for the settlement of international disputes involving methodology.

Specifications of identity and purity have been drawn up for the food additives provided for in this standard by the Joint FAO/WHO Expert Committee on Food Additives. These are being further elaborated by the Codex Alimentarius Commission into internationally recognized specifications for food additives.

STATEMENT ON INFANT FEEDING

The following statement on certain aspects of infant feeding has been included on the request of the eleventh session of the Codex Alimentarius Commission:

The effects of protein-calorie malnutrition on morbidity and mortality among infants in underprivileged socio-economic groups have been well recognized. Impaired physical growth and mental development have been scientifically shown, and the adverse effect malnutrition can play during pregnancy and lactation has also been recognized.

Thus, infant feeding represents a problem of prime importance and the value of breast milk as an ideal food for the infant during the first six months of its life cannot be too strongly stressed. However, poor health of the mother and certain social conditions can reduce lactation, separate the infant from the mother or otherwise make breast feeding impossible. In these circumstances it is necessary to use alternative foods such as infant formula to overcome the lack of breast milk. Numerous formulae have been produced which offer a nutritionally adequate food for infants, and, provided they are prepared under hygienic conditions and given in adequate amounts, there is no contra-indication to the use of such products. However, when economic conditions do not permit the purchase of sufficient amounts of suitable infant food, such as infant formula, or where the mother is not familiar with the proper use of such foods (e.g. proper hygiene, appropriate quantity and proportion of the formula, etc.) infants thus fed may develop symptoms of nutritional deficiency or may even reach a state of severe malnutrition.

Therefore, it is necessary to encourage breast feeding by all possible means in order to prevent that the decline in breast feeding, which seems to be actually occurring, does not lead to artificial methods of infant feeding which could be inadequate or could have an adverse effect on the health of the infant.

PART 1 - RECOMMENDED INTERNATIONAL STANDARDS FOR FOODS FOR INFANTS AND CHILDREN

CAC/RS 72-1976

RECOMMENDED INTERNATIONAL STANDARD FOR INFANT FORMULA

1. SCOPE

This standard applies to Infant Formula in liquid or powdered form intended for use, where necessary, as a substitute for human milk in meeting the normal nutritional requirements of infants. It also provides a standard for formulae intended for infants with special nutritional requirements, except for certain provisions which must be modified to meet those special requirements.

2. DESCRIPTION

2.1 Infat Formula, when in liquid form, may be used either directly or diluted with water before feeding, as appropriate. In powdered form it requires water for preparation.

2.2 The product shall be nutritionally adequate to promote normal growth and development when used in accordance with its directions for use.

2.3 The product is so processed by physical means only and so packaged as to prevent spoilage and contamination under all normal conditions of handling, storage and distribution in the country where the product is sold.

3. DEFINITIONS

3.1 The term "Infant" means a person not more than 12 months of age.

3.2 The term "Calorie" means a kilocalorie or "large calorie" (1 kilojoule is equivalent to 0.239 kilocalories).

4. ESSENTIAL COMPOSITION AND QUALITY FACTORS

4.1 Essential Composition

4.1.1 Infant Formula is a product based on milk of cows or other animals and/or on other edible constituents of animal, including fish, or plant origin, which have been proved to be suitable for infant feeding.

4.1.2 Infant Formula shall contain, per 100 available calories (or 100 kilojoules) of intake, the following minimum and maximum levels of vitamins, minerals in an available form, choline, protein, fat and linoleate:

(a) Vitamins other than Vitamin E	Amounts per 100 available calories		Amounts per 100 available kilojoules	
	Minimum	Maximum	Minimum	Maximum
Vitamin A	250 I.U. or 75 µg expressed as retinol	500 I.U. or 150 µg expressed as retinol	60 I.U. or 18 µg expressed as retinol	120 I.U. or 37 µg expressed as retinol
Vitamin D	40 I.U.	80 I.U.	10 I.U.	19 I.U.
Ascorbic acid (Vitamin C)	8 mg	N.S. 1/	1.9 mg	N.S. 1/
Thiamine (Vitamin B_1)	40 µg	N.S. 1/	10 µg	N.S. 1/
Riboflavin (Vitamin B_2)	60 µg	N.S. 1/	14 µg	N.S. 1/
Nicotinamide	250 µg	N.S. 1/	60 µg	N.S. 1/
Vitamin B_6 2/	35 µg	N.S. 1/	9 µg	N.S. 1/
Folic acid	4 µg	N.S. 1/	1 µg	N.S. 1/
Pantothenic acid	300 µg	N.S. 1/	70 µg	N.S. 1/
Vitamin B_{12}	0.15 µg	N.S. 1/	0.04 µg	N.S. 1/
Vitamin K_1	4 µg	N.S. 1/	1 µg	N.S. 1/
Biotin (Vitamin H)	1.5 µg	N.S. 1/	0.4 µg	N.S. 1/
(b) Vitamin E (α-tocopherol compounds)	0.7 I.U./ g linoleic acid 3/, but in no case less than 0.7 I.U./100 available calories	N.S. 1/	0.7 I.U./ g linoleic acid 3/, but in no case less than 0.15 I.U./100 available kilojoules	N.S. 1/

1/ N.S. = Not specified
2/ Formulae with a higher protein content than 1.8 g protein/ 100 Calories should contain a minimum of 15 µg Vitamin B_6 per gramme of protein.
3/ Or per g polyunsaturated fatty acids, expressed as linoleic acid.

(c) Minerals	Amounts per 100 available calories		Amounts per 100 available kilojoules	
	Minimum	Maximum	Minimum	Maximum
Sodium (Na)	20 mg	60 mg	5 mg	15 mg
Potassium (K)	80 mg	200 mg	20 mg	50 mg
Chloride (Cl)	55 mg	150 mg	14 mg	35 mg
Calcium (Ca) 1/	50 mg	N.S. 2/	12 mg	N.S. 2/
Phosphorus (P) 1/	25 mg	N.S. 2/	6 mg	N.S. 2/
Magnesium (Mg)	6 mg	N.S. 2/	1.4 mg	N.S. 2/
Iron (Fe)	1 mg 3/	N.S. 2/	0.25 mg 3/	N.S. 2/
Iron (Fe)	0.15 mg	N.S. 2/	0.04 mg	N.S. 2/
Iodine (I)	5 µg	N.S. 2/	1.2 µg	N.S. 2/
Copper (Cu)	60 µg	N.S. 2/	14 µg	N.S. 2/
Zinc (Zn)	0.5 mg	N.S. 2/	0.12 mg	N.S. 2/
Manganese (Mn)	5 µg	N.S. 2/	1.2 µg	N.S. 2/
(d) Choline	7 mg	N.S. 2/	1.7 mg	N.S. 2/

(e) Protein

(i) Shall not be less than 1.8 g per 100 available calories (or 0.43 g per 100 available kilojoules) of protein of nutritional quality equivalent to that of casein or a greater quantity of other protein in proportion to its biological value. The quality 4/ of the protein shall not be less than 85% of that of casein. The total quantity of protein shall not be more than 4 g per 100 available calories (or 0.96 g per 100 available kilojoules). The minimum value set for quality and the maximum for quantity of the protein may be modified by national authorities according to their own regulations and/or local conditions.

(ii) Isolated amino acids may be added to Infant Formula only to improve its nutritional value for infants. Essential amino acids may be added to improve protein quality, only in amounts necessary for that purpose. Only natural L forms of amino acids shall be used.

1/ The Ca:P ratio shall be not less than 1.2 and not more than 2.0.

2/ N.S. = Not specified.

3/ See Section 10.1.6.

4/ Protein quality shall be determined provisionally using the PER method as laid down in the section dealing with methods of analysis, it being understood that the suitability of the product for infant feeding in conformity with Section 2.2 of this Standard will have been established on the basis of adequate and appropriate tests in the light of current knowledge.

(f) Fat and Linoleate

The product shall contain linoleic acid (in the form of glycerides) at a level not less than 300 mg per 100 available Calories (or 70 mg per 100 available kilojoules) and fat at a level not less than 3.3 g and not more than 6 g per 100 available Calories (or not less than 0.8 g and not more than 1.5 g per 100 available kilojoules).

4.2 Optional Ingredients

4.2.1 In addition to the vitamins and minerals listed under 4.1.2(a), (b) and (c), other nutrients may be added when required in order to provide nutrients ordinarily found in human milk and to ensure that the formulation is suitable as the sole source of nutrients of the infant.

4.2.2 The usefulness of these nutrients shall be scientifically shown.

4.2.3 When any of these nutrients is added, the formula shall contain significant amounts of these nutrients, based on levels in human milk.

4.3 Consistency and Particle Size

When prepared according to the label directions for use, the product shall be free of lumps and of large, coarse particles and suitable for being fed through a soft rubber or plastic nipple.

4.4 Purity Requirements

All ingredients shall be clean, of good quality, safe and suitable for ingestion by infants. They shall conform with their normal quality requirements, such as colour, flavour and odour.

4.5 Specific Prohibition

The product and its components shall not have been treated by ionizing radiation.

5. FOOD ADDITIVES

The following additives are permitted in the preparation of Infant Formula, as described in Section 1 of this Standard, and with the restrictions stated below:

5.1 Thickening Agents	Maximum level in 100 ml of the ready-to-drink product
5.1.1 Guar gum	0.1 g in all types of Infant Formula
5.1.2 Locust bean gum 1/	0.1 g in all types of Infant Formula

1/ Temporarily endorsed.

5.1	Thickening Agents (cont.)	Maximum level in 100 ml of the ready-to-drink product
5.1.3	Distarch phosphate	0.5 g singly or in combination in soy-based infant formulae only
5.1.4	Acetylated distarch phosphate	2.5 g singly or in combination in hydrolyzed protein and/or amino acid-based infant formulae only
5.1.5	Phosphated distarch phosphate	
5.1.6	Hydroxypropyl starch	
5.1.7	Carrageenan	0.03 g in regular, milk- and soy-based liquid infant formulae only 0.1 g in hydrolyzed protein and/or amino acid-based liquid infant formulae only
5.2	Emulsifiers	
5.2.1	Lecithin	0.5 g in all types of Infant Formulae
5.2.3	Mono- and diglycerides	0.4 g in all types of Infant Formulae
5.3	pH-Adjusting Agents	
5.3.1	Sodium hydrogen carbonate	Limited by good manufacturing practice and within the limits for Na and K in Section 4.1.2 (c) in all types of Infant Formulae
5.3.2	Sodium carbonate	
5.3.3	Potassium hydrogen carbonate	
5.3.4	Potassium carbonate	
5.3.5	Sodium citrate	
5.3.6	Potassium citrate	
5.3.7	L(+)Lactic acid	Limited by good manufacturing practice in all types of Infant Formulae
5.3.8	L(+) Lactic acid producing cultures	
5.3.9	Citric acid	

5.4 Antioxidants	Maximum level in 100 ml of the ready-to-drink product
5.4.1 Mixed tocopherols concentrate	1 mg in all types of Infant Formulae
5.4.2 L-Ascorbyl palmitate	1 mg in all types of Infant Formulae

6. CONTAMINANTS

6.1 Pesticide Residues

The product shall be prepared with special care under good manufacturing practices, so that residues of those pesticides which may be required in the production, storage or processing of the raw materials or the finished food ingredient do not remain, or, if technically unavoidable, are reduced to the maximum extent possible.

6.2 Other Contaminants

The product shall be free from residues of hormones and antibiotics, as determined by means of agreed methods of analysis, and practically free from other contaminants, especially pharmacologically active substances.

7. HYGIENE

7.1 To the extent possible in good manufacturing practice, the product shall be free from objectionable matter.

7.2 When tested by appropriate methods of sampling and examination, the product:

(a) shall be free from pathogenic microorganisms;
(b) shall not contain any substances originating from microorganisms in amounts which may represent a hazard to health; and
(c) shall not contain any other poisonous or deleterious substances in amounts which may represent a hazard to health.

7.3 The product shall be prepared, packed, and held under sanitary conditions and should comply with the Code of Hygienic Practice for Foods for Infants and Children 1/.

8. PACKAGING

8.1 The product shall be packed in containers which will safeguard the hygienic and other qualities of the food. When in liquid form, the product shall be packed in hermetically sealed containers; nitrogen and carbon dioxide may be used as packing media.

8.2 The containers, including packaging materials, shall be made only of substances which are safe and suitable for their intended uses. Where the Codex Alimentarius Commission has established a standard for any such substance used as packaging materials, that standard shall apply.

1/ Being elaborated by the Codex Alimentarius Commission.

9. FILL OF CONTAINER

In the case of products in ready-to-eat form, the fill of container shall be:

(i) not less than 80% v/v for products weighing less than 150 g (5 oz.);
(ii) not less than 85% v/v for products in the weight range 150-250 g (5-8 oz.); and
(iii) not less than 90% v/v for products weighing more than 250 g (8 oz.) of the water capacity of the container. The water capacity of the container is the volume of distilled water at 20°C which the sealed container will hold when completely filled.

10. LABELLING

In addition to Sections 1, 2, 4 and 6 of the Recommended International General Standard for the Labelling of Prepackaged Foods (Ref. CAC/RS 1-1969), the following specific provisions apply:

10.1 The Name of the Food

10.1.1 The name of the product shall be either "Infant Formula" or any appropriate designation indicating the true nature of the product, in accordance with national usage.

10.1.2 The sources of protein in the product shall be clearly shown on the label.

10.1.3 If 90% or more of the protein is derived from whole or skim milk, as such or with minor modification, the product may be labelled "Infant Formula based on Milk".

10.1.4 A product which contains neither milk nor any milk derivative may be labelled "contains no milk or milk products" or an equivalent phrase.

10.1.5 A product intended for infants with special nutritional requirements shall be labelled to show clearly the special requirement for which the formula is to be used and the dietary property or properties on which this is based.

10.1.6 Products containing not less than 1 mg Iron (Fe)/100 available calories shall be labelled "Infant Formula with Iron".

10.2 List of Ingredients

10.2.1 A complete list of ingredients shall be declared on the label in descending order of proportion except that in the case of added vitamins and added minerals, these ingredients shall be arranged as separate groups for vitamins and minerals, respectively, and within these groups the vitamins and minerals need not be listed in descending order of proportion.

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10.2.2 The specific name shall be declared for ingredients of animal or plant origin and for food additives. In addition, appropriate class names for these ingredients and additives may be included on the label.

10.3 Declaration of Nutritive Value

The declaration of nutrition information shall contain the following information in the following order:

(a) The amount of energy, expressed in Calories (kcal) and/or kilojoules (kJ), and the number of grammes of protein, carbohydrate and fat per 100 grammes of the food as sold as well as per specified quantity of the food as suggested for consumption;

(b) the total quantity of each vitamin, mineral, choline and any optional ingredient as listed in paragraphs 4.1.2 and 4.2 of this Standard per 100 grammes of the food as sold as well as per specified quantity of the food as suggested for consumption. In addition, the declaration per 100 calories (or per 100 kilojoules) is permitted.

10.4 Net Contents

The net contents of Infant Formula shall be declared by volume if it is in liquid form, or by weight if it is in powdered form. The declaration of weight or volume shall be made in either the metric ("Système international" units) or in a system of measurement as required by the country in which the food is sold, or in both systems.

10.5 Name and Address

The name and address of the manufacturer, packer, distributor, importer, exporter or vendor of the food shall be declared.

10.6 Country of Origin

10.6.1 The country of origin of the food shall be declared if its omission would mislead or deceive the consumer.

10.6.2 When the food undergoes processing in a second country, which changes its nature, the country in which the processing is performed shall be considered to be the country of origin for the purposes of labelling.

10.7 Lot Identification

Each container shall be embossed or otherwise permanently marked, in code or in clear, to identify the producing factory and the lot.

10.8 Date Marking and Storage Instructions

10.8.1 The date of minimum durability of the food shall be declared in clear.

10.8.2 Storage instructions shall appear on the label or on the accompanying leaflet.

10.9 Information for Utilization

10.9.1 Directions as to the preparation and use of the food, and its storage and keeping after the container has been opened shall appear on the label or on the accompanying leaflet.

10.9.2 Information that infants over six months of age should receive supplemental foods in addition to the formula shall appear on the label.

10.10 Optional Labelling

An indication that Infant Formula is intended to replace or supplement breast feeding, where breast feeding is not possible or is insufficient, may be given on the label.

CAC/RS 73-1976

RECOMMENDED INTERNATIONAL STANDARD FOR CANNED BABY FOODS

1. SCOPE

1.1 Baby Foods are foods intended primarily for use during the normal infant's weaning period and also for the progressive adaptation of infants and children to ordinary food. They may be either in ready-to-eat form or in dry form requiring reconstitution with water only. They do not include products covered by the Recommended International Standard for Infant Formula or by the Recommended International Standard for Processed Cereal-Based Foods for Infants and Children.

1.2 Baby Foods in ready-to-eat form are processed by heat before or after being sealed in their containers, and Baby Foods in dry form are processed by physical means, in each case so as to prevent spoilage.

2. DEFINITIONS

2.1 The term "Infant" means a person not more than 12 months of age.

2.2 The term "Children" means persons from the age of more than 12 months up to the age of three years.

2.3 The term "Calorie" means a kilocalorie or "large calorie" (1 kilojoule is equivalent to 0.239 kilocalories).

3. ESSENTIAL COMPOSITION AND QUALITY FACTORS

3.1 Composition

3.1.1 Baby Foods may be prepared from any suitable nutritive material that is used, recognized or commonly sold as an article or ingredient of food, including spices.

Senator KENNEDY. Fine.

Mr. STAFFORD. There was a statement that the Wyeth Co. holds cocktail parties in Venezuela. Now, we had heard that this type of charge might come, and I spoke personally with the general manager of our company by telephone in Venezuela, and he said that his company does not sponsor cocktail parties for doctors, either in connection with infant formula products or pharmaceuticals, which we also sell there. He did tell me that he makes an annual contribution to the annual meeting of the pediatric association; this is a general contribution to support the meeting. Any event at that meeting which is paid for by the use of our funds is not a meeting at which we appear and promote our products. We either do not attend, or if we do attend, we send perhaps one representative.

Insofar as the Venezuelan label is concerned, that is one country where, when we have made recent changes in our labels, we needed government approval. We now have received government approval, and we are revising our label in Venezuela, and it includes a statement: "Breast feeding is the preferred feeding for newborns. Infant formula is intended to replace or supplement breast milk, when breast feeding is not possible or is insufficient, or when mothers elect not to breast feed." Also, in boldface, is the statement: "Important: Follow preparation instructions carefully." And we have some pictorial instructions on that can, but, of course, the size of the can, with the information that you need to have on it—there is not a great deal of space to put pictorial instructions, and for that reason, we have home supplemental instructions on that.

There were also some adverse comments on our baby book which we provide. Actually, the first—there are a couple of points on that: One, it only goes to the women who have chosen to bottle feed. Second, the first half of the book is devoted to baby care, and the second half on how to prepare the formula, including pictures, including pictures on boiling the water. So, I do not believe that the suggestion that the baby book is designed to sell formula is a fair one.

Senator KENNEDY. Would you go into a market area where there was 70 percent impure water, trying to sell your product?

Mr. STAFFORD. Well, in many of these lesser developed countries, the system of distribution is complex. We sell perhaps in some countries in the third world only to a distributor, and that distributor, in turn, distributes the product throughout the country. Even where we have our own company, we sell to wholesalers and other large buyers. The subsequent distribution of that product throughout the country, I think, would be very difficult for us to control.

Senator KENNEDY. Well, whose responsibility is it? Is it the distributor? I mean, you really do not mind or care what he does with it?

Mr. STAFFORD. No. We do care. And actually, insofar as the bad water is concerned, the product needs to have boiled water. That is true almost throughout the world. And if the mother follows the instructions which we provide and which we try to make the available in various ways, and uses it properly, it will be safe.

So, to keep the product out of those areas because there is bad water, such as perhaps most of the city of São Paulo, it would deprive an awfully lot of people.

Senator KENNEDY. Well, certainly, the São Paulo illustration—we have heard a lot about it as an example. But there are many other rural areas where we heard about the complexities and difficulties—mothers going out and getting water, coming back, building the fire and boiling the water. It is rather an alien kind of a tradition, and it is not, in terms of the pattern and practice, followed or done in these areas.

And I am just wondering what your corporation believes is its responsibility, if they do feel they have any responsibility in the areas where either the population is so poor or the water is so bad; personal habits of the mothers or so traditionalized that it is going to mean that the formula is going to be diluted or mixed with poor water and the infant's health is going to be threatened. And these are not isolated kinds of conditions; we have heard them testified to by a number of witnesses and, quite frankly, Mr. Stafford, we could have had this whole room full of witnesses that would have testified to exactly the same thing.

And that is what I am trying to get at—how your company views this; whether it feels it gives it to the distributor and that is it as far as you are concerned, because you have got the old São Paulo example. That is interesting to us; I mean, if your company thinks the world is all "São Paulo's" over there, and therefore you do not have to care very much, that is very interesting to us.

Mr. STAFFORD. I do not believe I said that, Senator. We do not want our product used by women improperly. We do not want it made available to women who cannot use it properly.

Senator KENNEDY. Do you do anything to prevent it?

Mr. STAFFORD. We do not want it. As a matter of business practice, our customers tend to be—as defined by our foreign managers, tend to be the middle class of those customers, and the abject poverty in the world environment are not the customers that we target. They are ones that cannot afford the product.

Senator KENNEDY. You do not target, but do you know what goes into the poor people?

Mr. STAFFORD. If the product gets there, we hope that we will——

Senator KENNEDY. Do you know whether it does get there?

Mr. STAFFORD. Yes; the product is available in the stores now.

Senator KENNEDY. Do you know what percentage does get there or if it is used correctly? Do you have any idea?

The World Health Organization feels that it is an important health hazard.

Mr. STAFFORD. Our products are used mostly in the urban areas and not in the rural remote areas.

Senator KENNEDY. Mr. Cox?

Mr. Cox. Senator Kennedy, I beg your indulgence to read an emasculated statement. We have tried to avoid redundancy but there has been a lot of work and preparation.

Senator KENNEDY. We will include it in its entirety.

Mr. Cox. I understand that.

With me I have Tom McCollough who is the head of our research team study in Third World problems.

In addition to pharmaceuticals, hospital supplies, and medical equipment, our corporation manufactures an extensive line of infant

nutritional products, sold primarily under the trademarks SIMILAC and ISOMIL. While there is no universally accepted definition of "Third World" countries, we have developed a list of approximately 100 countries which, measured by various criteria, we believe, fall in this classification. Overall, less than 10 percent of our 1977 sales of prepared infant formula products were made in those developing nations.

Serious concerns regarding the effect of prepared infant formula products on infant feeding practices in the Third World were first brought to my attention in 1970 at a meeting held in Bogota, Colombia, sponsored by various United Nations agencies. At that meeting, medical and nutritional experts debated the issue vigorously, but disagreed substantially on the impact of the availability and promotion of infant formulas on a perceived decline of breast feeding in developing nations. They also disagreed on whether infant morbidity and mortality rates in general were linked in a significant way to the use of commercial formulas.

A strong position was taken by Derrick Jelliffe and others that, indeed, such a relationship existed. A second group of experts, including Drs. Renato Woisky (Brazil), Dr. Fernando Monckeberg (Chile), and Dr. Paez Franco (our host in Colombia) took a more moderate position. That position can be summarized as follows:

1. While breast feeding appeared to be declining, particularly in urban centers, this phenomenon was largely independent of prepared infant formula promotion.

2. Data on morbidity and mortality had to be examined as part of a much larger picture that included—and I will not list all of the things. That would be redundant.

In short, those experts thought that commercial prepared formulas were a very small and undefined part of a very large problem.

Almost all experts at the Bogota meeting agreed that there was a legitimate need for alternatives to breast feeding for some mothers. Further, as my staff and I have traveled in the Third World, no one has ever suggested withdrawing these products.

This bit of past history is helpful to illustrate the differences of opinion among experts then. We have vigorously debated these issues today because there is a lack of consensus on the fundamental definition and scope of the problem.

Everyone acknowledges that the use of any type of breast milk supplement or alternative can create problems when combined with poor sanitation, poverty, impure water, or misinformation. But we cannot seem to agree that there would be more serious problems if such alternatives were not available.

Nevertheless, from the time of the Bogota meeting in 1970, we decided that Abbott should be responsive and open to the concerns expressed at that meeting, and that we should assure that our marketing policies would minimize any potential problems with the use of our products.

We understand that infants under 1 year of age are vulnerable to rather narrow limits of nutritional stress, and that all parents are not aware of or able to cope with that fact. Consequently, we have evolved two central marketing principles:

1. The selection and use of a formula should involve the intervention of a health care professional.

2. Our promotion should not be directed to the parent.

Consistent with these principles, we have published formal marketing guidelines specifically for developing countries which reject the use of mass media advertising—radio, TV, newspapers—and which confine the promotion of our products to the health care profession. Our Code of Marketing Ethics has been widely distributed in developing nations. Copies have been furnished to your staff. That code:

1. Affirms the superiority of breast milk, particularly for infants of mothers in lower socioeconomic and non-monied economic sectors.

2. Specifies that our product labels stress the importance of breast-feeding * * * and graphically display the proper techniques for the preparation and use of our products.

3. Explains our belief in the liabilities of mass media, including the possible encroachment on professional judgment and experience.

4. Raises the question of cost and preparation in deciding whether a patient can safely use our product.

5. Requires written permission of a health care professional if an Abbott employee is permitted to talk with laymen even in an institutional meeting.

6. Forbids home visits by Abbott employees.

7. Insists that our employees in no way imply that they are clinic personnel or anything other than Abbott emloyees. At one time, some of our sales employees who were nurses did wear their uniforms, but we now prohibit that practice.

With respect to samples, these are distributed by us only to health care professionals. However, their purpose is not to induce or enable mothers to abandon breast feeding. They are intended for the convenience and instruction of mothers for whom our product has been selected by a health care professional, and to familiarize such personnel with their characteristics and performance of the product.

To insure that our corporate responses are appropriate, and that our marketing principles are not violated, we maintain a close and fruitful relationship with our critics, the professional health community in the Third World, and through our management systems, directly with our overseas employees.

In addition, we have funded research projects related to breast feeding and trends in infant feeding; formed a permanent study team to keep management informed of developments and recommend policy; have taken extensive field trips to expand our awareness of the problem; and have cooperated with a number of countries in formulating their national breast-feeding program. We will continue to follow-up diligently on any alleged infraction of our Code which may be uncovered and correct those infractions promptly if validated. We will also continue to listen carefully to all responsible concerned groups.

However, I do not wish to leave a false impression that we agree with or accept many of the accusations or changes made against the industry. Many of these charges are circumstantial, anecdotal, exaggerated or biased, although very effective in stimulating controversy.

For example, the charge has been made that the promotion of infant formula has been a primary factor in the reduction of breast feeding.

We have recently been privileged to exchange a good bit of information with the Soviets about infant feeding in the U.S.S.R. I do not believe private industry could be accused of causing decline in breast feeding there. Yet the need for breast feeding alternatives is so great, that at the request of the Russian Government, we have agreed to construct a major infant formula plant in the Ukraine to help meet the growing demand for infant formula. Other experts, including Dr. Jelliffe, have noted breast feeding declines in urban Cuba, where private enterprises could not have any influence on the decline.

We also disagree strenuously with critics that promotion to the health care profession in the Third World should be stopped. In our opinion, there is no better group to care for sick or malnourished infants. It would be overly demeaning and presumptuous to assume that those professionals are insensitive to the needs of mothers or infants. In our travels we are impressed with their awareness of the unique merits of breast feeding and problems of any type of bottle feeding in inappropriate settings.

To aid in the relationship of this controversy, we recommend continuing multidisciplinary examination of all the forces influencing mothers to breast feed or no; how malnutrition of the pregnant mother affects the fetus and lactation; how cultural patterns influence decision about early and late weaning; how to change eating habits; and so on.

We also recommend that while attempting to solve nutritional problems of the mother and child, we need simultaneously to tackle the companion problems of poverty, education, environment and sanitation, immunization, and family planning, or not much progress can be made.

There are great challenges, worthy of the attention of our critics, health professionals, industry, and Congress. We hope these hearings will help to put the debate over the role of prepared infant formulas into its proper perspective so that we may more clearly see and go to work on the larger, more critical issues.

Sir, if you would indulge me, I would also like to make one comment on the prior testimony that has been given here today. We intended to divide the question into breast feeding or not breast feeding when there is considerable evidence that the greatest number of these babies are both—they are receiving the breast, and they are also receiving our product or some other bottle product.

We made a search of the literature, and I would like to enter that in the record, with your permission. We prepared a paper on what is known in the medical literature about the volume of breast milk secreted. It has been considered that 850 milliliters/day is the maximum, although one study shows 1,000 milliliters/day. At this level, it will only meet the requirements of a child up to 6 months of age.

Now, Dr. Jelliffee has indicated that a majority of the women can breast feed. I do not think anyone would dispute that. But these data show that, on the average, most of these mothers of underweight babies are yielding only 450 to 600 milliliters of breast milk. That is only sufficient to meet the needs of the child for about 3 months.

Also I would like to say something about—we have telescoped the time of the appearance of these malnourished patients at the clinics.

My information from the consultants that we use is that most of these babies present at 12 months to 18 months. That is generally beyond the use of our type of prepared formula. So, I think that we still have a problem which has been readily admitted today. We do not believe that all mothers can breast feed, no matter how adequate their nutrition and other needs may be corrected, or may be attended. In our Bogota conference, our host there, Dr. Paez began with a survey in Bogota of why mothers ceased breast feeding. Forty-eight percent were because of the new pregnancy that was instituted. Thirteen percent was refusal by the child, and 7 percent was illness of the mother, including mastitis.

I believe that this hearing today has had a remarkable balance if, indeed, the industry has made some recognition of this problem and has made advances toward a more socially responsible position. So too, the critics have greatly modified their accusations.

I have great hope that with such a dialog as this continuing and that this problem will be solved. I would like to say that Dr. Monckeberg of Chile, with whom your staff has conversed, has probably come closer to solving this than any other country, and I regret sincerely that he was not one of the experts here today. But I think we should look into what he has done in Chile and how he has solved the problems. He has made dramatic progress in Chile.

Thank you.

[The prepared statement of Mr. Cox follows:]

ABBOTT
Health Care World Wide

PUBLIC AND PROFESSIONAL RELATIONS
ABBOTT LABORATORIES
ABBOTT PARK, NORTH CHICAGO, ILLINOIS 60064
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For immediate release

Contact: Thomas A. Craig
William D. Pratt

WASHINGTON, D.C., May 23, 1978 -- Abbott Laboratories, manufacturer of Similac infant formulas, told a congressional subcommittee today that it has been open and responsive to concerns about the possible misuse of infant formulas in the "third world."

Abbott has adopted as a central principle of its marketing that selection and use of an infant formula should involve the intervention of a health-care professional, said David O. Cox, president of the Ross Laboratories division of Abbott.

The company also has adopted a Code of Marketing Ethics for Developing Countries that has been widely distributed, Cox said in testimony prepared for delivery this morning at a hearing of the Senate subcommittee on health and scientific research.

The Code rejects the use of mass-media advertising and confines promotion of infant-formula products to health-care professionals, Cox said. The Code also affirms the superiority of breastmilk and specifies that product labels stress the importance of breastfeeding and graphically display the proper techniques for the preparation and use of the products.

"However, I don't wish to leave a false impression that we agree with or accept many of the accusations or charges made against the industry," Cox said. "Many of these charges are circumstantial, anecdotal, exaggerated or biased, although very effective in stimulating controversy."

Cox indicated there was substantial disagreement with the charge that the promotion of infant formulas has been a primary factor in the reduction of breast-feeding. For example, the need for breastfeeding alternatives in the U.S.S.R. is so great that "at the request of the Russian government, we have agreed to construct a major infant-formula plant in the Ukraine to help meet the growing demand for infant formula," he testified.

"We also disagree strenuously with critics that promotion to the health-care profession in the 'third world' should be stopped," he said. "In our opinion there is no better group to care for sick or malnourished infants."

Cox also noted that the problems associated with "bottle-feeding" are not unique to prepared infant formulas. Among the poor, he said, paps, starchy gruels, herbal teas, soda pop, evaporated milk, sweetened condensed milk, reconstituted skim or whole milk, or fresh (and often unpasteurized) animal milk available locally are the products most commonly used, not commercial prepared formulas.

"To aid in the resolution of this controversy we recommend continuing multi-disciplinary examination of all the forces influencing mothers to breastfeed or not," Cox said. He recommended that critics, health professionals, industry, and Congress also tackle nutritional problems of the pregnant woman and the infant, the effects of cultural patterns, as well as companion problems of poverty, education, environment and sanitation, immunization, and family planning.

"We hope these hearings will help to put the debate over the role of prepared infant formulas into its proper perspective so that we may more clearly see and go to work on the larger, more critical issues," he said.

Abbott Laboratories is a worldwide health-care company, with sales in 1977 of $1.245 billion. Its worldwide sales of infant-formula and related products were about $222 million in 1977, less than 10 percent of which were in "developing" countries.

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SUMMARY STATEMENT OF ABBOTT LABORATORIES ON THE ROLE OF PREPARED INFANT FORMULAS IN THE THIRD WORLD PRESENTED TO THE SENATE SUBCOMMITTEE ON HEALTH AND SCIENTIFIC RESEARCH ON MAY 23, 1978

I am Mr. David O. Cox, President of the Ross Division of Abbott Laboratories. With me today is Mr. Tom McCollough, our Research Specialist for the Third World. We welcome the opportunity to appear before you today.

In addition to pharmaceuticals, hospital supplies and medical equipment, our corporation manufactures an extensive line of infant nutritional products, sold primarily under the trademarks SIMILAC and ISOMIL. While there is no universally accepted definition of "Third World" countries, we have developed a list of approximately 100 countries which measured by various criteria we believe fall in this classification. Overall, less than 10 percent of our 1977 sales of prepared infant formula products were made in those developing nations.

Serious concerns regarding the effect of prepared infant formula products on infant feeding practices in the Third World were first brought to my attention in 1970 at a meeting held in Bogota, Colombia, sponsored by various United Nations agencies. At that meeting, medical and nutritional experts debated the issue vigorously, but disagreed substantially on the impact of the availability and promotion of infant formulas on a perceived decline of breastfeeding in developing nations. They also disagreed on whether infant morbidity and mortality rates in general were linked in a significant way to the use of commercial formulas. A strong position was taken by Derrick Jelliffe and others that, indeed, such a relationship existed. A second group of experts, including Drs. Renato Woisky (Brazil), Dr. Fernando Monckeberg (Chile) and Dr. Paez Franco (our host in Columbia) took a more moderate position. That position can be summarized as follows:

1. While breastfeeding appeared to be declining, particularly in urban centers, this phenomenon was largely independent of prepared infant formula promotion.
2. Data on morbidity and mortality had to be examined as part of a much larger picture that included maternal nutrition, sanitation, access to health care, purchasing power, education, lactation failure due to family disruption, urbanization with subsequent life-style changes, etc. In short, those experts thought that commercial prepared formulas were a very small and undefined part of a very large problem.

Almost all experts at the Bogota meeting agreed that there was a legitimate need for alternatives to breastfeeding for some mothers. Further, as my staff and I have traveled in the Third World, no one has ever suggested withdrawing these products.

This bit of past history is helpful to illustrate the differences of opinion among experts then. We are debating these same points today because

THERE IS A LACK OF CONSENSUS ON THE FUNDAMENTAL DEFINITION AND SCOPE OF THE PROBLEM.

Everyone acknowledges that the use of any type of breastmilk supplement or alternative can create problems when combined with poor sanitation, poverty, impure water, or misinformation. But we cannot seem to agree that there would be more serious problems if such alternatives were not available.

In addition, the problems associated with "bottle-feeding" are not unique to prepared infant formulas. In developing nations, bottle-feeding includes paps, starchy gruels, herbal teas, soda pop, evaporated milk, sweetened condensed milk, reconstituted skim or whole milk, fresh (and often unpasteurized)

animal milk available locally. Among the very poor, these are the products most commonly used, not commercial prepared formulas.

Nevertheless, from the time of the Bogota meeting in 1970, we decided that Abbott should be responsive and open to the concerns expressed at that meeting, and that we should assure that our marketing policies would minimize any potential problems with the use of our products.

We understand that infants under one year of age are vulnerable to rather narrow limits of nutritional stress, and that all parents are not aware of or able to cope with that fact. Consequently, we have evolved two central marketing principles:

1. The selection and use of a formula should involve the intervention of a health care professional.
2. Our promotion should not be directed to the parent.

Consistent with these principles, we have published formal marketing guidelines specifically for developing countries which reject the use of mass media advertising -- radio, T.V., newspapers -- and which confine the promotion of our products to the health care profession. Our Code of Marketing Ethics has been widely distributed in developing nations. Copies have been furnished to your staff. That Code:

1. Affirms the superiority of breastmilk, particularly for infants of mothers in lower socioeconomic and non-monied economic sectors.
2. Specifies that our product labels stress the importance of breastfeeding . . . and graphically display the proper techniques for the preparation and use of our products.

3. Explains our belief in the liabilities of mass media, including the possible encroachment on professional judgment and experience.
4. Raises the question of cost and preparation in deciding whether a patient can safely use our product.
5. Requires written permission of a health care professional if an Abbott employee is permitted to talk with laymen even in an institutional setting.
6. Forbids home visits by Abbott employees.
7. Insists that our employees in no way imply that they are clinic personnel or anything other than an Abbott employee. At one time some of our sales employees who were nurses did wear their uniforms, but we now prohibit that practice.

Over time we have firmed up policy on other aspects of medical promotion. With respect to samples, these are distributed by us only to health care professionals. However, their purpose is not to induce or enable mothers to abandon breast-feeding. They are intended for the convenience and instruction of mothers for whom our product has been selected by a health care professional, and to familiarize such personnel with their characteristics and performance.

To insure that our corporate responses are appropriate, and that our marketing principles are not violated, we maintain a close and fruitful relationship with our critics, the professional health community in the Third World, and through our management systems, directly with our overseas employees.

In addition, we have funded research projects related to breastfeeding and trends in infant feeding; formed a permanent study team to keep management informed of developments and recommend policy; have taken extensive field trips to expand our awareness of the problem; and have cooperated with a number of countries in formulating their national breastfeeding program. We will continue to follow up

diligently on any alleged infraction of our Code which may be uncovered and correct those infractions promptly if validated. We will also continue to listen carefully to all responsible concerned groups.

However, I don't wish to leave a false impression that we agree with or accept many of the accusations or charges made against the industry. Many of these charges are circumstantial, anecdotal, exaggerated or biased, although very effective in stimulating controversy.

For example, the charge has been made that the promotion of infant formula has been a primary factor in the reduction of breastfeeding. We have recently been privileged to exchange a good bit of information with the Soviets about infant feeding in the U.S.S.R. I don't believe private industry could be accused of causing decline in breastfeeding there. Yet the need for breastfeeding alternatives is so great that, at the request of the Russian Government, we have agreed to construct a major infant formula plant in the Ukraine to help meet the growing demand for infant formula. Other experts, including Dr. Jelliffe, have noted breastfeeding declines in urban Cuba, where private enterprise could not have any influence on the decline.

We also disagree strenuously with critics that promotion to the health care profession in the Third World should be stopped. In our opinion there is no better group to care for sick or malnourished infants. In addition, the evolving medical structure in those countries seems to be the most appropriate source of direct nutritional guidance for mothers and their children. It would be overly demeaning and presumptuous to assume that those professionals are insensitive to the needs of mothers or infants. In our travels we are impressed with their awareness of the unique merits of breastfeeding and problems of any type of bottle-feeding in inappropriate settings.

To aid in the resolution of this controversy we recommend continuing multi-disciplinary examination of all the forces influencing mothers to breastfeed or not; how malnutrition of the pregnant mother affects the fetus and lactation; how cultural patterns influence decision about early and late weaning; how to change eating habits; and so on.

We also recommend that while attempting to solve nutritional problems of the mother and child, we need simultaneously to tackle the companion problems of poverty, education, environment and sanitation, immunization, and family planning or not much progress can be made.

These are great challenges, worthy of the attention of our critics, health professionals, industry and Congress. We hope these hearings will help to put the debate over the role of prepared infant formulas into its proper perspective so that we may more clearly see and go to work on the larger, more critical issues.

Thank you for allowing me to testify. We would be pleased to answer any questions you may have.

Revised, Winter 1977

CODE OF MARKETING ETHICS FOR DEVELOPING COUNTRIES

With Reference To Infant Feeding

ABBOTT LABORATORIES/ROSS LABORATORIES

INTRODUCTION

Supplying infant formula products in developing nations presents unique marketing problems and opportunities for the Corporation. In these nations it is possible to find the most modern, sophisticated and advanced settings in stark contrast with widespread poverty, illiteracy and inadequate health care. Infant mortality rates can be ten times greater than those of industrialized nations. Most of these infant deaths are caused by diseases such as malaria, measles, malnutrition, etc., which are preventable by applying current medical and nutritional knowhow. Within this context, we are keenly aware of the responsibilities of Abbott Laboratories to make a positive contribution to the health and well-being of infants in developing countries.

The Central Role of Professional Health Care Judgments

Because good nutrition is an essential factor in proper health care, we believe supervision of the infant's diet should be the sole responsibility of medical and allied health care personnel whose knowledge of nutritional science and understanding of local needs and conditions qualify them to provide this guidance. We conduct our business in cooperation with local health personnel, supporting their work through the provision of appropriate health care products and services. This relationship is especially important in developing countries where delivery of health care to major segments of the population is too often complicated by unfavorable living conditions.

Decisions about infant formula should reside solely in the hands of health care professionals. Where no health care counselling is available, the use of our products is inappropriate.

The Priority of Breastfeeding

Breast milk of healthy, well-nourished mothers is the best feeding to meet the nutritional needs of infants from birth through four to six months of age. At that time, needed and appropriate solid foods should be added to the diet. All mothers should be encouraged to feed their infants at the breast as long as the quantity and quality of milk remains minimally adequate. The recommendation to breastfeed is particularly appropriate for mothers in lower socioeconomic or non-money economic sectors, whose "at-risk" infants may be subjected to malnutrition, unsanitary environments, and endemic diseases.

To this end, we pledge to cooperate with local health care personnel, Ministries of Health and concerned international agencies to support health education practices which encourage breastfeeding.

Our product label carries a statement that breast milk is the preferred feeding for infants.

The Validity Of Alternatives To Breast Milk

Nevertheless, not all mothers lactate successfully, find it practical or desirable for personal reasons. In those cases, the health care profession may be required to recommend a suitable alternative. In that context, we offer Similac® infant formulas, which are patterned as closely after the nutri-

tional qualities of human milk as current knowledge and technology permit. In presenting Similac and other products to the health care professions, our goal is to promote awareness and acceptance of physiologic nutrition as the most desirable alternative when breastfeeding is not possible. Given the scientific evidence in support of our products' efficacy, the health care profession should be free to decide whether our products or other alternatives should be recommended.

We recognize that a valid need for alternative feedings sometimes exists in segments of the population not able to purchase them. Government sponsored programs for public assistance in some form are the best ways to aid mothers who can neither breastfeed, nor afford a suitable replacement.

Restricted Promotion Of Infant Formula Products

1. We believe that unsupervised, direct promotion of infant feeding products to mothers can unjustly impel them to make decisions concerning the care and nutrition of their babies for which they may lack adequate medical or nutritional knowledge.

   Therefore, we do not advertise our products through general circulation magazines, directories, newspapers, radio, television, billboards, and other public mass media. We believe that no communication to the general public should encroach in any way on the responsibility of health care professionals to provide guidance as their judgment and experience dictate.

2. We do not encourage use of our products where private purchase would impose a financial hardship on the family, or where inadequate facilities for preparation constitute a hazard to infant health. We represent the cost of infant feeding accurately so that professional personnel can better advise mothers according to their economic status.

3. If any contact with mothers is made, either written or oral, it must be with the explicit agreement of a health care professional, so that the responsibility for that contact rests with the profession. If a company representative at any time is permitted to talk with mothers, in hospitals, health clinics, or maternity centers, that permission must be granted in writing, and a non-Abbott health care professional present.

   To help ensure that our infant feeding products are directed only to mothers who need and can afford them and have the capability to prepare them properly and to encourage professional guidance on their use, product samples are supplied only to professional health care personnel at their request.

   Visiting mothers in their homes is not allowed, even though requested by a health care professional.

4. We employ experienced and professionally knowledgeable company representatives who understand local needs. They are thoroughly taught the preference and value of breastfeeding, the

knowledge and proper application of our products, and the influence of social pressures that can lead to unwise purchases and practices by those who cannot afford to buy infant formula.

They are schooled to perform their duties in a professional manner and with integrity. Deception and other unethical practices are expressly forbidden. Specifically, any inference that our employees are members of a hospital, clinic, or maternity center staff is contrary to company policy. Even in the case of female employees who are qualified nurses, nurses uniforms are not to be worn. Nurses are reimbursed through adequate salary, not sales commission. The activities of our representatives must be coordinated with those of medical professionals responsible for infant and mother care. They may, under the supervision of responsible health care personnel, furnish "genuine" out-reach services in support of infant care instructions and counselling provided by the clinic, hospital or maternity center, but without any attempt to incur obligation for such services.

5. Our product label and printed instructions, in addition to stressing the importance of breastfeeding, will emphasize the need for accurate, proper proportions in preparing the formula. Pictographs as well as the written word will be included in appropriate languages.
6. While restricting our promotion to health care profession, we will direct additional company resources to aid their overall mission by providing communications on current health care developments, and by providing them with non-product related services for distribution to mother to:
   a) encourage breastfeeding
   b) promote good overall nutritional practices
   c) improve infant and child care
   d) improve sanitation
7. Further, to insure that the letter and spirit of this revised and strengthened Code of Marketing Ethics is followed, we will distribute it widely in developing countries to appropriate health care agencies and personnel. We invite those directly responsible for infant care in the developing world to report any current deviation from this Code by our employees or distributors. Unless proscribed by law, we will terminate any distributor who does not follow the Code. The company has devised internal procedures and policy to maintain ongoing surveillance of our marketing practices in these nations.

We recognize the variation that exists between countries as to state of development, economic resources and availability of trained health personnel and want our activities in all countries to conform to the spirit and letter of this Code.

Abbott Laboratories
North Chicago, Illinois 60064 USA

Winter, 1977

Senator KENNEDY. Well, we will certainly inquire of the doctor. He may make whatever comments he has.

What is the size of the international market for this industry? We heard estimates from 1 billion to 1.5 billion, increasing an additional 1 billion by the year—somewhere between the eighties. What is your estimate, Mr. Cox?

Mr. Cox. There are two markets. One is the potential market and one is the available market, meaning the business that is done today. I think that in terms of the business that is done today, it is grossly exaggerated. You know, from our confidential statement what we are doing. I would estimate the total market today for all companies is probably not greater than $600 or, at the most, $700 million.

The potential market, Senator, is impossible to calculate because of the growth of the human race and how many of those will be breast fed. I think it is impossible to put an outside limit on the potential.

Senator KENNEDY. You must have some idea of flow charts over the next 3, 4, 5 years. I do not know any industry that does not. Every industry does except the U.S. Congress.

Mr. Cox. Well, we look very inadequate. In our corporation we have never estimated that potential market. In the United States, in general, we have doubled our available—our business in this area approximately every 5 years. It might not be inappropriate to apply that rule and say that the international market might possibly double every 5 or 6 years. That, of course, includes inflation, Senator.

Senator KENNEDY. What is the estimate of the others, Mr. Stafford?

Mr. STAFFORD. I would not have any figures on the market, but I would not disagree with the figure.

Senator KENNEDY. World Health has, let us see, four countries: $125 million for Ethiopia, Nigeria, Philippines——

Mr. MCCOLLOUGH. Would that include all products?

Senator KENNEDY. Infant formula alone.

Mr. Cox. On that basis I should reduce my estimate because the $600 or $700 million includes the formula plus cereal market, which is equally as big as the formula alone market.

Senator KENNEDY. And you have no estimate of what it is going to be in the future?

Mr. Cox. Other than what I have already given you, sir.

Senator KENNEDY. Let me ask you, Mr. Cox, finally just what I asked the others.

Do you have any sort of a postmarketing review to find out how your product is actually moved, whether it really is getting into the hands of those middle-income people or whether you know—you have testimony on page 2: "Almost all experts at the Bogotá meeting agreed that there was a legitimate need for alternatives to breast feeding for some mothers."

The real issue during the course of the morning is the misuse of these products. And I am just wondering what your company or corporation has used that as a responsibility?

Mr. Cox. Senator, our distribution is what we call a pull-through distribution rather than a push-through distribution. We promote to the health professions. Where they prescribe the product, if someone goes to the dealer and he does not have the product, he gets it. I do not

know that there is any effective way to control distribution. You could limit it to drugstores.

Senator KENNEDY. What kinds of review do you have about the appropriate use by those professions?

Mr. Cox. I do not think we have any surveys that we can give you. I have taken trips, and if you will permit me to comment on one. right after Bogota, I took Dr. Max Milner, who was secretary-general of the protein advisory group, and Dr. Les Teply, who is the chief nutritionist of UNICEF, and we took the company plane and went to Jamaica to look for this problem. We visited both nutrition institutes there. They took us out in the rural areas.

The most dramatic case we saw was a grandmother, a mother, and a daughter, all three with infants under 1 year of age, all feeding out of one can of a competitive product. The three babies had been using that product for approximately 10 days. There was still one-third of the can left. So you can see what degree of calories they were getting.

However, these babies—and we had the county health physician with us—though, believe me, they did not have any fat on their bodies, they did not have marasmus or knashiorkor or enteritis or diarrhea, and they were doing quite well, because the mothers were feeding them the breast, both morning and evening, and simply giving this white milky mixture during the day.

Now, the question is whether or not that white milky mixture is better, being a physiological formula closely approximating breast milk, or whether its better to be one of the many other things that you heard goes into the bottle, such as flour water or sugar water, what have you. I think this is one of the things that this hearings has not dealt with adequately, is what will happen if, in fact, we do restrict the availability of these products.

For instance, we know that immune competence is based on a daily intake of protein. All of these kids are going to get *E. coli*. We stressed pure water today, and that is a big problem. However, it is the opinion of my nutritional staff that even if a baby, by 6 months of age, had pure water, that he is going to pick up enough coliform bacteria in his environment, that it really will not make any difference. The *E. coli* in the water will not make that much difference. So I think water is important to the young child, but most of the babies we are talking about presenting themselves in clinics are well over 6 months of age. As I say, the average is 1 year to 18 months. So I do not believe that purifying the water will eliminate this problem.

Senator KENNEDY. I gather from your response to my question that you did not do any sort of a postmarket surveillance to find out how your product is used?

Mr. Cox. Other than our own observations and listening and cooperating with our critics. I might say that the critics' input to us has given us a much broader picture of what goes on in the world much quicker, and they made a contribution to our ability to consider the problem and establish policy.

Senator CHAFEE. Mr. Cox, I think you have contributed a lot to this hearing today, and it certainly seems to me that your company markets its products in a very responsible way. I also note that only 10 percent of your sales is in developing nations.

Do you find that, proceeding as you do, in what seems to be a responsible manner, is a handicap in competition?

Mr. Cox. We do not believe so, Senator Chafee. The reason we are low in the international market is because we were so late in getting in it. Ross Laboratories was an independent company until 1964 when they merged with Abbott. We have made substantial growth since 1964.

I do not believe that our resting our future success on the health professionals in these countries, and doing all we can to help them do a satisfactory job and to be responsible and to give them training materials, I do not believe that it has in any way affected our sales detrimentally by 1 penny. And I think, in the future, it will greatly give us an advantage in future market share. However, since our sales are satisfactory, I cannot say that they would not be more satisfactory had we gone on mass media television. I do not think so. But certainly our growth has been satisfactory.

I would like one more to rebut Dr. Jelliffe when he says that the impetus behind our Third World activities has been the low birth rate of the United States which has caused us to seek profit elsewhere.

As far as I am concerned, that is categorically untrue. Our success in the United States has been greater with every 5-year period, and that includes the last 5-year period. And I do not think our company or any other company has been propelled into exaggerating the international market for our formulas because of failure of increased sales in the United States.

Senator CHAFEE. Would you gentlemen give us an estimate as to what percentage of the Third World market is held by American companies? Are we the predominant force or are we not? Are we 30 percent, 40 percent?

Mr. SPROLE. There has been an interesting study by Morgan Stanley in the last year, estimating the market and the overseas business of U.S. companies and possibly disagreeing with Mr.—with the gentleman who was just speaking about the world market, that it seemed to come out of those figures that the market outside the United States might be close to $1 billion; that the U.S. companies might have 15 to 20 percent.

Senator CHAFEE. Well, the total dollar figure is interesting, but I was looking for the percentage. You estimate 15 jercent.

What is your estimate, Mr. Cox?

Mr. Cox. We believe that we are doing 11 percent of the market share in the 68 countries in which we market the product. On the total hundred LDC's, we feel that our share is 6 percent.

Senator CHAFEE. And you represent Abbott?

Mr. Cox. Yes; Abbott Laboratories.

Mr. STAFFORD. The figure that I have been given is 15 to 20 percent, too, as a share of the American companies of the market overseas.

Senator CHAFEE. There seems to be general agreement around 20 percent or something thereabouts.

Thank you very much, gentlemen.

Thank you, Mr. Chairman.

Senator KENNEDY. Let me say, in the final comment, I think these hearings have been enormously interesting and valuable to the Senate

Health Committee. We have great interest in the areas of international health and the responsibilities of the Senate in this area, and certainly no aspect of international health is of greater concern to me than the health of infants, whether in our own country or in countries throughout the world.

We have heard some very powerful and eloquent testimony from people who spent their lives serving in less developed countries, even some developed countries, and some of the rural areas of the most impoverished areas of these countries. They have pointed out from both their own direct experience how the infant formula has not been used as directed because of either the lack of information literacy or the financial resources. They continue the use of that formula in rural areas where the water has been so polluted as to provide an additional health hazard to the well-being of the infant. It is a most difficult and vulnerable period of time of the child's life.

We have had some of the outstanding American industries, the producers of infant formulas on this responsibility, where their products essentially end up and how it is actually utilized. From the testimony we heard here, it is not a prime factor in terms of their consideration, that they are willing to rely either on the medical profession in those areas, on the nurses in those countries, the market distribution of those countries. We were unable, at least, to detect from any action by any of these countries the kind of postmarketing surveillance and review about how their products are being used, the extent that they are being used. These circumstances just by the nature of the circumstance, the poverty of people can mean a threat to the infants themselves.

We have heard the testimony by some of the corporations of how they have responded to past criticisms of marketing techniques and advertising. We have heard some witnesses say that even with these codes that have been adopted, that they have not been complied with completely.

I hope that sometime in June that we can get the interested members of this committee together with the officers of these corporations to try and find out if there are additional staffs that can be worked out in the spirit of cooperation to accommodate, that meet many of these problems and objections which have been raised by thoughtful men and women whose only motivation is protection of infant life and to see if we cannot have these instances where American industry is really the model and the lead in terms of market practice, and how they are actually impacting the Third World countries.

I will invite interested members of the Health Committee to join with us and see if we cannot work with industry in focusing on some of these issues and problems. I am very grateful for the testimony that we had this morning, and I thank the industry and other witnesses.

The subcommittee will stand in recess.

[Whereupon, at 1:29 p.m., the subcommittee adjourned, subject to the call of the Chair.]

APPENDIX

Additional Statements Submitted for the Record

THE INTERNATIONAL INFANT FORMULA INDUSTRY

by

James E. Post
School of Management
Boston University

SUPPLEMENTARY TESTIMONY PRESENTED TO THE
U.S. SENATE SUBCOMMITTEE ON HEALTH AND
SCIENTIFIC RESEARCH OF THE COMMITTEE ON
HUMAN RESOURCES

June 1978

THE INTERNATIONAL INFANT FORMULA INDUSTRY

by

James E. Post
School of Management
Boston University

There is relatively little published information about the international infant formula industry. The material presented below has been culled from a multitude of sources, including published documents, government reports in the U.S. and elsewhere, and interviews with industry executives from more than one dozen multinational firms which manufacture or distribute infant formula products in the developing world. Portions of the research discussed below have appeared in several other papers and publications.1/

Three matters are reviewed herein. First, background information on the industry and its member firms is presented. Second, an estimate of the world market for infant formula is derived. Third, a discussion of multinational corporate conduct in the developing nations is presented on the basis of previous research into this industry.

I. BACKGROUND

Infant formula was developed in the early 1900's in the United States as a medically acceptable alternative form of food supply for newborns. For thirty years, the product was primarily used in hospital settings. The popularity of formula feeding as a scientific and convenient approach jumped dramatically after World War II, and by the late 1950's, as many as 75% of all American babies were being fed infant formula for part of their first year of life. The rising popularity of infant formula, and a high birth rate were favorable market conditions for the manufacturers, but by the 1960's birth rates began to decline in the United States.

The international market for infant formula also grew rapidly during the post-World War II era. Although a number of food companies had sold breast-milk substitutes in Western Europe and North Africa before that time, many of these products were evaporated milks or powdered milks which are not comparable to formulas made to resemble human milk. As prosperity returned to Europe and multinational firms expanded operations in Africa, South America and the Far East, infant formula became an increasingly popular "food of choice" for the children of the expatriot American and Western European population.

The large numbers of wealthy and middle-class persons able to afford infant formula in the U.S. and Europe made mass distribution and promotion of such products a widespread and acceptable phenomenon. In the nations of Africa, South America and the Far East, however, the number of wealthy customers was fewer, and the size of the middle class was notably smaller.

Distributors were often used as a channel for distributing the product to those who sought the product and were anxious and able to buy it. In an effort to expand sales, distributors and sometimes the manufacuturers themselves began to promote infant formula to broad segments of the population. It is the promotion which reaches the poor and those only marginally able to afford the product in less developed nations that has produced the infant-formula controversy.

Industry Orientation

Producers of infant formula products have two basic orientations, which reflect different histories of product development. In the United States, the principal sellers of infant formula were founded on the successful efforts of medical researchers to prepare an infant food substitute for mother's milk. By the late 1920's, Ross Laboratories, Mead Johnson, and Simulated Milk Associates (SMA) were in the business of producing and selling humanized infant formula.

In the late 1920's, SMA was acquired by Wyeth Laboratories, a Philadelphia pharmaceutical company. Wyeth, in turn was acquired by American Home Products in the 1930's. Ross was acquired by Abbott Laboratories in 1964. Mead Johnson also remained independent until the 1960's. When Metrecal, a diet food, lost its market in the late 1950's, Mead Johnson floundered and Bristol Myers, a pharmaceutical firm, acquired the company. While Wyeth has more direct pharmaceutical sales than either Ross or Mead Johnson, all three have brought a pharmaceutical research orientation to product development and marketing of infant formula. Indeed during the 1960's, a number of special "sick baby" formulas were produced by these companies for children with special dietary and health requirements. While the "sick baby" segment of the market is insignificant in comparison to the "well baby" segment (perhaps 2% of total sales volume), the existence of such specialized products is attributable to the pharmaceutical orientation of one segment of the industry and the research emphasis throughout the entire industry.

The second orientation in the industry is that of a food processor approach and is characteristic of such firms as Nestle and Borden. Both Nestle and Borden began in the sweetened and condensed milk business in the 1860's. Through the early decades of the 1900's, new uses were found for the canned milk products which Nestle sold in Europe and Borden sold in the United States. One use to which the sweetened and condensed milks were put was infant feeding. As this market segment expanded, and as medical research indicated that the humanized infant formulas were nutritionally superior for newborns, the food companies sought to retain their share of the infant food market by introducing infant formula products that were either developed internally (Nestle as early as the 1920's) or whose rights were purchased from others (Borden in 1950's). The approach to the market of these firms is similar to other food companies. Sales are generated

through heavy advertising, with a special reliance on mass media as newspapers, radio, and television. Brand identification is cultivated through such advertising, and price sensitivity is the key to preserving brand loyalty.

Business Strategy

Pursuing intense competitive battles, Ross Laboratories and Mead Johnson emerged as the winners in the United States market where by the 1960's, the two firms accounted for approximately 90% of the domestic infant formula business (Ross' Similac 55%, Mead Johnson's Enfamil about 35%). So entrenched were these sellers in the domestic market that Nestle, the acknowledged worldwide industry leader, never attempted to penetrate the U.S. infant formula market.

With the leveling off in the U.S. birth rate in the 1960's, both Ross and Mead Johnson began to look outside the U.S. for major growth opportunities. This effort led Ross to industrialized nations with higher disposable income and prospects for market penetration. Canada and Europe became major foreign markets for Ross' Similac. Mead Johnson looked primarily to the Caribbean where export was relatively easy. Puerto Rico, Jamaica, and the Bahamas became important Mead Johnson export markets.

Wyeth Laboratories was never a major seller of infant formula in the United States but did begin to sell internationally before World War II. Following the war, the company's presence as a pharmaceutical manufacturer established a base from which infant formula was marketed by affiliates in Latin America, Europe, and Southeast Asia. Today, Wyeth probably accounts for more than 10% of worldwide sales.

Nestle is the only seller of infant formula that has adopted, as its basic business strategy, the concept of significant presence in every national market.

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Throughout the developing nations of the world, Nestle looms as a major seller of infant formula products. Its worldwide market share approaches 50 percent, and its penetration in individual national markets exceeds 70 percent. The sales concepts of market development (e.g., Nestle introduced dairy herds in a number of Latin American nations), aggressive sales promotion and intensive advertising have characterized the company's efforts in infant formula as they have with other food products.

Borden's business strategy differs from the others in two ways. First, it developed an infant formula product relatively late in the life history of the industry (1950's), and secondly, it did not attempt to develop a significant market share in any single national market. Hence, the company has not been a major seller of infant formula. However, one serious health problem in developing nations is that the population often uses products other than infant formula for bottle feeding purposes. In Borden's case, its leading powered milk product (Klim), which is not an infant formula, has been alleged to be mistakenly used as a food fit for infants. Borden has marketed Klim aggressively as a powdered milk product, and it seems that one consequence has been consumer misuse of the product for infant feeding. In 1976, Borden announced that it was stopping all advertising of the one infant formula (New Biolac) which it was selling in Taiwan and Hong Kong, because it could only successfully sell this new product with a heavy mass media advertising expenditure. For Borden, therefore, the strategic decision has been to abandon the infant formula market and concentrate on the powdered milk business.

Exhibit 1 provides a summary of the entry strategies of five infant formula manufacturers. These are, however, not the only sellers of infant

formula products. Multinational firms from the United Kingdom (e.g., Unigate), Denmark, France, West Germany, and Japan all sell modified infant formula or powdered milks which are used for infant feeding in LDCs. Notwithstanding, the pharmaceutical and food processor orientations, and the various business strategies discussed above are representative of the basic approaches to the marketing of infant food products in LDCs.

EXHIBIT 1

PRODUCER ORIENTATION AND BUSINESS STRATEGY

PRODUCER	Industry Orientation	Major Market	Major Area of LDC Markets	Business Strategy
Bristol-Myers (Mead Johnson)	Pharmaceutical	Domestic United States	Caribbean and Central America; Phillipines;	Export business; Geographic proximity to U.S.; Excess production from U.S. plants; use of distributors; Plant facilities in Phillipines.
Abbott Laboratories (Ross Laboratories)	Pharmaceutical	Domestic United States	Rapidly developing African and Southeast Asian (e.g., Nigeria, Taiwan)	Export from European plants; High income product marketed to upper classes; market via own sales force; limited use of distributors;
American Home Products (Wyeth Laboratories)	Pharmaceutical	Selective world markets (e.g., Canada, S. Africa)	Southeast Asia; Latin America; Africa;	Complement to drug sales efforts; use of Wyeth affiliates (subsidiaries) to market; preference for local or regional production;
Nestle	Food Processor	Europe; Africa; Latin America; Asia; Does not sell formula in U.S., U.K., Holland, Canada	Worldwide	Sell full line of food products in all nations; Full line local food processing plants; helped develop first dairy herds and milk industry in many nations; Product evolved from early milk products and food research;
Borden	Food Processor	Worldwide	Latin America; Caribbean; Southeast Asia;	Independent food product marketed via distributors; Powdered milk is not an infant food; Participates in joint ventures with other food processors (Nestle);

II. AMERICAN FIRMS AND THE WORLD MARKET

There is no precise information about the world market for infant formula products. Moreover, vitually no individual countries require disclosure of information from manufacturers or sellers by line of business. Such absence of publicly available information makes estimation difficult, but not entirely impossible. Since the controversy surrounding this industry began in the early 1970's, fragments of sales information have been disclosed in lawsuits, Securities and Exchange Commission correspondence, and statements to shareholders. In addition, more precise knowledge of marketing and market penetration in specific nations has been acquired through the research projects sponsored by the Rockefeller Foundation and World Health Organization. Taken together, this information base presents the best available picture to date of the dimensions of the international infant formula industry.

Abbott Laboratories (Ross Labs subsidiary) has reported 1976 infant formula sales of $222 million. Of this amount, approximately $165 million is derived from the United States where Ross has 50-55% of the $300 million infant formula market. Of more than $50 million in international sales, it is known that Ross sells most heavily in Canada and Western Europe, with such nations as Nigeria, Phillipines, and Taiwan being the most prominent developing nations in which the company actively markets infant formula. Based on the statement of David O. Cox at these hearings (May 23, 1978) Ross sells approximately $20 million of infant formula in the developing world per annum.

American Home Products, in a January, 1977 letter to the Securities and Exchange Commission, stated that approximately 2% of its total sales ($2.6 billion) were derived from the sale of infant formula products in "the so-called less developed countries." This would amount to more than $50 million in 1976.

Elsewhere, AHP has estimated infant formula sales growth at more than 5% per annum; independent estimates indicate the market in LDCs has grown at more than 10% per annum in 1977. Thus, it can fairly be estimated that AHP now sells more than $55 million of infant formula products in developing nations. At the 1978 annual meeting, it was also announced that the company will be opening a new production facility for infant formula in Indonesia. Assuming the AHP did not include its infant formula sales in nations such as the United Kingdom, South Africa, or Taiwan in its reference to the "so-called less developed countries," its very significant market presence in these nations must be calculated separately in estimating total international sales. According to a financial report of AHP, more than 5% of the company's 1975 total sales come from infant formula. For 1976, this would mean more than $130 million. Recognizing that in the U.S. Wyeth has only $15-20 million sales, the company is certainly selling more than $110 million in international markets. Calculating recent growth at 5%, and adjusting for inflation, it is likely that AHP's total international sales of infant formula are in the area of $150 million with at least $55 million from LDCs.

Bristol Myers, through its Mead Johnson division, is known to have about 35% of the $300 million U.S. domestic market, or sales of $105 million. According to a Bristol Myers report, its 1975 sales of infant formula in international markets exceeded $47 million. Since that time, it is known that Bristol Myers has expanded its market share and presence in several major developing nation markets. This strongly suggests a real growth rate of more than 10% per annum during the past two years, plus inflation. Using a conservative 5% inflation rate, it is quite clear that Bristol Myers' current international sales of infant formula products exceed $60 million, of which about $45-50 million is derived from developing nations. Total Bristol Myers infant formula sales probably exceed $165 million.

Exhibit 2 summarizes the aforementioned information. In the world market, the three U.S. firms account for more than $550 million in infant formula sales. In the developing nations, these three firms have more than $120 million in infant formula sales.

The size of the world market, and the magnitude of the developing world's expenditures for infant formula products can be extrapolated from these estimates. According to statements of executives from the U.S. companies, the U.S. firms probably account for 20% of infant formula sales in the developing nations. Although this seems low based on field evidence, if we assume it is true, this suggests that the developing nations are now spending more than $600 million per annum on infant formula alone. According to Dr. Carballo's testimony before the Committee (May 23, 1978), the W.H.O. study found that more than $125 million was spent by four developing nations (Ethiopia, Nigeria, Phillipines, and India) in the period 1975/1976.[2/] It was pointed out that this referred to infant formula only, and excluded separate expenditures by those nations for powdered milk, evaporated, and sweetened and condensed milks. Such data strongly suggest that the developing world is spending considerably more than $600 million on infant formula calculated above.

It is known that the U.S. infant formula market now exceeds $300 million per annum. Added to the $600 million estimated expenditure of the developing nations, and including rough approximations for the nations of Western Europe, Japan, and Canada, it is reasonable to conclude that the current world market for infant formula products is about $1.5 billion.

Even the most conservative estimates of market growth by those familiar with the industry acknowledge a probable increase in infant formula sales of 5% per annum. Infant formula sales will increase faster than population growth in consumer markets because of the product's superiority to powdered milks, evaporated, and sweetened and condensed milks for infant feeding. Because it is taking sales from inferior products too, it is more likely that infant formula sales will increase 10-15% per annum. Since most data used in estimating present market share is derived from 1976 information, it is reasonable to assume that real growth in infant formula expenditures in 1980 will be 40% over the 1976 base. With even a modest inflation rate, that would mean that the developing nations of the world will be spending more than $1 billion per annum for infant formula by 1980.

EXHIBIT 2

SUMMARY OF SALES INFORMATION FOR MAJOR U.S. INFANT FORMULA FIRMS

Firm	Total Infant Formula Sales	U.S. Infant Formula Sales	Total International Infant Formula Sales	Sales in LDCs
ABBOTT LABORATORIES (ROSS DIVISION)	$222 million	$165 million (est.)	$57 million (est.)	$20 million (est.)
AMERICAN HOME PRODUCTS (WYETH and WYETH INTERNATIONAL DIVISIONS)	$170 million (est.)	$20 million (est.)	$150 million (est.)	$55 million (est.)
BRISTOL-MYERS (MEAD JOHNSON DIVISION)	$165 million (est.)	$105 million (est.)	$60 million (est.)	$45-50 million (est.)
	$557 million	$290 million	$267 million	$120-125 million

III. MULTINATIONAL FIRMS IN THE DEVELOPING WORLD[3/]

Expansion of Domestic Producers

It is generally asserted that the internationalization of American firms in the infant formula industry occurred because of declining domestic birth rates in the 1960s. While the domestic industry unquestionably could have been threatened by serious declines in the birth rate, this concept of the relationship between domestic and international activities is too simplistic. In fact, available evidence suggests that international expansion was the direct result of (a) expansion of existing demand in foreign nations; (b) shifts in strategic thinking among major firms; (c) the acquisition of infant formula firms by internationally-oriented pharmaceutical companies.

Ross Laboratories, Mead-Johnson, and Wyeth Laboratories had each participated in the international sale of infant formula products well before the 1960's. Ross had marketed infant formula in Canada by the 1940's and in Europe after World War II. Mead Johnson also had some international sales activities before the 1960's, largely involving export to the Caribbean and Mexico. Wyeth Laboratories, through an international arm, Wyeth International, had established a presence through its pharmaceutical business in Latin America during World War II. In each of these cases, a commercial toehold existed before the birth rate began to decline in the United States.

The birth decline did have one important effect in the context of existing foreign market presence. During the 1950's, when the U.S. market was booming, market opportunities in the U.S. were probably more attractive for companies such as Ross and Mead-Johnson than any international expansion. According to several executives involved in marketing at that time, the U.S. market was growing so fast, and competition was not so aggressive as to warrant shifting investable

funds into an international effort. When the birth decline did come, the survivors in the U.S. market -- Ross and Mead-Johnson -- were still operating near capacity to meet domestic demand. Their need was for capital funds in order to move into the international markets. These capital needs, in turn, were met when Abbott acquired Ross in 1964 and Bristol-Myers acquired Mead-Johnson in 1967. The international expansion of both companies occurred after the mergers when both capital funds and international marketing divisions were married with the basic infant formula business.

Wyeth, which did not emerge from the 1950's as a major domestic manufacturer of infant formula, had expanded its international pharmaceutical business greatly after World War II. Infant formula sales accompanied that expansion. Since Wyeth invests directly in foreign plant capacity, it appears that this company's management recognized and acted on the opportunity in the international infant formula industry before Ross and Mead-Johnson. As its foreign affiliates sought to expand their market shares in particular nations by filling large market needs, it seems probable that the popularity of infant formula made it one of the Wyeth products which affiliates wanted to sell in their local markets.

A shift in strategic thinking during the early 1960's also helps account for the growth of domestic manufacturer presence in international markets. This shift in thinking was occasioned, as far as we can tell, by the convergence of actual market factors and a growing awareness among professional managers of the need to think more broadly about the nature of their businesses. Certainly the declining birth rates in the United States and Western Europe, and the forecasted continuation of these demographic trends, did stimulate managerial anxiety within the industry and led to the consideration of marketing efforts in nations where birth rates and income levels were still rising. Moreover, both the food processing and ethical pharmaceutical businesses faced a changing domestic environment.

The food processing industry faced serious problems in the U.S. Many of these firms faced declining sales and profits as a result of the maturation of their market. This trend led to increased efforts to diversify, and expansion of foreign trade and investment. For some firms, foreign expansion was a defensive strategy designed to protect foreign markets, while for others it represented a means of preserving aggregate sales volume and profits.

Drug companies also faced problems which precipitated overseas expansion. This industry's major source of profits came from the introduction of new products. As a result of federal investigation and regulation, the rate of new product introduction declined. To counter this trend, the industry began to diversify as well as pursue worldwide expansion. Nutritional products, derived from a research base, were a logical direction for product diversification. In overseas markets the companies could take advantage of growing population and rising health standards.

Thus, food processors faced mature markets and the growth of drug companies was hampered by regulatory efforts which impeded the flow of new products to consumers. These critical changes forced companies to adopt new strategies to perpetuate growth. In light of this fact, the aforementioned mergers between formula producers and the drug conglomerates took on a special significance. The international marketing capabilities of the parent firms aided the foreign expansion efforts of the formula producing divisions.

Taken together, these three factors -- expansion of existing demand in foreign markets, acquisition of infant formula producers by internationally-oriented pharmaceutical firms, and a shift in strategic thinking -- help to explain the growing presence of U.S. infant formula manufacturers in foreign markets. The selection of particular nations for each firm's competitive efforts, in turn, seems to have been a function of their exisiting international presence, the demand for other products produced by the company (e.g., drugs) and the location of each company's production facilities. And of course, the decision to enter

the infant formula business in specific national markets was conditioned by the exisiting competitors, including foreign and local producers.

Foreign Producers

There are about 15 companies chartered in other nations of the world that are significant manufacuturers and sellers of infant formula and milk powder products. As of August, 1977, the International Council of Infant Food Industries (I.C.I.F.I.), an association of multinational sellers of such products, consisted of four Japanese firms, and one Swiss, one Dutch, one British, and one U.S. firm.

The available evidence indicates that the food processor/pharmaceutical orientation distinction also characterizes the foreign producers. Several Japanese producers, for example, are milk companies or food processors. Several British firms are more appropriately characterized as pharmaceutically oriented firms. From these orientations, companies derive their overall business strategies, including development of products sets (e.g., drugs and infant nutritionals, or milk-related products), and basic marketing approaches. It appears, however, that until the past few years, all major competitors have utilized consumer and medical promotion in the developing countries.

No discussion of foreign formula producers would be complete without considering the Nestle Alimentana Company. This Swiss-based food processing company is generally conceded to be the world's largest producer of infant formula. Nestle conducted relevant research in the field of child nutrition during the late 1800's. In fact, Henri Nestle, founder of the company, could be called the great grandfather of infant formula. In 1867 he introduced the first specifically designed and commercially marketed infant formula. Prior to this development, European infants, like American infants, were either breast fed or fed condensed milk. Because of Nestle's longstanding involvement with the condensed and evaporated milk markets, the company was sensitive to the need for better artificial feeding products.

Sixty years after the introduction of its first formula, Nestle began to market a full line of formula products. In 1921, the Company introduced Lactogen, a modified cow's milk formula. In 1927, Eledon was designed for digestive disorders. In 1930, Nestogen, a low fat formula, was developed and in 1934, Pelargon an acidified whole milk, was marketed.

The trend toward developing a full product line was a potent strategy. It gave product breadth and kept the company at the forefront of new food product development. Another important strategy emphasized by the company was a reliance on the medical profession. Though infant formula products were developed by a food processing company, product development and marketing were supervised by physicians. Medical detailing has saved Nestle products from competitive inroads. In Europe, as fresh milk was used less as a first food for babies, Nestle began to increase formula sales. The time soon came when infants throughout the world were to be introduced to the Nestle way of life.

Two additional points must be specified in discussing Nestle. The company's overall business strategy is to be a fully integrated food processor in each country where it operates. Secondly, Nestle has traditionally been a transnational seller of food products. From its base in Vevey, Switzerland, the company has adopted a goal of significant market presence in virtually every nation of the world. This had led Nestle to establish plants, farms, and dairy herds in many nations and to deliberately sell a large number of its products in every nation. It is in this context that the company has expanded its sales of infant formula products in developing and industrialized nations alike, and achieved approximately a 50 percent market share of the world infant formula business. When coupled with a normal food processor emphasis on advertising and promotion as vehicles for building retail sales, Nestle has been able to establish major market share position in more individual nations than any other firm in the industry. In some of the developing countries, the company accounts for more than 70 percent of infant formula sales.

Overseas Investment by Multinational Corporations Producing Infant Formula

As both domestic and foreign formula firms began to seek ways to plan for declining births, it became obvious that new markets would have to exhibit certain characteristics. The birth rate would have to be high, income levels would have to be on the rise, and an increasing number of babies would have to be born in hospitals. The areas should be urbanized, and women must be assuming larger roles in economic and societal development. These criteria led many firms to view less developed countries as having the potential to evolve into major infant formula markets. Latin America is an example of a region that provided several national markets with these characteristics.

Not only did Latin America fulfill these criteria, but several producers of formula had previous experience in operating in this area. Nestle powdered milk products were heavily consumed in Latin America. In fact, this area constituted the product's largest market. During World War II, American pharmaceutical companies began to market pharmaceuticals in these countries, replacing French and German firms who were unable to serve these markets, and established a toehold. These experiences served to reduce the risk of operating in this region.

At first, these markets were serviced through exportation. Much of the production was done in the U.S. Even Nestle manufactured formula in U.S. based plants but discontinued production in 1962 because of increasing production costs. As foreign markets grew, firms began to make direct investments in local economics.

Such investments were prompted by the inability of some U.S. firms to meet the demand with existing production facilities in the U.S. In addition, foreign governments were interested in acquiring the multinational's technical capabilities. Therefore, import duties were imposed on these products to encourage direct investment in local production facilities and discourage importation.

An important consideration in making local investments is the extent to which raw materials are available. Companies are particularly concerned with whether

or not a country has a domestic milk industry. Although Nestle had a tradition of starting dairy herds, and did so in Latin America, other companies require a local dairy industry capable of producing high quality milk supplies.

Competitive Conduct

Critical to the analysis of conduct among multinational producers of infant formula and milk products is the functional distinction between production, distribution, and marketing activities. While each firm undertakes to produce, distribute, and market its products in a way that seems appropriate to its own goals and competitive strengths, there is considerable diversity when the industry is viewed as a whole.

Production: Four basic multinational approaches to production are evident from an examination of available information. First, infant formula and milk products may be produced in the local national market. This can involve direct ownership of dairy herds and processing operations, or contractual arrangements with local dairy operators and processors. Requirements contracts or other long term arrangements are utilized to secure a dependable and qualitatively acceptable supply of milk for formula processing operations. In developing countries, manufacturers appear ready to pay a premium for such quality, recognizing that consumer demand will not shift with relatively small price changes. Joint ventures between two producers have also appeared in a number of developing nations. Nestle has been a major participant in such ventures, utilizing large integrated production facilities to acheive scale economies. A second approach to production is to process the formula or milk product in one international production facility and export the processed formula or milk to many other nations. Abbott (Ross) Laboratories, for example, serves its world markets from a limited number of plant facilities. In some instances, this approach involves shipping the formula or milk product thousands of miles to a local market. Much of Africa,

Latin America, and Southeast Asia were originally served in this manner. A third production approach involves the establishment of regional production facilities, with a plant located in one nation serving a distribution network comprised of a number of satellite national markets. This intermediate approach (neither wholly local nor wholly international) has been utilized increasingly to serve identifiable economic regions such as the European Common Market and the Latin America Free Trade Association (LAFTA). To the extent these associations establish trade zones, manufactures are able to acheive production economies through large scale plant facilities and distribute without erratic national trade barriers.

A fourth approach to production involves the licensing of local manufacturers. A number of the smaller multinational producers have utilized this approach with what appear to be uneven results. The principal problem with this approach is the multinational firm's inability to oversee and ensure comparable product quality in a variety of national settings where production approaches, facilities, quality control procedures, and personnel are of differing quality. The major multinational firms do not favor this approach.

Distribution: Distribution channels vary considerably depending on the producer and the local national market setting. In general, two forms of distribution must be distinguished. Multinational producers utilize directly controlled distribution channels in those nations where significant market share exists and where distribution economies can be achieved through such management control. In settings where market share is not substantial, and/or where distribution economies are difficult to achieve (e.g., a rural, thinly populated, mountainous region), indirect distribution channels will be utilized. Thus, for example, local or regional agents will be employed on a commission or fee basis. Manufacturers have significantly less control over such sellers who operate as independent businessmen. The relative lack of control has two effects: (1) producers are limited in their ability to control the agent's behavior; and (2) manufacturer

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interest in the activities of such agents is likely to be less than for directly controlled distributors since such arrangements reflect a servicing of existing demand rather than an aggressive marketing of the manufacturer's product.

Of importance in considering distribution arrangements is the matter of customers. Four distinct market segments seem to exist for sales of infant formula and milk products, and distribution must be arranged for all four. They are mothers of infants, physicians and medical personnel, hospitals and clinics, and national or local government agencies. Mothers are generally reached through stores, pharmacies, and other mass market outlets. Physicians and medical personnel may be reached at offices, or, as frequently occurs, through distribution to the hospitals and health clinics. Government agencies are responsible for distribution programs in many developing nations and distribution may involve shipment to a central agency-operated depot. In some developing nations, it is estimated that more than 50 percent of total infant formula and milk product sales are through government contracts.

Marketing: The marketing conduct of infant formula and milk product manufacturers in international markets, especially the developing nations, is rooted in the approaches utilized in the industrialized nations. In this regard, the distinction between pharmaceutically-oriented and food processing-oriented firms is significant. This difference in orientation is especially felt in the matter of advertising. The clear preference of the pharmaceutical firms to direct their efforts at physicians and medical personnel is matched by the food companies' disposition to emphasize consumer advertising. However, in developing nations, no firm has exclusively adopted only one form of advertising. Thus, although Nestle is a food processor, it spends part of its advertising budget on medical promotion; the same is true of other food companies.

And although Wyeth and Abbott are pharmaceutically oriented firms, they do spend a portion of their advertising budgets on consumer-oriented advertising. Interestingly, food processors and pharmaceutical companies are among the largest advertisers of all industry groups. Using general industry figures as a baseline, and adjusting for known differences in developing nations, we estimate that multinational firms engaging in the infant formula and milk products business spend 10-15 percent of gross sales revenues on advertising and promotional activities.

In the past, direct customer promotion has taken the form of radio messages, newspaper, magazine, and other written messages, and outdoor billboard messages. Free samples and distribution of bottles, nipples, and measuring spoons have also been utilized as promotional vehicles. Direct customer contact through "milk nurses" and uniformed and non-uniformed personnel has also occurred.

Medical promotion to hospitals and physicians has generally involved the use of detail personnel to discuss product quality and characteristics with pediatricians, pediatric nurses, and related medical personnel. Materials, including posters, charts, and free samples have also been made available without charge to physicians, hospitals, and clinics. Reports have also been published of company-sponsored travel for physicians and hospital personnel to medical meetings.

The marketing conduct of the multinational manufacturers has been a principal matter of conflict between the industry and its critics in recent years. Part of the industry's response to this conflict has been the promulgation and adoption of marketing codes of practice by most of the major multinational firms. In November, 1975, the International Council of Infant Food Industries (I.C.I.F.I) adopted a code that commits member firms to refrain from such practices as utilizing uniformed milk nurse personnel to solicit new mothers in maternity wards of hospitals. Abbott (Ross) Laboratories has adopted a code of marketing practices that

proscribes direct consumer advertising of infant formula products to mothers in developing nations and has articulated a policy commitment to work with local health authorities in dealing with infant nutrition problems. Both codes have been revised and updated to expand their restrictions on marketing conduct. Bristol-Myers has adopted its own code of conduct.

The final point with respect to marketing activities is the question of who is involved in the advertising and promotional activities. Some firms, such as Nestle, directly control the advertising and promotional activities of their operatives in each nation. Other firms have decentralized the management responsibility for marketing activities and leave these matters to the discretion of local managers. Still other firms have allowed independent distributors and/or importers to develop their own advertising and promotional approaches. Like production and distribution, however, the large multinationals have shown a distinct preference for a marketing system in which there is direct management control. Thus, for example, the international marketing divisions at Abbott, Wyeth, and Bristol-Myers afford the top management personnel of those companies a means for controlling advertising and promotional activities. This control is critical if the marketing codes of practice are to be effectively implemented. Similarly, Borden in 1976 announced its commitment to have its international headquarters staff review all advertising to be used in developing nations.

To summarize the findings on conduct-related factors, we can say that there are various alternatives for the production of infant formula and milk products; that product distribution can be directly undertaken by producers or left to third party distributors and importers; and that marketing activities -- especially advertising and promotion -- can and are undertaken by the multinational firms at the internatioanl corporate level, at the local national level, and by

independent sellers and distributors. The selection of a production/distribution/marketing configuration reflects the differing concerns and considerations of individual firms, and considerations in one of these areas (e.g., production) can often affect the choices in the others (distribution and marketing).

Economic and Social Performance

The economic performance of the international industry is shrouded in secrecy. Financial information on sales volume, cost of goods sold, profit margins, and so forth is not publicly available. National market share information is also difficult to develop from published data; observation in particular nations continues to provide the best source of sales volume, pricing patterns, and market share. Because national markets can be served from regional or international production facilities, costs of production on an exact national basis are unavailable and price-cost margins can only be estimated in gross fashion.

Profit margins are a point of particular interst. Industry executives generally dispute the "wildly exaggerated" estimates of critics that profit margins approach 50 percent on infant formula sales in developing nations. Several facts are quite clear however: (a) it is possible to recoup capital investments for plant facilities within three years: (b) mass market products like infant formula are major contributors to overhead expenses; and (c) profit margins are higher on infant formula than on food products in general and slightly lower than on patent-protected ethical drugs. These factors suggest profit margins in the 20-25% range on the international sales.

The industry's economic performance in such related areas of involvement as employment, contribution to local GNP, support for local industries, and so forth is also largely unavailable. The singular exception in this regard is Nestlé's report on its presence in the Third World which presents the most comprehensive profile of any firm in the industry.[4/] No future assessment of the

industry's economic performance will be complete without such information.

The industry's social performance is, of course, the crux of the current conflict. There is probably no question that bottle feeding is both a product of, and a contributor to modernization trends in developing countries. In nations which have already undergone industrialization, the promotion and use of infant formula and milk products causes relatively little public outcry. In the developing nations, however, the presence of these products and their active promotion is an important public issue.

The social impact of infant formula (and milk products) in developing nations is a multi-level phenomenon. It certainly affects individual users and that is the context in which the issues of health impact on infant mortality and morbidity have been raised. In addition, there is differential impact of product use on various social groups and classes, with wealthy being relatively unaffected by the use of these products while the poorer classes are affected as to both health (poor water supplies for mixing the powdered products) and income (these products are expensive). Finally, there is also a complex societal impact from the presence and use of these products involving economic costs, health care costs, and the impact of modernization.[5/]

[1]See James E. Post, Corporate Behavior and Social Change, Chapter 13, (Reston, VA: Reston Publishing Company, 1978); James E. Post, "The Infant Formula Industry: Strategy, Structure, and Performance," Working Paper, Management and Public Policy Research Program, School of Management, Boston University, 1977; James E. Post, "Marketing and Nutrition Policy in LDCs: The Case of Infant Formula," Working Paper, Management and Public Policy Research Program, School of Management, Boston University, November 1976; S.P. Sethi and J.E. Post, "Marketing of Infant Formula Foods in Less Developed Countries: Some Public Consequences of Private Action," S. Jain, editor, 1978 American Marketing Association Educaters' Conference Proceedings, American Marketing Association, 1978.

[2]According to the design of the W.H.O. study, two relatively high consumption nations (Nigeria and the Phillipines) and two relatively low consumption nations (Ethiopia and India) were selected to balance the sample.

[3]This material is taken from James E. Post, "The Infant Formula Industry: Strategy, Structure, and Performance," Working Paper, Management and Public Policy Research Program, School of Management, Boston University, August 1977.

[4]Nestle in the Developing Countries, Vevey, Switzerland: Nestle Alimentana S.A., 1975. Original text in French; translated into English, 1976.

[5]The multi-level impact of infant formula promotion and use in developing nations is discussed at length in James E. Post, "Marketing and Nutrition Policy in LDCs: The Case of Infant Formula," Working Paper, Management and Public Policy Research Program, School of Management, Boston University, 1976.

ABBOTT

Abbott Laboratories
North Chicago, Illinois 60064

June 16, 1978

The Honorable Edward M. Kennedy
United States Senate
Room 431 Russell Senate Office Building
Washington, D.C. 20510

Dear Senator Kennedy,

This letter is a followup on the hearings held on May 23, 1978, on the topic of "Marketing and Promotion of Infant Formula in the Developing Nations". We request that this letter and attachments become part of the hearing record.

1. Statement by Dr. Fernando Monckeberg, Director, Institute for Child Health and Development, University of Chile

   In the question and answer portion of my testimony, I referred to a nutrition intervention program begun in Chile in 1952 by their National Health Service. The purpose of the program was to eliminate malnutrition by providing free food supplements for pregnant women, newborns, preschool and school age children. Dr. Monckeberg has kindly described that program in detail to us, and a paper containing his remarks is attached.

   a) The program has virtually eliminated third degree malnutrition (now less than 0.4%) among children under six years of age throughout Chile.

   b) The rationale of the Chilean program for eliminating malnutrition follows an entirely different logic than that described by many critics of infant formulas. This program includes the widespread use of powdered milk products among the poor as the key element in the intervention strategy, and has proven successful. Most critiques of this program suggest that the food supplement program had an initial negative impact on levels of breasfeeding. Now that malnutrition has been radically decreased, breastfeeding has begun to increase significantly in response to positive affirmative action programs also sponsored by the government.

   The Chilean experience has evolved over many years, and warrants careful examination. A comprehensive review

documenting its history, and focusing on its expansion during the Allende administration has been written by Hakim and Solimano*. Their paper is also submitted for the record

2. The Size of the Infant Feeding Market in Developing Nations

The hearing transcript reveals substantial confusion about how the question about market size was asked and answered, i.e. the world market vs the third world market. For the record, our best estimate of the size of the prepared infant formula market in the one hundred countries generally considered to be third world is about US $350,000,000. We question the market data submitted by WHO on Ethiopia, Nigeria and the Philippines, and withhold judgment until we are able to examine precisely what products were included in the WHO list of "infant formulas".

3. The Question of Potable Water and Infant Formulas in Developing Nations

In the hearings and elsewhere, the question has been frequently posed whether powdered milk could be safely used in developing nations, especially in areas where the water is not "clean". The strong implication is that such usage is not possible.

The water to mix infant formulas, powdered milk and all other infant or adult foods is rendered safe by boiling. The need to boil water is hardly a matter of introducing an unknown or inappropriate technology into less developed countries. Boiling water has been the heart of food preparation for hundreds of years. Non-potable water is general throughout many parts of the world. If an infant is to be spared gastrointestinal disturbance caused by consuming contaminated water, it has to be boiled in every case .. water to quench thirst, water for mixing foods or in preparation of any liquid beverage or formula. To suggest that possible contamination of infant formula is a special case, or that it alone should be prohibited in such environments, is to misunderstand third world conditions.

All milk products may become bacterially contaminated if left standing too long unrefrigerated. The problem of bacterial overgrowth is substantially reduced by preparing single feedings and then prompt consumption by the infant. By six months the child

*Hakim P. Solimano G: Supplemental feeding as a nutritional intervention: The Chilean experience in the distribution of milk. J Trop Pediatr, Monograph 46, Aug 1976, p 185-202

has been so exposed to the harmful bacteria in the environment, that the intake of unpotable water probably makes little difference.

We have enclosed a recent article by Dr. Roger Whitehead (Dunn Nutritional Laboratories, Cambridge, U.K.) working in the Gambia where no promotion for infant formulas is found. He describes serious contamination of weaning foods made with local indigenous products. Exactly the words used to caution against infant formulas would need to be used to caution against home preparation and contamination of any food for infants and children. The need for careful preparation and maternal education is universal.

Some mothers in all income levels will not breastfeed exclusively. Proper preparation instructions (including the hazards of improper preparation) are a necessary and rational public health measure, and should be made part of the mother's instruction. Education to aid in the safe delivery of food, no matter what the mother chooses to feed, is universally essential. We are in the process of making further label changes to assure clarity.

4. Infant Formulas and Low Socioeconomic Groups

Another implication of the hearings was that low socioeconomic groups should not have access to prepared infant formulas, for reasons of proper utilization of the products, as well as economics. Perhaps the question should be posed in a different way. While breastfeeding is the clear feeding of choice, some mothers will have no choice, and a substitute will be required. What substitute should then be provided; and by whom?

In recent years we have received bids for our products from the following governments and agencies: Nigeria, Iran, Saudi Arabia, Libya, Ghana, Algeria, Egypt, Zambia, Sri Lanka, Bangladesh, Venezuela and UNICEF. Many third world governments manufacture and distribute their own powdered infant formulas (e.g. Mexico, India, Chile). The EEC and the US provide millions of pounds of skimmed milk (which requires mixing with the same unpotable water as our products.) These food programs provided by voluntary agencies, church groups, local governments and as foreign aid are typically targeted precisely at lower socioeconomic groups, and probably constitute the largest consumption of infant formula products among the very poor. In view of these facts, it seems inappropriate that private industry should be singled out as having the unique responsibility for denying these products to members of low socioeconomic groups.

In terms of economics, considerably more research needs to be conducted on such factors as the actual cost of feeding the mother in order to produce an adequate supply of breast milk, the cost of health services to care for malnourished infants who are not properly fed, and other more subtle variables such as the demands on a mother's time for other family duties, including care of older children. Some investigators believe that a family may be better off if a poor breastfeeding mother can work during the day to provide more net income to the family (minus the cost of formula for midday feeding) than if she stays home. These and similar questions are usually ignored in generalized statements that poor mothers "can't afford" formula. Somehow, dictating to people how they should live or spend their money, no matter what their socioeconomic level, has been notoriously unsuccessful in this country, as well as in the Third World.

5. The Adequacy of Breast Milk among Malnourished Mothers

In my testimony, I referred to a recent literature review about the adequacy of breast milk to support growth among low birth weight infants born of multiparous, malnourished mothers. The enclosed paper, "The Volume of Breast Milk Produced by Malnourished Mothers" suggests that health care personnel are faced with a double task, that of vigorously encouraging breast feeding, but also providing alternatives for mothers who are not lactating sufficiently to maintain growth of their infants.

Breast milk supplements may prove to be a necessity for the proper nutrition of many third world infants, if those infants are not to suffer long term growth failure or illness. The paradox is obvious; a feasible solution may be to provide infants with the same infant formulas which are currently being condemned. Whitehead writes:

> "Intelligent use of local food resources may well produce a "multimix" supplement for the older infant and preschool child, but the problem for the young baby is more difficult to solve. Since most nutritionists believe that the optimum food for the young infant is milk, especially human milk, supplements should resemble breast milk as closely as possible. Whilst this is perhaps counsel of perfection, particularly in the third world, breast milk should nevertheless be the reference standard for any substitute food intended for the young infant." *

*Whitehead, R.G.: Rowland, M.G.M.: Barrell, R.A.E.: Bacterial Contamination in Traditional Gambian Weaning Foods, Lancet, Jan. 2, '78: p 136-138

6. Conclusion

While the hearings may have cleared the air a bit, and provided you with a personal look at the complexities of the issue, and how different companies seem to be responding to the bottle debate, my sense is that a "win-lose" atmosphere prevailed. At Abbott/Ross we have been searching for "win-win" strategies so that third world infants and their mothers can receive whatever resources and help can be mobilized from all sectors, including the private sector.

A wise man said, "Protect your critics". We respect our critics, and will work toward minimizing our differences through study of all the factors involved, and in presenting a balanced examination of the arguments. In time, I hope we will all reach a common understanding of this problem, and move on to the larger issues of education, sufficient food for mother and child, sanitation, and economic development confronting the families and governments of the developing world.

Sincerely,

David O. Cox

David O. Cox
President
Ross Division of Abbott Laboratories

Attachments

ATTACHMENTS FOR THE HEARING RECORD

1. Abbott Laboratories' Statement on:

   INFANT MALNUTRITION, BREASTFEEDING AND INFANT FORMULAS IN DEVELOPING NATIONS: four authors
   (Previously submitted and unchanged.)

2. NUTRITION INTERVENTION PROGRAMS IN CHILE: 1951 - 1978,
   Dr. Fernando Monckeberg, 31 May 1978

3. SUPPLEMENTAL FEEDING AS A NUTRITIONAL INTERVENTION: THE CHILEAN EXPERIENCE IN THE DISTRIBUTION OF MILK, Peter Hakim and Giorgio Solimano, May 1975.

4. THE VOLUME OF BREAST MILK PRODUCED BY MALNOURISHED MOTHERS, Ross Laboratories, Division of Abbott Laboratories, June 8, 1978.

5. THE HOUSEHOLD CONTEXT OF INFANT FEEDING PRACTICES IN SOUTH TRINIDAD, Judith Johnston, Dec. 1, 1977

6. BACTERIAL CONTAMINATION IN TRADITIONAL GAMBIAN WEANING FOODS, R.G. Whitehead, January 21, 1978.

7. MOTHERS IN POVERTY: BREASTFEEDING AND THE MATERNAL STRUGGLE FOR INFANT SURVIVAL, Dana Raphael, Lactation Review, Vol. II, No. 3, 1977

ABBOTT LABORATORIES
Statement on

INFANT MALNUTRITION, BREASTFEEDING AND INFANT FORMULAS IN DEVELOPING NATIONS

Presented as Part of the Record of Hearings
of the Senate Subcommittee on Health and
Scientific Research May 23, 1978
Washington, D.C.

ABBOTT LABORATORIES

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Abstract

The generalized criticism of the prepared infant formula industry's marketing practices in developing nations is based partly on facts and partly on a narrow and limiting interpretation of actual infant feeding practices and trends, the international marketplace and scientific research. This paper explores some of those facts and limitations, describes the marketing policy of the Abbott Corporation, and solicits cooperative rather than adversary relationships in dealing with continuing problems of infant malnutrition in the Third World. The bottle feeding debate as currently formulated is inadequate in resolving the massive and debilitating economic, social and political problems faced by most Third World mothers and their infants. Universal breastfeeding is the feeding of first choice, but will not solve the problems of poverty, dysfunctional urbanization, an unhygienic environment and inadequate food.

Introduction

International organizations, nutritionists, physicians, politicians, and industry have debated the appropriate role of infant formula in developing countries for more than ten years.(2,69,87,93,118) These discussions have been valuable in focusing world attention on the extraordinary and terrible problems of malnutrition and infant mortality in much of the developing world.

Because of these spirited discussions, the awareness of relevant participants in both developing and developed countries has been raised(15,47,72,73,78,84, 86,88,106,108,117) Many important questions have been clarified about the newborn and weanling period, the impact of maternal malnutrition, and food policy strategies. The debate has stimulated a new appreciation of the unusual and special merits of breast-feeding, lactation and breastmilk composition.(17,35,59, 105) The prepared formula industry, has been required to rethink its marketing policies, especially those of direct consumer promotion.(42,69)

Critics who reject "bottle feeding" in developing countries usually do so on the basis that lacking adequate sanitation, "bottles" may be improperly cleaned, the necessary water to mix an infant formula left unboiled, a weak dilution made because of lack of sufficient money to buy enough formula or inadequate information on the preparation of the formula, particularly among the urban-transitional groups. (6,36,46,51,58,73,81) These problems are believed to result in higher rates of gastroenteritis and/or malnutrition and consequently higher mortality.(25,27,68)

Increasing use of generic bottle feeding is attributed by critics to mass media promotion of infant formula and other marketing practices.(11,43,47,61,63) Most of the criticism is selectively aimed at four multinational corporations, of which Abbott is one, although literally hundreds of companies and products are involved.

As differing views have been expressed and examined, the complexity of providing good nutrition for the young in developing countries has been amply demonstrated. (65,71,84,107) New and relevant information has been generated by pediatricians,(45,76,111,113) anthro-pologists,(53,94) economists(12,82), health planners,(1,7,8) nutritionists,(35,58,74) educators,

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biochemists, demographers(119), immunologists, (36,40,63,66,115) microbiologists(64) and many others.(71,85,108) The problems of infant malnutrition have been shown to have socioeconomic, political and even foreign policy implications.(21,33)

Careful examination of the literature has revealed a fundamental problem of generating reliable demographic and statistical data(90) in most third world settings, and the need for multidisciplinary examination of the problem.(104) Some valid points have been well made by critics of the infant formula industry. But exaggeration, misinformation, and bias have clouded the issue, and may result in serious distortion of the urgent medical, economic and political problems that must be understood in order to generate data, policy, and tactics to improve the lives of infants and children in developing nations.

The societal forces which influence what a mother chooses to feed her baby are varied and complex, and often independent of any impact of the commercial availability and sale of prepared formulas.(80,82, 101,112) Even if the sale of breast milk alternatives were abandoned completely, which realistically will not happen, the basic and overriding issues of poverty, sanitation, endemic disease, and lack of education remain.

Little credit is being given to the needed and useful qualities of prepared infant formula feedings. (20,39,87,116) Nor has the formula industry been the exclusive recipient of attacks. The health care profession, governments, scientists-who-don't-agree, and many international agencies have been criticized as well for their alleged role in the perceived decrease in breastfeeding.(47,48)

It is time to restore a sense of objectivity, fairness and goodwill to differences of opinion. (108,117) Conflict can have merit. It can raise awareness; it can unify; it can mobilize resources. But conflict can also create enmity, divert attention from real problems and cause people who should be interacting to become isolated from one another.

The Effect of the Availability and Promotion of Infant Formula on Breastfeeding Trends

The statement is frequently made that the availability and marketing of prepared infant formulas has significantly depressed the rates of breastfeeding

both in this country and in developing countries. (29,30,49,60) We know of no rigorous scientific study which quantifies the major influences that govern a woman's choice to breastfeed, or proves the accusation. The influences(91) which affect individual mother's decision to breast feed range from lack of help for the new mother to physical disorders, although most investigators believe that psychosocial factors are dominant both in the decision to breastfeed, and in successful lactation.(77)

An examination of the American experience over the past twenty five years is instructive in judging whether the impact of prepared infant formulas, during a period of active commercial promotion affected the rates of breastfeeding. A common assumption exists that breastfeeding had been declining in the United States. The data reveal that the percent of mothers deciding to initiate breastfeeding had remained nearly constant for twenty years, at which time it began to increase five years ago.(97)

The gradual increase of breastfeeding in recent years in the United States has been attributed to a new interest in more "natural processes", the efforts of groups like the La Leche League who provide psychologic support and breastfeeding information to young mothers, a heightened awareness of the scientific merits of breast milk, and a more favorable supportive attitude of hospital and pediatric personnel.

Prior to World War II the most commonly prescribed infant formula was a mixture of evaporated milk, water, some form of sugar and multivitamins. Rather than replacing breast milk as so often suggested, prepared infant formulas replaced evaporated milk formulas and whole cow's milk, which had been the "standard" of infant feeding since the early thirties.

In developing nations, evaporated milk, sweetened condensed milk, dried skimmed and whole milk have been available in most urban markets for decades.(41) It is not known to what extent prepared infant formulas are replacing that existing market or creating new markets. Accurate market data is not generally available to demonstrate whether prepared formulas are displacing existing products or breast milk. However, Johnston(50) reports that during a ten year period of time in Trinidad, prepared infant formulas have replaced less nutritious foods, not breast milk.

The decline in breastfeeding appears to be most closely correlated with the urbanization process that appears to be accelerating.(41,65) Urban rates of breastfeeding have always been found to be lower than rural rates in developing countries, where traditional practices are generally maintained.(16,41,99)

Investigators have analyzed infant feeding practices in developing countries by at least three groups of women: the urban- elite, urban-transitional and rural-traditional. Among wealthy and well-educated mothers, bottle feeding in developing nations has become more prevalent.(28,41,91) Among the urban transitional groups, various authors report decreases in breast-feeding.(9,16) Among rural traditional populations, breastfeeding still predominates.(16,41,82)

Reasons for the decline among the urban transitional groups are variously attributed to mimicry of the affluent, changing life styles (including work outside the home), an increased failure of lactation attributed to the breakdown of help for the mother, the psychologic tensions of poverty and urban life affecting the let-down response and the availability and aggressive sale of breast milk alternatives.(80,111)

A common reason frequently given by mothers for cessation of breastfeeding is "failure of lactation". A survey of nineteen worldwide studies revealed that "failure of lactation" was most often quoted as was the primary cause of cessation of breastfeeding.(5) The question of why mothers believe that lactation failed them is particularly germane as modernization and urbanization proceed.(3) Hytten et al,(38) in a well controlled study in England on the difficulties associated with breastfeeding summarized, "An intensive follow-up for three months was made of 106 primipara who left Aberdeen Maternity Hospital breastfeeding, all but two of them experienced difficulty with breastfeeding and 74 abandoned it within three months...it seems that the breastfeeding mother in modern urban society often has to accept a heavy load of discomfort and disability and that this is attributable more to her way of life than to the fact of breastfeeding per se." Many authors stress the impact of tension and anxiety on the let-down reflex, and the consequent failure of breastfeeding. A retrospective study published recently in Sweden supports that finding.(100)

Plank and Milanesi(81) note that in rural Chile, breastfeeding decreased significantly as maternal education and paternal income rose. Of these, education was the more significant. Raphael(92) strongly

emphasizes the destruction of the extended family and other supportive networks as a primary reason for rapid declines in breastfeeding, as well as the potential key to its maintenance or increase.

The following partial list of factors affecting a women's decision to breastfeed reveals the complexity of the issues, and raises questions about citing the availability of prepared infant formulas as a major influence in that decision-making process. For example, as modernization proceeds, women often begin to perceive the breast as a sexual object, and become concerned about nursing in public, or unnecessarily reject breastfeeding for fear of deforming the breast. Raphael(94) argues that women in poverty often carry enormous burdens and family responsibility, and that breastfeeding may simply be inconvenient in terms of her needs. Others point to inadequate medical education of health care professionals, or nonsupportive hospital practices as a major cause of decreases in the rate of breastfeeding.(102)

TABLE I

SOME INTERRELATED FACTORS AFFECTING INITIATION AND DURATION OF BREASTFEEDING

Socioeconomic status

Level of education

Nutritional status of mothers

Specific nursing problems: mastitis, failure of lactation

Maternal or infant illness: malaria, measles, anemia, etc.

Personal tension or anxiety

Local custom, cultural taboos or practices

Urbanization, destruction of the extended family, absence of maternal support

Fear of deforming or exposing the breast

Adequate breastfeeding instruction and information

Availability and promotion of"safe and attractive" breast milk alternatives

Husband's attitude

Government programs: eg, Milk Distribution Programs, as in Chile

Birth order of child

New pregnancy or desire not to become pregnant

Family planning practices, eg, drugs which suppress lactation, working mothers

Attitudes and practices of the health care profession

Available time: eg, time as an economic determinant

Popkin(83) was unable to show a negative effect of milk company activity related to breastfeeding behavior. Petros-Barvazian(80) comments, "The stated reasons for the rapid decline in breastfeeding in many countries appears to be based mainly on assumptions or speculation rather than on objective findings. It would seem, therefore, that there is a great need to carry out well-designed studies to determine the factors influencing this declining trend...since breast-feeding is a manifestation of human behavior, it is evident that the changing patterns of breastfeeding should be viewed within the context of socio-cultural dynamics and changes in the society."

The Question Of Morbidity And Mortality Associated With Bottle Feeding

Many factors put the mother and child at risk in developing countries. The Pan American Health Organization study, "Patterns of Mortality in Childhood",(89) is among the most comprehensive analysis of data available. Puffer and Serrano conclude that low birth weight, parity and mother's age, combined with inadequate nutrition are the salient factors affecting infant mortality in the thirteen developing countries studied.(90) The authors warn about the extreme difficulties in getting accurate records on births and deaths, and the danger of drawing premature conclusions from their data.

Critics have quoted the Puffer-Serrano work as "proof" of the harmful effect of the sale of commercial infant formula in Third World settings.

The authors reported no data on living children, and therefore, infant mortality rates can only be theorized from the report. They do report higher rates of mortality on infants "not breast fed," but it is unknown what the "not breast fed" infants were fed, so no conclusions can be drawn about the impact of prepared formula. Also, the cohorts were not analyzed by weight to determine if "not breast fed" babies may have included a higher, at-risk group of low birth weight infants. Much data were collected from hospital records, increasing the chance of inclusion of high risk premature or ill babies.

Prepared infant formulas have regularly been equated with generic "bottle feeding" in many of the critics' papers and articles, without acknowledging the enormous variety of fluids fed to babies via bottle by Third World mothers. Several cases illustrate the point. In "Infant Feeding and Infant Mortality in Rural Chile,"

Plank and Milanesi,(81) report that a majority of infants in the study were not fed a prepared infant formula, but a partially defatted dried milk provided free as a part of government milk scheme. This product is considered by many health care professionals to be unacceptable as an infant formula.(22) The paper further states that, "An undeterminable part of the higher mortality associated with bottle feeding was an artifact due to the inclusion of low weight, high risk infants for whom supplementary milk was medically prescribed."

In another paper, quoted to prove the high incidence of gastroenteritis on "bottle feeding", "Breast Feeding in Kingston, Jamaica",(28) the authors' experimental design excluded the private patients, wives of university staff, etc., thus maximizing the experimental effect. No control group was selected. Nor did the study include a review of such factors as the introduction of possibly contaminated solid foods, awling, etc. Incidentally, Jamaica has one of the lower infant mortality rates in the world, 26/1000, even though generic bottle feeding is said to be increasing.

As a point of fact, but of questionable relevance, infant mortality rates are lowest in the world where bottle feeding is high. This does not "prove" that breastfeeding should be discouraged! It does suggest that other potent factors, especially maternal nutrition, sanitation and potable water, health care, and purchasing power are the major forces related to infant mortality.

Published scientific reports point to higher rates of morbidity with bottle feeding among low socioeconomic groups in developing nations. Bottle feeding in uncontrolled circumstances and unsanitary environments can exacerbate the incidence of gastroenteritis. The classic paper of Gordon et al,(27) "Weanling Diarrhea" documents the problem in the Punjab when infants are fed anything other than breastmilk in an unwholesome environment. Many other papers report higher incidence of gastroenteritis and diarrhea on bottle feeding, compared with breastfeeding. Unfortunately, the contents of the bottle are rarely noted or microbiologically analyzed.(25) Examination of infant feeding practices in developing nations reveal that the contents of the bottle are kaleidoscopic: water, teas, herbal brews, broth, paps, soft drinks, animal milks of every sort, processed milks, skimmed milk, whole dried milk, evaporated milk, sweetened condensed milk or a prepared formula...even cow's urine or cornstarch.

Unfairly, critics omit precise information, and implicate only commercial prepared infant formula as the cause of the bottle baby syndrome. Little is said of a common practice, as one example, of force feeding an infant directly from a cupped, bare hand as part of the "artificial" feeding regime, or feeding several children from the same cup. Even when infant formulas are mentioned, frequently no distinction is made between whole cow's, skimmed or sweetened condensed milk, for example, and a prepared infant formula.

Infant mortality rates are highly unreliable in most developing countries, because birth and death registration are not complete.(89,119) In 83 major developing countries, one third showed an increase in infant mortality rates over the past seven years, one third a decrease, and one third remained essentially unchanged. The source, the Population Reference Bureau, states, "These figures should be considered as rough approximations only."(119) Those who attempt to show any sort of influence or lack of influence by commercially marketed infant formula on infant mortality rates, do so with an unreliable data base and unacceptable statistical measures.

In countries now beginning to register neonatal deaths more accurately, infant mortality rates can be expected to show an increase. Further, if per capita income continues to decrease, (lower purchasing power) or a natural catastrophy (e.g. drought) occurs, infant mortality rates can be expected to increase. No reliable conclusions can be drawn about the impact of the sale of prepared infant formulas from questionable infant mortality data.

Third World health care professionals frequently describe overdilution of formula as a common problem among lower socioeconomic groups, causing malnutrition. The National Food and Nutrition Survey of Barbados,(75) is quoted to prove that 82% of the surveyed mothers with infants 2-3 months old were overdiluting the milk powder with water. Even if used as the sole source of nutrition for a four kilogram baby, one tin could last five days. But, careful reading of the paper reveals that about 75% of the mothers were using the formula as a supplement for babies three months old, not as the entire diet. A tin could be expected to last a week or more for 75% of the cases surveyed. The authors also performed a correlation analysis between the duration of a one pound can of milk, and the percentage of two month infants acquiring a standard weight for ages for children under four years. The value was greater than 0.2, and not significant. In fact, 30% of the infants

whose mothers said their formula lasted more than seven days exceeded 100% of the standard weight for age. Hall et al(34) recently reported that overdilution was less a problem in low socioeconomic groups in Africa than commonly suspected.

Other examples of bias emerge in examining critics' use of the scientific literature. Rarely included are studies which show a beneficial effect of artificial feeding. For example, AE Dugdale,(20) University of Malaya, Kuala Lumpur studied breast vs artificial feeding in 250 lower-socioeconomic, urban families, concluding in respect to morbidity, "The effect of the type of feeding did not reach statistical significance, neither did it show any consistent trend."

The prepared formula industry critics tend to omit literature dealing with the morbidity problems encountered with breast milk, particularly among multiparous, impoverished mothers with infants of low birth weight. Their reports should reflect fair-balance with respect to specific problems encountered on breastfeeding such as vitamin D deficiency rickets in Jamaican children received had prolonged breast-feeding reported by Miller and Chutkan.(70) Laditan and Reeds(54) noted that forty-nine of fifty unselected cases of protein-energy malnutrition presented at an outpatient clinic in Ibadan, Nigeria were breastfed infants. Shah,(98) comments "Failure of lactation or poor lactation is one of the major contributory factors leading to malnutrition." in India.

Barness,(4) recently wrote, "Some breast fed infants become jaundiced though this development does not produce ill effects. Some breast milk carries cytomegalovirus which may affect the infant. Some milks contain appreciable quantities of fat soluble environmental contaminants." Wasti(114) noted in Lahore, Pakistan, "In the department of Social and Preventative Pediatrics it was observed that many infants reared up on breast feeding were not thriving." He describes permanent gross depreciation in weight.

The panoply of forces affecting both the rates of infant morbidity and mortality in developing nations are beyond simplification. Infant mortality rates are higher in rural areas where breastfeeding is also higher. Obviously, many factors interact, and it is questionable whether the elimination of artificial feeding would have any significant effect given the overwhelming problems of an unsanitary environment, endemic disease and poverty.(96) Conversely, it cannot be argued that artificial feeding has no negative effect when used in inappropriate circumstances.

TABLE II

INTERRELATED FACTORS AFFECTING RATES OF INFANT MORBIDITY AND MORTALITY

Potable Water

Sanitation, Adequate Personal Hygiene

Prenatal Maternal Nutrition

Low Birth Weight, Prematurity

Birth Order

Age of Mother

Poverty: Lack of Purchasing Power

Lack of Education

Traditional Beliefs and Practices

Availability of Health Care

Endemic Disease (Malaria, Measles, Worms, Iron Deficiency)

Crises (Famine, Drought, War)

Suitable Breast Milk Alternative

Weaning Foods and Techniques

Adequate Food (Protein/Calorie Malnutrition)

Infant Feeding Practices

Birth Defects

Thomson and Black(108) strongly and enthusiastically support breastfeeding but add, "But assuredly the cause of breastfeeding will not be assisted by failure to examine scientific evidence as critically as possible, or by basing advocacy on insufficient, misleading, or erroneous information...there is a considerable need for objective studies of the natural history of breast-feeding and associated phenomena in developing as well as in "advanced" communities. Existing information is scanty, usually crude, and often biased by the attitude of the observer." Observer bias, problems of definition and technically incompetent study designs plague the third world breastfeeding literature.(16)

The Role of Breastfeeding in Developing Nations

Few would debate the natural superiority and convenience of breast milk for infant feeding anywhere in the world. The low renal solute load, amino acid pattern, fatty acid composition, lactose, and caloric distribution of carbohydrate, protein and fat are especially well suited for the newborn. In recent years other benefits of breast milk have been emphasized, especially the maintenance of a gram positive intestinal flora,(64) immunological properties to protect against infection(36) and the contraceptive effect of breastfeeding.(109) The process of lactation is described as having benefits for the mother postpartum, e.g., the return of the uterus to its normal position, Klaus et al,(52) have described strong psychologic bonding between mother and breastfed infants. Breast milk has been described as an important economic asset, particularly in developing nations.(6) In the absence of purchasing power and proper sanitation, breastfeeding is often considered essential to the survival of the child.

In seeking perspective, however, some observers have drawn parallels between the current situation in developing countries and conditions which existed in America just after the Civil War in the 1860's when wealth was not well distributed, medical care sparse and unsophisticated, and the nation in the midst of rapid urbanization, industrialization and social change.(122) Mortality rates were high, education not universal, the majority of the population lived in rural settings, although large groups of people began to move to the cities, or immigrate from Europe and China.

By 1900, dairy chemists began to understand the composition of milk and pediatricians began to understand the unique needs of sick and malnourished infants and children, particularly those from low

socioeconomic groups. Bosworth, for example, working on the Boston Floating Hospital, (a boat whose purpose it was to give a day's free medical care to sick, poor children and to get them out of the hot city) devised a breast milk alternative patterned after breast milk.(37) Rickets, tuberculosis, gastroenteritis (particularly "summer diarrhea"), and malnutrition were common problems faced by health care professionals, not unlike those found in today's developing nations. A nutritious formula was considered an essential intervention in selected cases.

Mortality rates were then higher among "hand fed" infants than among breastfed infants for many of the same reasons found in developing nations today.(122)

The parallel between America at the turn of the century and today's developing countries is not exact, of course. The need to care for seemingly limitless malnourished, at-risk infants is even greater than was faced in this country, and perhaps more complex and frustrating because the causes of malnutrition are well-defined, but the scale so great. These problems of scale turn infant malnutrition more into questions of sociology, politics, and economics rather than as medical or nutritional problems.

Examination of infant feeding practices in contemporary socialist countries (where no promotion of prepared formula is found) is felt by some to be instructive, although comprehensive data are not easily obtained by visitors. The Chinese have evolved a country wide health care concept of decentralized medicine at the community and village level.(120) Breastfeeding is highly regarded, and provisions made for the lactating mother.(121) Some anecdotal opinion is available that breastfeeding is beginning to lessen in urban centers in China, a trend also reported in Cuba. The Soviet Union recently completed negotiations with Abbott/Ross Laboratories to build a large SIMILAC powder plant near Odessa, obviously indicating a need for a high quality breast milk alternative for a segment of the population.

Breast milk from the normal, well-nourished mother is nutritionally adequate for the normal infant for a period of three to six months without supplementation. The immunologic advantages of breast milk, its maintenance of specific gram-positive flora, low allergenicity, etc., make breastfeeding a clear feeding-of-first choice.

The problem is that women of low socioeconomic status in developing countries are often malnourished,

of short stature, with little education. They produce an at-risk newborn of low birth weight in up to 50% of the cases. Such newborns, nutritionally deprived as fetuses, have unusual nutritional needs from the day they are born.(55) If fed solely at the breast, low birth weight infants begin to exhibit signs of growth retardation, reduced activity and other symptoms of serious malnutrition at about three months. The smaller the child, the greater the risk.(90) The infant's poor state of malnutrition is associated with higher susceptability to infection and disease.(63)

Estimates of the precise amount of breast milk secreted by non-supplemented, low-socioeconomic mothers varies,(62) but appears to peak at a maximum 650 ml/day in the first three months. Other studies of mothers in developing countries report figures closer to 400 ml/day. If a normal infant requires 110-120 kilocalories/kg/day,(95) this limited supply of breast milk would become inadequate soon after birth. Low birth weight or premature infants may require even greater caloric intake and a nutrient pattern different from breast milk.(23)

The impact of supplemental nutrition to improve lactation of poor, rural mothers has been studied by Chavez, et al(13,14) and others. Most investigations suggest that supplementation of malnourished mothers does not completely solve the problems of the quantity or quality of lactation. In the studies of Chavez et al,(13) the total solids secreted over a one year period were the same in supplemented and non-supplemented groups, although fat was lower in the poorly nourished woman. Most investigators express the point of view that although the impoverished, lactating mother creates a surprising amount of breast milk under the circumstances, the volume may be limiting.(117) Scientific interest now seems to be turning from the amount of protein provided, to the amount and nature of the fat composition in the breastmilk among impoverished groups. The fat is highly variable and important because of its caloric density.

As nutritional research continues to explore these questions, it is clear that breastfeeding is obviously the most desirable first food for the great majority of infants in developing nations. Yet, universal breastfeeding would not have a major effect on infant malnutrition or high infant mortality rates in the Third World, unless environmental and other nutritional problems are solved.

The Role Of Prepared Infant Formula In Developing Nations

Few would debate that breast milk alternatives have been necessary and documented through all of recorded history.(2,118)

Many lists of indications for infant formula in developing nations have been published from time to time.(103) These lists usually include indications related to maternal disease (e.g. severe asthma, anemia, heart disease, certain drugs being taken which are secreted in the milk, etc.), infant deformities, serious illness, prematurity, and inadequacy of breast milk. In these cases, a formula may be necessary to complement or replace breast milk if the child is to progress normally.

Another category of indications for alternative feeding practices relates more to social or family circumstances, e.g., the orphaned child, the working mother, multiple births, in which a malnourished mother may not successfully breastfeed each twin, for example. Some women chose not to breastfeed.

An influential sector of society in developing nations maintain lifestyles often indistinquishable from those found in a Connecticut suburb or metropolitan Chicago, especially among the business, university, government and professional communities. Many men and women have studied or traveled in industrialized countries. Most major cities in the developing world have television stations, traffic jams, Western magazines, skyscrapers, fast food chains, private hospitals and physicians, supermarkets, bottles and infant formula, radios, hand-held calculators, T-shirts and Levis. Generic bottle feeding is significantly higher among the affluent groups than among traditional rural populations. They can afford prepared formula, can prepare it safely. Their children are comparable to Western standards of height and weight. Seeing this usage by affluent groups, it is frequently reported that poor, urban transitional groups try to mimic the practice of bottlefeeding, but should not, because adequate funds, proper instruction and good sanitation are not available.(44,61)

However, even the economic arguments against prepared infant formula used by the urban poor in developing countries can be balanced with informed opinion from the literature. J. P. Habicht et al,(31) comments "If the mother is a wage-earner, and continued work precludes breastfeeding, it appears that weaning is economically desirable when the increase in family

income due to the mother's return to work is greater than the cost for infant care and feeding...the disproportionate great expense of artificial feeding is, however, of indifference to the wage-earning mother because earnings in excess of the break-even point for adequate nutrition of her infant can be applied to better her own and the family's nutrition...In fact, Dugdale,(19) in Malaya, has shown that wage-earning non-lactating mothers manage to have better-fed babies than those mothers who forego earning wages and stay home to breastfeed their infants..."

Over time we believe it will become increasingly clear that a high-quality infant formula, closely patterned after breast milk and fed with breast milk (after lactation is established) may be nutritionally preferable for many infants, if the intergenerational cycle of malnourished mother, malnourished infant is to be broken. The political and economic problems of providing a supplemental infant formula have not yet been adequately addressed or solved, but the need may be inescapable. Incidentally, it has not been proven that proper controlled use of a supplemental feeding decreases lactation.

So that this point of view is not misinterpreted, we reaffirm that every mother who can should breastfeed. Even if the breast milk eventually becomes inadequate, the mother should breastfeed so that the baby receives colostrum and as much benefit as possible from her natural milk. If, however, evidence of malnutrition develops i.e., a subnormal rate of growth as determined by head circumference, weight for length, etc., as will be the case in significant numbers of Third World infants, the need for early supplementation cannot be denied.

Paradoxically, while critics complain about the availability and sale of prepared infant formula in developing nations, we regularly receive requests from numerous church groups "imploring" us to contribute supplies of our products to be used in exactly those poverty-stricken situations.

The Nutritional Risk/Benefit Factor(18) Of Breastfeeding And Breast Milk Supplements. A Hypothesis.

Health care professionals and planners in developing countries are confronted with an interlocking set of variables in designing nutritional strategies for the neonate and weanling...chief among them are socio-economic status, nutritional state of the mother and birth weight of the infant.

As birth weight falls and as the nutritional state of the impoverished mother is judged inadequate, the need for earlier supplementation of breastfeeding becomes more pressing if the infant is to grow and develop normally.(24) Some nutritionists argue that with limited resources it would be better strategy to feed the pregnant women and avoid low birth weight infants.(56,57) However, after giving birth to a low birth weight infant, the nutritional benefits of breastmilk supplementation are high, but so are the risks in terms of safe delivery of that supplementation. The supplement, whether in fluid or solid form must be of high nutritional quality and free from contamination to be effective.

How that nutritional intervention should be supplied is a part of the current discussion. A significant number of alternatives have been explored, including the implementation of milk distribution systems, as in Chile,(32) or the creation of subsidized high-protein, low-cost protein supplements such as INCAPARINA and others.(79) Results vary, but most evidence reveals that properly applied, wholesome food supplements for infants can be beneficial.(56) But problems are not uncommon and results vary. In many cultures, fathers or older members of the family are fed first, and only a small percent of the subsidized or free food designated for the baby may reach the infant. Milk powder, if improperly prepared, may be contaminated and cause gastroenteritis.

The economic scale of the problem is so great that resource-poor nations are hard pressed to even begin to provide adequate funds.(110) Some argue that the benefits of providing potable water and proper sanitation would be greater than the benefits of food supplementation. Rural populations do not generally have transportation or distribution systems available to receive supplemental foods consistently. Therefore, many nutritionists and food strategists stress basic nutrition education, food fortification, local indigenous foods and improved agricultural practices, involvement of existing community infrastructure, paraprofessional health care personnel and other available local resources as key strategies.(21) Hakim and Solimano(33) concur that the political and economic impact of infant malnutrition has not yet been adequately studied.

In the case of significantly malnourished mothers with low birth weight infants, the advice that nothing but breastfeeding should be offered to a malnourished child for four to six months may prove to be too

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conservative. Without nutritional intervention and breastfed only, the infant may be safer but stunted, inactive and perhaps mentally affected, and the infant's future outcome bleak. A well-nourished infant is less susceptible to infection, so the dangers of early nutritional supplementation need to be weighed against the benefit of resistance to disease. However, significant improvement is unlikely if environmental conditions remain hostile, regardless of nutritional intervention.

Food strategies should be developed that do not interfere with the lactation process itself. In some part of the developing world a "mixed feeding" combination of breast and bottle (or cup and spoon) is not uncommon. One key to the question of safe early feeding is careful instruction and nutrition education. The fundamental principles needed by the mother to feed infants safely are not overly technical, and do not require a highly trained person to communicate them. Paraprofessionals, village women and men, teachers and others in existing infrastructures can desseminate the procedures.

Nevertheless, Abbott adopts the position that if in the opinion of local health care professionals, our products cannot be safely and properly prepared, they should not be recommended.

The Abbott Response

Abbott Laboratories manufactures and markets SIMILAC prepared infant formulas internationally, including some but not all developing countries. Relative to other companies, our presence in these countries is relatively small. Nevertheless, we share in the criticism directed against industry, and have a need to develop marketing policies appropriate for these settings.

In the past, infant formulas tended to be marketed in the Third World as groceries rather than as special dietary foods as in the United States. Much of the current debate centers on consumer marketing practices which reach poor people who are unable to afford the product or prepare it properly.

Representatives from our Corporation first learned of and discussed the infant formula question in Bogota, Colombia in November, 1970 under the auspices of United Nations agencies. Subsequent meetings were held in Vienna, August, 1971; Paris, June, 1972; Geneva, December, 1972; and New York, June 1973. From these meetings began to emerge the shape of a broad policy in

response to the issue, written as Protein Advisory Group (UN), PAG Statement #23.(87) The elements of that policy include:

1) The enthusiastic endorsement of breastfeeding as the formula of choice in developing countries by international agencies, the health care profession and industry.

2) The centrality of the health care profession in encouraging breastfeeding, and minimizing bottle feeding where inappropriate.

3) Restrained promotional practices, and especially the elimination of direct consumer promotion.

Also launched as a result of these UN discussions was a major, three year study under the auspices of the World Health Organization of breastfeeding trends and the quantity and quality of lactation in various socioeconomic groups. Included with the study findings will be recommendations for appropriate activities. Educational programs to encourage breastfeeding will be given special emphasis.

The Agency for International Development recently sponsored a year-long study to explore the cultural and anthropologic aspects of breastfeeding in developing nations. The results were presented at the Human Lactation Conference held in cooperation with the New York Academy of Sciences in March, 1977.(67) The cultural and psychosocial aspects of breastfeeding were particularly stressed in the field studies.

A group of companies who market prepared infant formula in the Third World met in November, 1975 to formulate a suitable code of marketing practices as well as explore possible solutions to the nutritional problems confronting infants in the Third World. These companies include: Dumex, Ltd., Denmark; Meigi Milk Products, Japan; Morinaga Milk Industry Company, Ltd., Japan; Nestle, Switzerland; Snowbrand Milk Products Company, Japan; Unigate Foods (Cow and Gate), England; Wakodo, Japan; and American Home Products (Wyeth International); Lijempf, Netherlands; Nutricia, Netherlands; Friesland, Netherlands. Although supportive of the concept, Abbott decided not to join the International Council of Infant Food Industries (ICIFI) because we felt that the use of mass media campaigns for infant formula were inappropriate in third world settings, and the ICIFI Code did not specifically exclude these practices. We subsequently published a printed code outlining our marketing policies.

Since 1974, Abbott has been in dialogue with the Interfaith Center for Corporate Responsibility (ICCR), an organization supported by the National Council of Churches. The role of ICCR is to advise denominations who own stock in corporations on issues of social responsibility. In 1976, ICCR submitted a shareholder resolution seeking to have Abbott disclose data related to the sale of our infant formula in third world countries. ICCR submitted a new resolution in 1977, but the resolution was withdrawn after conversation with representatives of the Corporation. In the second submission, the shareholder's resolution sought to change specific practices related to promotion. This group is concerned with sampling practices in hospitals and clinics, distribution of product and the use of women who are nurses in a sales role. Similar concern has been addressed by ICCR to American Home Products (Wyeth) and Bristol Myers (Mead Johnson).

In June, 1976, Abbott formed a work team whose responsibility is to study the problems associated with infant nutrition in developing nations; make recommendations to management on changes of corporate policy; develop an "affirmative action program" for breastfeeding in developing nations; monitor the medical research being conducted around the world related to infant nutrition and breastfeeding.

After an extended trip to Africa in September, 1976, the team reported in part:

> "There is no doubt that many problems of bottle feeding which have been described by industry critics have their base in reality. Our problem, however, in trying to assess the validity of the problem in light of the charges against the industry is that so many interrelated factors are at work. Governments and key academic centers are aware of the infant feeding issue, and breastfeeding is being encouraged everywhere we visited. The advice we inevitably received from professionals and government agencies was that we should not withdraw our products from the markets, but that we need to be very conservative and medically-oriented in our promotional practices."

After a three week trip to Central and South America in June, 1977, the nutritionist on the work team concluded:

> "The same theme was repeated over and over again during my conversations. The bottle/breastfeeding debate is exaggerated, and is occuring primarily in developed industrialized nations, not in Latin

America where it is of relatively little consequence compared to other, critical poverty-related problems. Bottles can be a problem, can exaggerate already unsanitary conditions...Elimination of bottlefeeding altogether would do little to reduce infection while other factors persist...The most successful intervention programs I saw were those operating at a local level using community participants...No one suggested withdrawing our products even when asked."

The Abbott Code of Ethics was revised and strengthened in December, 1976. (See Appendix for text). The tenets of our policy are: 1) no mass media consumer promotion; 2) reliance on professional health care intervention in the use of our products, and 3) restrained, scientifically-oriented promotion.

If Abbott employees talk directly to mothers, they must have the written permission of a medical authority. Home visits by employees are forbidden. Any samples of our formula products must be distributed only by the health care unit, and not by our representatives. We are distributing the revised Code widely, (22,500 copies) and invite the recipients to report any violation of the Code immediately to Corporate Headquarters so that corrective action can be taken.

In Spring, 1977, we contacted the Ministers of Health in over eighty developing nations offering to help them develop breastfeeding campaigns suitable for their countries, focusing on radio which has the most "reach" for creating awareness of the merits of breastfeeding. A number of countries have responded positively, and negotiations are underway to produce the necessary materials. No product advertising will be included. The materials, both content and form, will conform to local needs.

A corporate task force composed of members of the work team, officers of the International Division, Ross Division and Corporate Headquarters will review policy, progress and plans at regular intervals. Members of the Corporate task force will seek expert opinion on infant malnutrition and breastfeeding in the Third World.

The Corporation has provided a seed grant, for example, to the International Nutrition Planning Program at MIT to provide a comprehensive analysis of available data, published and unpublished, in reference to the interaction of maternal malnutrition, fetal development, lactation, as well as nutritional strategies for the neonate and weanling. From this study are expected

organized proposals for study and action, of use to industry, government agencies, foundations, universities, and health planners. These research recommendations, combined with those of the WHO, AID, and others promise future mobilization of new resources for coping with maternal and infant malnutrition in developing countries.

Conclusion

The Abbott Corporation recognizes that while conflict may be unpleasant at times, it may be useful as a stimulant in exploring future courses of action. We hope that the current debate about infant feeding practices in developing nations will ultimately be judged beneficial, rather than irrelevant or harmful.

Having examined the relevant literature, spoken at length with our critics, visited and discussed the issue first hand in the field, met with informed and expert nutritions throughout the world, we conclude:

1. That the availability and sale of our products are not major factors in either the decline of breastfeeding or infant morbidity or mortality in developing nations.

2. That a clear and definite need for a suitable breastfeeding alternative and/or supplement exists and that health care professionals in the Third World do not want these products removed.

3. That our Code Of Marketing Ethics is a suitable and appropriate policy for continued marketing of our infant products in developing nations.

4. That well-informed, well-intentioned persons from developed, industralized countries should be extremely circumspect about forcing their value systems or "solutions" on developing countries.(10,26)

The bottle feeding issue does reveal deep and broad societal questions. Are developing countries inevitably to be "modernized"? Will capitalism or some other economic system emerge as the dominant economic pattern in particular developing nations? How should transnational corporations conduct their business in the Third World? Is the world experiencing a wholesale change in value systems? If so, what is the meaning of that change in terms of infant feeding practices?

However, we believe that infant malnutrition must be considered in the balanced context of other important problems...poverty and purchasing power, education, sanitation and hygiene, population growth, inadequate health systems, limited national resources, priorities of developing nations, etc. faced by the countries in question. The specific pediatric problems of malaria, parasites, protein/calorie malnutrition, iron deficiency anemia, etc. are found with alarming frequency. The elimination of any one would require massive resources, and perhaps the reshuffling of national priorities. We wish that the energies being spent in the current debate were being applied with equal vigor to these diseases.

With intensive political, economic and intellectual interaction between developed and developing nations, the movement toward modernization seems inevitable. Jet travel, instant communication, growing business and commerce, interaction between governments and private agencies of all sorts, exchanges between educational institutions, world diplomacy, evangelical religious movements, food politics, all promote modernization.

There is troubling evidence that food shortages and famine may plague the developing nations for decades to come, in fact may become worse.

Safe, nutritious infant formula products are part of the armamentarium of the medical profession in industrialized settings. As nations continue to interact, the need for safe, nutritious infant formulas for those who want or need them continue to be apparent.

Business enterprise has shown itself to be flexible and creative in seeking solutions to hard problems. Answers to the questions raised by critics do not lie in more regulation and control as some suggest, but in frank and rigorous confrontation of those problems by those who possess tangible and intellectual resources. Informed businessmen are fully aware that corporations must operate in socially responsible, public ways, particularly in the era of consumerism and distrust of institutions. Abbott pledges continued concern about infant malnutrition in developing nations, and hopes to play a role in seeking and participating in solutions.

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Revised, Winter 1977

CODE OF MARKETING ETHICS FOR DEVELOPING COUNTRIES

With Reference To Infant Feeding

ABBOTT LABORATORIES/ROSS LABORATORIES

INTRODUCTION

Supplying infant formula products in developing nations presents unique marketing problems and opportunities for the Corporation. In these nations it is possible to find the most modern, sophisticated and advanced settings in stark contrast with widespread poverty, illiteracy and inadequate health care. Infant mortality rates can be ten times greater than those of industrialized nations. Most of these infant deaths are caused by diseases such as malaria, measles, malnutrition, etc., which are preventable by applying current medical and nutritional knowhow. Within this context, we are keenly aware of the responsibilities of Abbott Laboratories to make a positive contribution to the health and well-being of infants in developing countries.

The Central Role of Professional Health Care Judgments

Because good nutrition is an essential factor in proper health care, we believe supervision of the infant's diet should be the sole responsibility of medical and allied health care personnel whose knowledge of nutritional science and understanding of local needs and conditions qualify them to provide this guidance. We conduct our business in cooperation with local health personnel, supporting their work through the provision of appropriate health care products and services. This relationship is especially important in developing countries where delivery of health care to major segments of the population is too often complicated by unfavorable living conditions.

Decisions about infant formula should reside solely in the hands of health care professionals. Where no health care counselling is available, the use of our products is inappropriate.

The Priority of Breastfeeding

Breast milk of healthy, well-nourished mothers is the best feeding to meet the nutritional needs of infants from birth through four to six months of age. At that time, needed and appropriate solid foods should be added to the diet. All mothers should be encouraged to feed their infants at the breast as long as the quantity and quality of milk remains minimally adequate. The recommendation to breastfeed is particularly appropriate for mothers in lower socioeconomic or non-money economic sectors, whose "at-risk" infants may be subjected to malnutrition, unsanitary environments, and endemic diseases.

To this end, we pledge to cooperate with local health care personnel, Ministries of Health and concerned international agencies to support health education practices which encourage breastfeeding.

Our product label carries a statement that breast milk is the preferred feeding for infants.

The Validity Of Alternatives To Breast Milk

Nevertheless, not all mothers lactate successfully, find it practical or desirable for personal reasons. In those cases, the health care profession may be required to recommend a suitable alternative. In that context, we offer Similac® infant formulas, which are patterned as closely after the nutri-

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tional qualities of human milk as current knowledge and technology permit. In presenting Similac and other products to the health care professions, our goal is to promote awareness and acceptance of physiologic nutrition as the most desirable alternative when breastfeeding is not possible. Given the scientific evidence in support of our products' efficacy, the health care profession should be free to decide whether our products or other alternatives should be recommended.

We recognize that a valid need for alternative feedings sometimes exists in segments of the population not able to purchase them. Government sponsored programs for public assistance in some form are the best ways to aid mothers who can neither breastfeed, nor afford a suitable replacement.

Restricted Promotion Of Infant Formula Products

1. We believe that unsupervised, direct promotion of infant feeding products to mothers can unjustly impel them to make decisions concerning the care and nutrition of their babies for which they may lack adequate medical or nutritional knowledge.

   Therefore, we do not advertise our products through general circulation magazines, directories, newspapers, radio, television, billboards, and other public mass media. We believe that no communication to the general public should encroach in any way on the responsibility of health care professionals to provide guidance as their judgment and experience dictate.

2. We do not encourage use of our products where private purchase would impose a financial hardship on the family, or where inadequate facilities for preparation constitute a hazard to infant health. We represent the cost of infant feeding accurately so that professional personnel can better advise mothers according to their economic status.

3. If any contact with mothers is made, either written or oral, it must be with the explicit agreement of a health care professional, so that the responsibility for that contact rests with the profession. If a company representative at any time is permitted to talk with mothers, in hospitals, health clinics, or maternity centers, that permission must be granted in writing, and a non-Abbott health care professional present.

   To help ensure that our infant feeding products are directed only to mothers who need and can afford them and have the capability to prepare them properly and to encourage professional guidance on their use, product samples are supplied only to professional health care personnel at their request.

   Visiting mothers in their homes is not allowed, even though requested by a health care professional.

4. We employ experienced and professionally knowledgeable company representatives who understand local needs. They are thoroughly taught the preference and value of breastfeeding, the

knowledge and proper application of our products, and the influence of social pressures that can lead to unwise purchases and practices by those who cannot afford to buy infant formula.

They are schooled to perform their duties in a professional manner and with integrity. Deception and other unethical practices are expressly forbidden. Specifically, any inference that our employees are members of a hospital, clinic, or maternity center staff is contrary to company policy. Even in the case of female employees who are qualified nurses, nurses uniforms are not to be worn. Nurses are reimbursed through adequate salary, not sales commission. The activities of our representatives must be coordinated with those of medical professionals responsible for infant and mother care. They may, under the supervision of responsible health care personnel, furnish "genuine" out-reach services in support of infant care instructions and counselling provided by the clinic, hospital or maternity center, but without any attempt to incur obligation for such services.

5. Our product label and printed instructions, in addition to stressing the importance of breastfeeding, will emphasize the need for accurate, proper proportions in preparing the formula. Pictographs as well as the written word will be included in appropriate languages.
6. While restricting our promotion to health care profession, we will direct additional company resources to aid their overall mission by providing communications on current health care developments, and by providing them with non-product related services for distribution to mother to:
   a) encourage breastfeeding
   b) promote good overall nutritional practices
   c) improve infant and child care
   d) improve sanitation
7. Further, to insure that the letter and spirit of this revised and strengthened Code of Marketing Ethics is followed, we will distribute it widely in developing countries to appropriate health care agencies and personnel. We invite those directly responsible for infant care in the developing world to report any current deviation from this Code by our employees or distributors. Unless proscribed by law, we will terminate any distributor who does not follow the Code. The company has devised internal procedures and policy to maintain ongoing surveillance of our marketing practices in these nations.

We recognize the variation that exists between countries as to state of development, economic resources and availability of trained health personnel and want our activities in all countries to conform to the spirit and letter of this Code.

Abbott Laboratories
North Chicago, Illinois 60064 USA

Winter, 1977

NUTRITION INTERVENTION PROGRAMS IN CHILE: 1951 - 1978

Dr. Fernando Monckeberg

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University of Chile

Santiago, Chile

Paper delivered to:

Medical Department

Ross Laboratories, Division

Abbott Laboratories

31 May, 1978

PART ONE

DR. MONCKEBERG: Thank you very much for inviting me to present some of our experiences in Chile. We have been been successful in some ways and in others we have committed many mistakes. It's always important to discuss these successes and failures and to exchange information.

Perhaps I have to say first what I am...a big question, because I don't know yet! I studied pediatrics and started doing research in pediatrics. Later I received a degree in biochemistry here in the States. Still later I studied economics, so today I don't know what I am. I am in charge of the Institute of Nutrition and Food Technology (University of Chile) which has grown a lot, now employing about 110 fulltime professional workers. The Institute is part of the United Nations University. In South America there are two centers which are part of the United Nations University. One is at INCAP in Guatemala, and the second is in Chile. From this position I have helped many governments...prior to Allende, with Allende, now with this government. In the two previous governments I was a consultant, without direct responsibility. Now the problem has changed because the new government told me, "You have talked too much about nutrition, now do it." When you work on a national level

it's easy to do research, to publish beautiful papers and to get some prestige. But, when you have to work "hands-on" with nutrition policy in an entire country, its a little different. There are many variables that you cannot control, that you can control in the laboratory.

Secondly, I have to give you some information about my country. Chile is a very, very long narrow country, a very ridiculous form, almost from the Equator to the South Pole. We have 10 million people. These people are more or less 80% of European origin, Spanish and German. I am a mixture of both, for example. My name is German, but my mother is Spanish. The other twenty percent of the Chilean population is of Indian origin. Most of the Indians are on a reservation in the South of the country. The country is mainly urban. Almost 80% of the total population live in urban areas of over 5000 persons; 20% live in rural areas. This has changed very rapidly during the last 15 or 20 years. Most of the people live in the central part of the country. The north is a desert where the copper and nitrate mines are located. The south is very remote - forests, fijords, snow covered mountains, volcanoes, etc. Very few people live there.

Chile has a well organized health service. This is unusual in an underdeveloped country, and unusual in South

America. Chile has had socialized medicine for the last 20 years. Ninety seven percent of the medical doctors are employees of the government. The health service covers almost 85% of the total population. The government through this health system provides about 400 hospitals and 1,500 health centers distributed around the country. If we have been successful in some programs, it's because this health infrastructure exists. The infrastructure has taken 20 years to create. This is a primary difference between Chile in relation to other countries in South America who do not have comprehensive health service.

The country is expending 5% of the gross national product in health, a very high percentage. The income per capita in Chile was $1,000 per person last year, almost twice the average of other South American countries. South America's income per capita averages $450. Our situation is a little better than the rest of South America. Income per capita is higher in Venezuela and Argentina. Chile is in third position.

After Allende, the government asked me to develop a nutrition policy. First we created the National Council of Nutrition to develop a nutrition policy, and then to coordinate that nutrition policy from food production until the food is eaten. Ours is a comprehensive and

complicated program. It is very difficult to keep all these factors together, to keep all the Ministers together.

Rather than talk about nutrition policy, food production, food commercialization, food distribution, or marketing, I am going to talk about nutrition intervention programs. Chile is spending a lot of money on our intervention program, about 110 million dollars per year. The first intervention program in Chile began in 1951, and involved the free distribution of powdered milk for every child from birth to 2 years of age. The milk we gave away was dried, partially-defatted milk. By 1956, almost 80% of the children of the country from birth to 2 years of age were covered. In 1956, the program was extended until 6 years of age. In 1970, the government extended the free milk program to 15 years of age.

When I took responsibility for this program in 1973, the first thing that we did was to eliminate partially defatted milk for the infant. Our main problem had been with infants below one year of age. It was very difficult to increase the caloric requirement with defatted milk, so we began to provide whole milk from birth to 2 years of age.

The second thing we did was to upgrade the image of the program. The milk that had been distributed was very poorly packaged and marketed. The milk didn't have prestige. If you give something free and it looks like it's poor food, you will fail. The mother received the milk, but the milk didn't arrive at the mouth of the child. Sometimes they painted the house, or sometimes they gave the milk to the animals, because the program didn't have prestige. We had to increase the prestige of the program by improving both the product and the marketing system. Instead of a plastic bag, the product was attractively contained in a colorful box. The same milk with the same name was sold on the open market. In other words, the mother would know exactly how much the product cost if she bought it on the market. She soon learned that what she was receiving was equivalent to $7.00 per month - the cost of the milk. Immediately, the demand for the product increased from birth to 2 years of age, The National Health Service had been distributing 8 thousand tons of powdered milk. When we changed the packaging and marketing, we immediately increased the demand to 14 thousand tons. We are now distributing more milk for children than exist in the country. The reason is very simple. The mother realizes that the product has value and she takes the child from one health center to another. This is a problem, because the distribution of

milk is connected with the whole health program...with medical attention, with vaccination, etc. Some children are vaccinated 3 or 4 times against poliomyelitis! We estimate that at least 10% of mothers receive milk from at least 2 or more different places. Nevertheless, to control the system absolutely would be very inefficient. We prefer to distribute a bit more milk than mothers and infants really need.

We also changed the program from 2 to 6 years of age. We stopped milk distribution, and provided free "infant food". This infant food is a mixture of soybean flour, wheat flour, and 35% powdered milk. It has about 20% protein. We stopped milk for many reasons. One of the reasons was the high incidence of lactose intolerance in our preschoolers. It starts at 2-3 years of age, and by 7 years of age, almost 47% of the children had symptoms of lactose intolerance if you overloaded with lactose. This was higher in the lower socioeconomic groups, not in the middle socioeconomic group. The second reason was that milk didn't get to the child. The weanling milk was used for the whole family, and not solely on the child. We studied the food habits of the family. One of the unusual habits that we discovered in our country (because of the German influence) was the addition of flour to the milk of the preschool child. This habit is so strongly practiced

that the lower economic group believes that the milk is not the food, but the flour that the mother adds to the milk is the food. So, we said to the mother, "Don't worry, here is the milk plus the flour". This approach immediately increased the amount of protein and calories that arrived at mouth of the child. The third reason for introducing infant foods was to decrease the cost.

From ages 6 to 15 we stopped the distribution of milk entirely, and substituted a new program of free lunch and breakfast in the school. Table 1 displays the National Supplementary Feeding Program in 1977.

TABLE I

NATIONAL PROGRAM OF SUPPLEMENTARY FEEDING 1977

Group	Population Expected 1977	Planned Coverage	Kgs/Year	Total Program 1977(kgs)
Young Infants (0-5 ms)	142,798	100%	36	5,140,728
Infants + Children (6-23 ms)	374,901	100%	24	8,997,624
Pre School Children(2-5 ys)	1,084,322	90%	18	17,566,020
Pregnant Women	408,174	100%	8	3,265,392
TOTAL	2,010,195			34,969,764

The populations covered include young infants (0-5 months), infants and children (6-23 months), preschool children (2-5 yrs), and pregnant women. The total amount distributed is 5 million kilos, from 0-5 months, 8 million kilos from 6 months to 23, 17 million kilos (17 thousand pounds) for infant food for children from between 2 to 5 and 3 million kilos for pregnant and lactating women. The cost is $54 million dollars per year.

The milk that we are distributing is called Purita. The name belongs to the health system. It means "pure milk." Before, the milk was in a plastic bag. Now its comes attractively boxed and is on the open market.

FIGURE 1

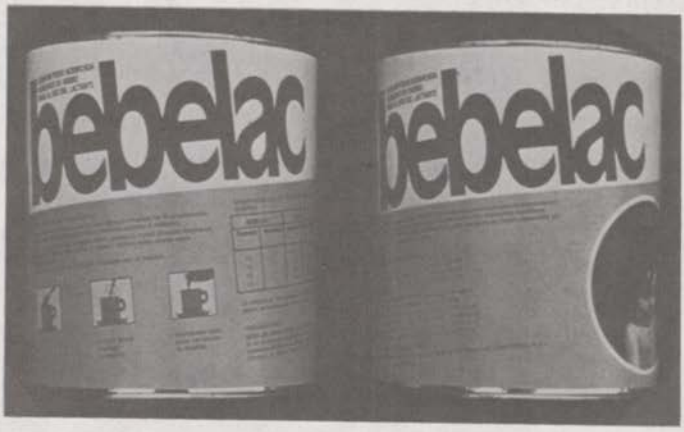
9

There are 8 factories in Chile who produce the product...only one foreign company, Nestle. With our distribution of milk, the milk which the private sector used to sell on the open market immediately decreased to one third. Now they are producing Purita, and selling it to government.

Recently we have been conducting a pilot program in Santiago. This product is an acidified milk. We prefer to distribute acidified milk because in this way we "eliminate" the adult. Acidified milk doesn't taste good for coffee or tea, or to put into a dessert.

There are other reasons for testing acidified milk. Because we cover almost 100% of the children, we also can solve other nutritional problems, iron efficiency, for example. In Chile, 80% of children below 2 years of age have iron deficiency. That doesn't mean anemia. Frank anemia is only 12%, but 80% of the children have iron deficiency. If you add the iron to unmodified milk, the absorption is very poor. If you acidify the milk and add ascorbic acid, then iron absorption increases from 4% to 14%.

FIGURE 2



To improve the presentation of the product we have packaged it in cans, increasing the cost of the product by 10%, but also increasing the nutritional efficiency.

You have to compete with the best product if you want to have good results. One of the big failures of this kind of program is to produce food-for-poor-people. The moment that you produce food-for-poor people, poor quality, poor presentation, you generate failure. Nobody wants to accept that he is at the bottom of society. When you distribute food-for-poor-people, like Incaparina*, for instance, the product fails. Nobody wants to accept that he's miserable. You have to distribute good products. This is fundamental if you want to have success.

Using fortified, acidified milk, we completed a pilot study with 5 00 infants and iron deficiency disappeared. The product also has Vitamin A and Vitamin D. We have extended the pilot program to the whole city of Santiago, and we intend to extend the program to the whole country. This expansion will increase the cost by 5 million dollars. But, the efficiency of the program will increase more than the cost.

We have a weaning food for children between 2 to 6 years of age. The composition is protein 23%, lipid 6%, and 445 calories for each 100 gram, plus vitamins. We cover 85% of the children between 2 to 6 years of age.

* A food supplement of low cost protein developed by the Institute of Nutrition of Central America and Panama (INCAP), Guatemala City, Guatemala.

TABLE III

WEANING FOOD, CHEMICAL COMPOSITION

Proteins	23%
Lipids	6%
Ashes	6%
Calories for 100 gs	445

Vitamins per 100 gs dry product.

Vitamin B1	0.57 mg
Vitamin B2	0.80 mg
Niacin	4.2 mg
Vitamin B6	0.12 mg
Vitamin A (Retinol)	353 ug
Vitamin D	140 IU
Vitamin B12	traces
Vitamin E	1.0 IU

Minerals

Ca	800 mg
P	450 mg
Fe	7.4 mg
I	38 mg

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This weaning product is produced by four private companies in Chile. The Institute asked for the collaboration of the private companies to produce this product, and gave them the technology. We even offered to look for the suitable investment credits. Four factories are already producing the products. They have invested more than 16 million dollars to build these factories, and they do business both with the government and on the open market. This is the first and second condition. If you want to ask for private collaboration, you have to consider that the private organization has to make profit. What we did was call these four, described how much product we wanted to buy from them, and and they got organized to produce the product.

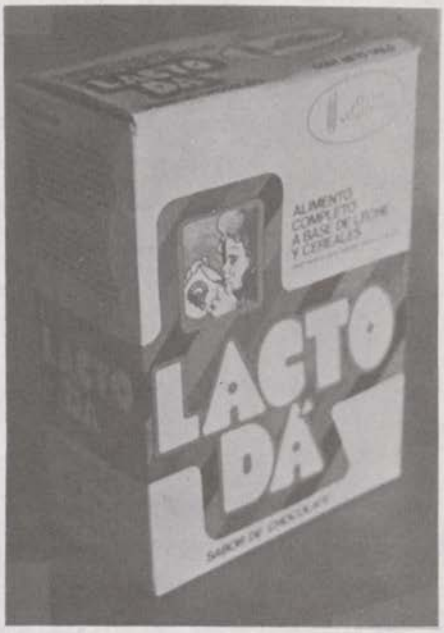
One product is called Fortesan.

FIGURE 3

The child on the box should never be a poor child .... always a nice healthy boy or girl - blond and blue eyes. The moment that you put a malnourished child on the box, the program will become a failure. In Chile, the mother has to be European. The child has to look healthy. The name is Fortesan, meaning strong-of-health. It doesn't say a word about malnutrition. The label asks for the mother what she wants for herchild, for instance, such as vitamins and protein. All of the products use this approach. Fortesan is also on the open competitive market. What the government buys is proportional to the share of market achieved by similar competing brands sold on the market. Therefore, these products appear on TV everyday. Each company trys to push his own product in order to increase share ofmarket, because the government buys in proportion to what they sell. Consequently, the government doesn't have to pay the cost of promoting the product and increasing the prestige of the product!

FIGURE 4

FIGURE 5



One of the products has a chocolate flavor.

Another is called "Super-child." The boxes have nothing about nutrition on them. Everything depicts a healthy child. The food is distributed free through the health centers where the child is weighed, examined from the medical point of view or vacinated. Then the mother receives 3 boxes per child.

I want to stress our cooperation with the private sector. The factories producing the infant food have been in operation less than 4 years. They are working very successfully even from the private point of view, because the program has been thoroughly planned and coordinated. Chile has suddenly become the country of the world who consumes more soy per capita than any other. The moment that we started to improve soy technology, and create a market, the private sector immediately learned to process vegetable proteins. The point is, if you create a market, the private sector will respond.

Chile also distributes milk for the pregnant and lactating mothers, with very poor results. We cover 65% of the lactating and pregnant mothers. Nevertheless, no more than 30% of the milk the mother receives is eaten by the mother. She uses her milk for the whole family. The technique that we use to trace consumption is by adding xylose to this product. Xylose is a sugar that is well absorbed but not metabolized. By obtaining a urine sample from family members, we know exactly who is drinking the product that we've distributed. We are now developing new products which will be acceptable only by the pregnant mother. Where the focus in the marketing plan is on food habits during pregnancy, what the mother believes is good for pregnant and lactating mothers, we have been more successful.

PART TWO

The free food program is very useful for the well child or for infants with first or second degree malnutrition. But we have another problem with the severe cases of third degree infant malnutrition.

We have been able to determine that we have about 7,000 children in the country with severe, third degree malnutrition. All of them are marasmic and 65% are below 6 months of age; almost 100% are below one year of age. (We don't have kwashiorkor in Chile anymore which disappeared 10 years ago.) Most of these terribly malnourished children were not in the community, but were in pediatric hospitals, because they arrived at the hospital severely sick with diarrhea or bronchial pneumonia. In the pediatric hospital, their outcome is poor. Thirty-five percent of them died in the hospital. A marasmic child is never discharged totally recuperated, because the hospital needs the bed. As soon as the child starts to increase in weight he is discharged. The child goes home to the same conditions, again faces diarrhea, bronchial pneumonia and dies or comes back to the hospital. We calculated that a child like this who survived to one year was hospitalized 120 days on an average. In other words, if the bed costs $30 per day,

attention to these 7,000 children would cost more than 25 million dollars for nothing, because nearly all of them die.

The system was inefficient and ineffective. We organized a new system to take care of these children. When we studied the families of these children, we were convinced that the families were the 7,000 worst-off families of the country. There are many social problems represented by this group. For instance, 47% of these children are of mothers below 16 years of age; 67% of these children are born of unmarried mothers; 45% of the parents are alcoholics; and 12% are prostitutes. We also concluded that we couldn't ask the family to treat this child. We can ask later when the child has recovered, but not in this condition. They live under very poor conditions, without sanitation. If left in these circumstances, the sick child will die 15 days later.

We organized a new system. The basic idea was that treatment in the hospital was so expensive and so inefficient, that children should recuperate at less cost and in a more efficient way. We bought a house and fixed it up and admitted 40 children with severe malnutrition. We created a complete treatment, not only food but also psychomotor stimulation and a lot of affection. The results were amazing.

Compare what happened with 80 children who started these treatments, with those who were in regular pediatric hospitals in Santiago. Eighty infants were admitted to infant hospital in Santiago compared with the infants attending the center providing integral treatment.

The age of admission, the weight at admission, birth weight and psychomotor development were similar. We don't have many low birth weight infants in Chile. Nevertheless, severely malnourished children are usually malnourished before they are born.

Besides nutritious food, we start treatment in the recovery centers with a specific curriculum: one hour exercise per day per child, and a curriculum of psychomotor stimulation. The building doesn't look like a hospital. A lot of volunteers work with the children. The results speak for themselves at 50, 100, and 150 days.

TABLE IV

)MISSION CHARACTERISTICS OF SEVERELY MALNOURISHED INFANTS. A. 80 INFANTS)MITTED TO PEDIATRIC HOSPITALS. B. 80 INFANTS ADMITTED TO CENTERS PRVIDING NTEGRAL TREATMENT.

	Age At Admission	Weight At Admission	Birth Weight	Psychomotor Development Quotient
	Days	Kg	Kg	
A	154 ± 32	3.6 ± 1.2	2.8 ± 0.3	56 ± 8 *
B	148 ± 36	3.5 ± 1.3	2.7 ± 0.5	55 ± 16

* Average of 25 children

TABLE V

CLINICAL DEVELOPMENT OF INFANTS WITH SEVERE MALNUTRITION: A. HOSPITAL TREATMENT OF 80 INFANTS. B. INTEGRAL TREATMENT OF 80 INFANTS

DAYS OF TREATMENT	0	50	100	150
% Weight deficit	A: 56 ± 8 B: 55 ± 5	A: 54 ± 13 B: 36 ± 8 $p < 0.001$	A: 48 ± 12 B: 21 ± 6 $p < 0.001$	A: 40 ± 13 B: 16 ± 3 $p < 0.001$
% Height deficit	A: 76 ± 10 B: 82 ± 13	A: 70 ± 17 B: 50 ± 14 $p < 0.0001$	A: 65 ± 16 B: 32 ± 6 $p < 0.001$	A: 65 ± 14 B: 25 ± 7 $p < 0.001$
% Psychomotor development quotient	A: 56 ± 8 B: 56 ± 5	A: 60 ± 11 B: 71 ± 10 $p < 0.01$	A: 64 ± 14 B: 80 ± 8 $p < 0.001$	A: 65 ± 12 B: 85 ± 7 $p < 0.001$

The weight deficit on admission was very similar. But 50 days later, there is a significant difference on the weight deficit, 36% deficit in the Center and in the hospital, 54%. One hundred days later at the Center, the weight deficit was only 21%. At 150 days the deficit was only 16%. The height deficit also shows the same trend. Psychomotor development demonstrates more spectacular results. At 50 days in the Center there is a difference, and at 100 days, the IQ is 85% of normal.

After 150 days in the hospital, the child is very retarded. Those children should never be in the hospital, because the hospital is not the adequate place to treat this type of child. The child needs stimulation, psychomotor stimulation and needs a lot of love. They need a place where infection is eliminated. The Pediatric Hospital is the most contaminated place in the city. The child is exposed to diarrhea, staphylococcus or septicemia, and inevitably picks up an infection. The child needs affection, but this can't be done in the hospital. From a child's point of view, everything that happens in the hospital is negative. The attitude of the nurses and pediatrician when a malnourished child arrives is that just another malnourished child who occupies a bed. The child is kept in bed, often silent for 6 months. Nobody does anything. The recovery center is

completely different, and the results portray the difference.

We now have about 3,000 children discharged from 26 Recovery Centers. When a child arrives with severe malnutrition before 6 months of age, psychomotor development increases tremendously. But when the child arrives after 6 months of age, the recuperation is slower. We used to think that there was critical period during the first 6 months of age. More important than the critical period, I think, is how long the malnutrition has lasted.

Infections in the hospital were 4.5 per child during the 4 months; at the center the rate was 0.3 during four months. Mortality, 29% and 0% respectively. The treatment from the nutritative point of view was exactly the same. The only difference is that at one place they have this psychomotor stimulation.

TABLE VI

CHANGES IN PSYCHOMOTOR DEVELOPMENT QUOTIENT IN INFANTS WITH SEVERE MALNUTRITION, GIVEN INTEGRAL TREATMENT, ACCORDING TO AGE.

	LESS THAN 6 MONTHS OF AGE		OVER 6 MONTHS OF AGE	
	ADMISSION	DISCHARGE	ADMISSION	DISCHARGE
Psychomotor development quotient	0.58	0.82	0.55	0.67

TABLE VII

FREQUENCY OF INTERCURRENT INFECTIONS OBSERVED DURING TREATMENT AND MORTALITY AMONG SEVERELY MALNOURISHED INFANTS. A. HOSPITAL TREATMENT GROUP. B. INTEGRAL TREATMENT GROUP

	INFECTIONS	MORTALITY (%)
A	4.5 ± 2	29%
B	0.3 ± 0.6	0%

As a consequence of these findings, we immediately began an investigation of psychomotor stimulation and affection from the nutritive point of view. In one Center we isolated ten children and fed them, but kept the children absolutely isolated. The only person admitted was the nurse. Another ten children in the same house had the same food, but oral stimulation one hour per day. The child was permitted to play all day. Table VIII reveals what happened to nitrogen ingestion, urine, fecal, and percent retention. Group A was the isolated group who received milk. The absorption was all right, but most of the nitrogen was eliminated by urine as urea. The fecal excretion was low, and the retention was low. This was at

admission. Thirty days later, it was more or less the same in these ten children. Most of the nitrogen was excreted through the urine. In the second group who received stimulation, the retention was low at admission. Thirty days later the retention was significantly higher. We have repeated this experiment in animals. The nitrogen metabolism changed in relation to stimulation. If you keep the rats isolated, most of the nitrogen is burned in the urea cycle. If you stimulate another group of rats, the urea cycle decreases and the rats retain most of the nitrogen. Sometimes the pediatrician has forgotten that malnutrition is not only a problem of the quality of the protein, but perhaps also a problem managed by the hypothalamus, i.e., the utilization of nitrogen via security, love and stimulation.

Although mothers do not stay at the recovery center with their children, they come very frequently and we teach them. We follow up at 250 days after discharge. The children continue gaining weight. They were discharged with a 16% deficit, and at home 250 days later the deficits have even decreased. The psychomotor stimulation has persisted in maintaining their IQ.

TABLE VIII

ITROGEN BALANCE OF EIGHTEEN MARASMIC CHILDREN AT ADMISSION AND AFTER 30 DAYS
)F TREATMENT A.-10 MARASMIC CHILDREN WITH CONVENTIONAL HOSPITAL TREATMENT.
3.-8 MARASMIC CHILDREN WITH INTEGRAL TREATMENT IN RECOVERY CENTER

	A (mg/Kg/day)		B (mg/Kg/day)	
	ADMISSION	30 DAYS AFTER	ADMISSION	30 DAYS AFTER
Ingestion	842 ± 36	850 ± 29	880 ± 33	910 ± 40
Urine	648 ± 41	620 ± 38	635 ± 42	520 ± 46
Fecal	78 ± 18	73 ± 22	96 ± 33	78 ± 28
% Retention	13.8%	18.5%	17.0%	34.3%

TABLE IX

DEVELOPMENT OF WEIGHT, HEIGHT AND PSYCHOMOTOR DEVELOPMENT QUOTIENT IN 80 INFANTS RECOVERED FROM SEVERE MALNUTRITION. VALUES AT 250 DAYS AFTER DISCHARGE.

	VALUE UPON DISCHARGE FROM THE CENTRE	250 DAYS LATER
% of weight deficit for age	16%	8%
% of height deficit for age	25%	20%
Psychomotor development quotient	81	81

To disseminate this program around the country, we created a private foundation to raise funds for Recovery Center buildings. In 3 years there are 26 of these nutritional Recovery Centers spread around the country. At the end of 1978, we will have 34 that will be finished. This is not a government program. All is handled by private foundations. From the community we have raised almost 4 1/2 million dollars in two years.

PART THREE

When a child is severely malnourished, the child enters a vicious cycle of illness and irritability, frequently producing rejection by the mother. The mother doesn't like a whining child like this, and often wants to give the child to somebody. When children arrive at the hospital, the mother may give the wrong address, because she doesn't want her child back. She intends to leave the child there to die. It is a vicious cycle caused not only by lack of food, but also lack of affection and stimulation.

When a child recovers and behaves as a normal child who will smile, trys to walk and you can honestly say, "What a beautiful baby you have," the mother is able to accept the

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child and give affection. In other words, the affection that the mother gives to the child is not what she can give alone but what the child can evoke from the mother. This is the secret. Once the mother is able to give the affection because the child is normal, the child will not become malnourished again. Therefore, our program is not focussed only on the child, but also on how to restore the family.

When you try to eliminate misery and poverty, you have many problems. One of the worst problems is that people who are in misery do not always realize their condition. For them its normal. They have few expectations. They are born in misery, and perhaps they were sons or daughters of miserable people, or a granddaughter of miserable grandparents. For them, poverty is normal. If you take this family from the slum where they are born, and you move them to a beautiful apartment, you create other problems and insecurities. They may try to recreate the slum which they understood so well.

The marasmic child is not perceived as a malnourished child by the mother. If you talk with the mother, she says, "This child has diarrhea; this child has bronchial pneumonia; this child has infection; eats like this." It's not a question of poverty or illness, but a question

of the child. Well, when you return a healthy, robust child to a mother, you have the first unique argument to demonstrate that his marasmic condition was abnormal, and with this, we start to rehabilitate the family.

In addition to food, there are other factors that we have to consider. We have emphasized the adverse effects that malnutrition produces in the children...adverse effects on physical growth and psychological growth. But after many research studies, we have concluded that low IQ of infants and children who live in poverty is not only due to malnutrition. Malnutrition may be the less important thing. Its the whole environment of misery and poverty which produces the damage. Its the lack of stimulation. Its the lack of affection. Its the lack of security. Its the lack of verbal stimulation. A mother who lives in the slums only has 180 words as a vocabulary, not because she doesn't know words, but because her life is very concrete. She lives in the present, without abstraction, without projection to the future. Her children suffer both nutritional damage and intellectual deprivation. If our goals are only to prevent malnutrition, we will not make progress. If we are efficient, we can prevent malnutrition but we are going to have miserable, well-nourished people, but always damaged. One way to prevent the damage is to take the child out of this

environment. This is why we have started a major kindergarten program in the slum areas. The child stays the whole day with us and receives a proper nutritive requirement, plus a psychomotor and stimulation program. A group in the United State's has helped us design a scientific psychomotor program in which children's personalities can develop. The children manage their learning environment. They program what they want to do each day. We now have 500 of these kindergartens in the slums, covering 60,000 children. We estimate that the total number of children that we should cover is 100,000 in the next 3 years. To whatever extent possible, we try to incorporate the mother.

TABLE X

INTELLIGENCE QUOTIENT OF MOTHERS FROM SLUM AREAS AND MIDDLE CLASS

(% CASES).

	SLUM AREA	MIDDLE CLASS
Normal (over 90)	6	96
Sub-normal (80-90)	17	4
Deficient (under 80)	77	0

IQ over 90 is normal. In the slum, only 6% of the mothers have IQ over 90. Ninety-six percent of the children in the Chilean middle-class have IQs over 90. The whole environment of poverty damages the child.

Table XI compares children from slum areas and children from the middle class. The deficit from 3-5 years is 42% and 0%, respectively. To restore the IQ of the adult is very difficult. You have to spend a lot of money, and the results are limited.

TABLE XI

INTELLIGENCE QUOTIENT (IN PERCENTAGES)* OF CHILDREN BELONGING TO TWO DIFFERENT SOCIOECONOMICAL LEVELS (CHILE 1974)

		CHILDREN FROM SLUM AREAS %	CHILDREN FROM MIDDLE CLASS %
Children aged 1 to 5 years (Gessell)	Normal	27	97
	Sub-normal	37	3
	Deficient	36	0
Children aged 3 to 5 years (Terman Merril)	Normal	22	98
	Sub-normal	36	2
	Deficient	42	0

*Intelligence Quotient: Normal (over 90): Sub-normal (between 80 and 90) and Deficient (under 80)

The only solution is to prevent the damage for the new generation.

If we do, I hope that the country will be different in one generation. Of course, you create many new problems when you develop the child, because the child begins to realize that his environment is limited, and you produce a "generation gap" at 5 years of age. A few weeks ago I visited one of these kindergartens. The children were coming back from a trip to the railroad station. I talked to a child who was about 6 years of age, and I asked him if he saw the locomotive. Yes. Did you see how it worked? Yes. Well, are you going to explain to your father? No. He doesn't understand me!

We don't have all the answers. Programs like this create a real bomb, because you stimulate expectancy, and the society has to find solutions to meet the expectations.

PART FOUR

Chile has 7,000 schools around the country, many in rural areas with difficulties in communications. If we tried to organize the preparation of lunch at every school, you could not control the situation. Seven thousand schools, 7,000 cooking facilities, 7,000 nutritionists, 7,000 storage rooms, 7,000 dining rooms and facilities, etc.

Impossible. I once asked advisors from an American company for help. They gave me a beautiful answer about how to develop frozen foods like airline's food. Absolutely out of the question. We had to begin our research with one goal: how can we develop products which can be preserved without refrigeration and which do not need any elaboration in the school, which can be delivered in one package once a month to the school, and where everyday the child will have a different menu? We developed a lot of products.

One of the products was milk in a Tetra-pack, which is long-life milk. The milk is sterilized, and does not need refrigeration for 6 months. We created other protein drinks. These drinks have whey protein of 4%. Solid products included cookies, snacks, etc., rich in protein. The result has been excellent. In any province, there is a central place where these packages are kept together. Different companies bring their products there and are then distributed to the school.

I have summarized some of the activities that we are doing, but have not reported on breastfeeding. Breastfeeding has declined tremendously at first with our program of free distribution of milk. Our primary strategy was to deal with malnutrition. Now, breastfeeding has increased

substantially within the last 4 years. And about our nutrition educational program. Through the National Health Service we have 800 nutritionists who provide educational programs in the schools and universities. We also have a comprehensive program in sanitation.

The results, I guess, have not always been in proportion to the effort. The effort has been tremendous, and the results at least optimistic. Ten years ago, Chile had 67% of the children below 6 years of age with some degree of malnutrition. Today it's 12% who have some degree of malnutrition. Ten percent is marginal malnutrition; 1.4% is second degree; 0.3% is third degree malnutrition. In a very short time, malnutrition has decreased enormously. Infant mortality ten years ago was 180 per thousand; last year it was 47 per thousand.

We still have problems. Without increasing the burden on the economic development of the country too much, nutrition intervention programs, properly targeted, can achieve tremendous results. Thank you very much for having the patience to listen.

DISCUSSION

QUESTION: What has been your experience concerning breastfeeding?

ANSWER: Through the distribution of free milk we have produced a substantial negative impact on breastfeeding. This is true. But, what was the reason why we started milk distribution? We started milk distribution because of the incidence of severe malnutrition. Today, since we have improved nutrition, infant mortality is 47 per thousand, not 180 per thousand. But, breastfeeding is very low. My question is, "What was our goal? To prevent malnutrition, even at the risk of a decrease in breastfeeding." The free distribution of milk was begun because the reality of malnutrition existed. Malnutrition was high and so was breastfeeding. Now, we don't have much breastfeeding, but we decreased malnutrition tremendously. And this is, from my point of view, the first priority.

Secondly, I am not sure that a malnourished mother can produce enough milk for her child. In 1951, 67% of the mothers breast fed for 6 months of age. Nevertheless, most of those children were malnourished. I am not against breastfeeding. That would be ridiculous. The best thing that can happen to every child is to have

breastfeeding, no doubt. The best protein, the best quality, and without contamination. Obviously, we have to make every effort to improve breastfeeding. During the last 4 years we have developed a successful program of encouraging breastfeeding through our nutritionists. Five years ago, only 6% of the mothers were giving breastmilk at 6 months of age. Today we are at the rate of 18% of the mothers who breastfeed after 6 months of age.

QUESTION: Doesn't the essence of your presentation show the basic problems. The problem exists primarily for the high-risk mother...low income, many family problems, etc. Isn't she the one who is most unlikely to be able to carry out the process of breastfeeding? You talked about her need for stimulus from the infant to interact. She also needs that stimulus to breastfeed properly too. An infant who is sick does not stimulate her.

ANSWER: These children now constitute 0.4% of the children of the country after the intervention program. I agree with you. These children have tremendous social problems, especially if they don't belong to real families. A high percentage of mothers are single, or they are psychotic, or alcoholic, or prostitutes. This is a very particular group. None of them breastfeed, not for one day.

QUESTION: Some of us have tried to stress that education is the way to help the mother. You show that the mother with the lowest IQ's are the ones that need the education the most, and the least likely to be able to utilize learning experiences.

ANSWER: We have many surveys about this among different socio-economic levels. The results are more or less consistent. If you ask the mother what is better for the child, breastmilk or powdered milk, 90% of the mothers answer breastmilk, even in the lower socio-economic group. If you ask the mother, "What do you prefer to give to the child, breast milk or artificial feeding?" Again, 90% or 93% answer that they want to give breast milk. But they do not breastfeed. When you ask why do they not breastfeed, the answer is always the same, "Because I do not have enough milk. I want to breastfeed, but I don't have milk." The mother is predisposed to give breast milk. This is very important, because if the mother has the will to breastfeed you can develop a program. This is what we have done. When the pregnant mother arrives at the health center, we start a program of encouraging and preparing the mother for breastfeeding... teaching how to do it, and how to prevent some problems. After 2 or 3 sessions, breastfeeding increases tremendously. One or two more meetings after the child is born and

breastfeeding lasts 6 or more months. It's a psychological problem.

QUESTION: Where are most of the babies delivered? At home or at maternity clinics, hospitals? What are the practices there - one day or three days? What is the normal practice?

ANSWER: It's a peculiarity in Chile. We have a well-developed health system; 93% of the children are born at the hospital and attended by professional people. This is very different from other South American countries. For instance, Peru is 12%, and Bolivia is 4%. The child usually stays there 3 or 4 days. Nevertheless, we have another special program in rural areas, because the mother has to travel a long distance to arrive at a hospital, at high risk. There we have the "Mother's Center", a hospital with 10 or 12 beds. The pregnant woman arrives 15 days before delivery, and stays at the hospital 3 or 4 days after. Later she comes back to the Mother's Center from time to time. The mother receives special training about breastfeeding there. We have this new program almost all around the rural area.

QUESTION: With the significant decrease in infant mortality, 180 per thousand to 47, what is happening to the birthrate.

ANSWER: The birth rate has declined rapidly. Five years ago we were growing at the rate of 3% per year. Last year the rate was 1.5% per year. Through the infrastructure of the National Health Service, we have a comprehensive program of family planning. It has been effective, mainly with interuterine devices. Very few women take the pills.

QUESTION: My question was related to increased infant survival having a positive effect on lowering the number of births, rather than looking at contraceptives.

ANSWER: One of the reasons why we have decreased infant mortality is because we have decreased the number of children who are born.

A high correlation exists between the total number of children born into a family, and the nutritional status of those children. In a poor family, (as you increase the number of children) the last are more severely malnourished than the first. If you develop a program where you stop the number of children who are born, you immediately decrease infant mortality. It is a very .

important point, because family planning, malnutrition, and prevention of infant mortality are all closely related.

QUESTION: In your directions to go with your milk, do you suggest that she dilute the milk a little bit for the younger baby, say for a month or so.

ANSWER: From 0 to 6 months of age we distribute 3 kilos of powdered milk. If the mother will follow the indications, its enough to cover the whole caloric and protein requirement of the child. What happens is that sometimes the mother is so poor that part of the milk is distributed to the rest of the family or sometimes they get infection, diarrhea, and they need more milk. In this case, the mother has to obtain more milk from the market before the end of the month. This is another reason why we have the same milk in the market. From 6 months to one year, the milk distribution represents only 75% of the caloric requirement. The mother has to give other foods. The preschool child is given 35% of the total requirement.

QUESTION: What about the question of literacy? Are all the populations able to follow instructions.

ANSWER: We have to talk about what "illiteracy" means. If illiteracy means people who don't know how to read, we

have very low illiteracy rates in Chile; 94% of the population is literate. But many people learn to read, and never read. This is about 20% to 23% of the population that have learned sometime to read, but are functionally illiterate.

QUESTION: Is the health care center the only place that you distribute the powdered milk free.

ANSWER: Yes, but the infrastructure is good enough. I have visited the country many times, because I travel every day. We are covering almost 100% of the country. But its not difficult,because in the north of the country we have people concentrated where the copper and nitrate mines are. In the south, there are very few people. The middle part of the country is where most people are located. For instance,Santiago and Valparaiso are separated by 70 miles and represent 54% of the total Chilean population.

QUESTION: If the mother runs out of milk, then she gets more at the store? I noticed on the Bebelac cans, the instructions appeared to show mixing in a cup. Is this for children greater than 4 to 6 months of age?

ANSWER: No, this is the way that you mix the milk. Then it is transfered to the bottle.

QUESTION: You said that product was acidified. Is that a cultured product, or acidified artificially?

ANSWER: We add bacteria that produce acidification.

QUESTION: Prior to drying or after?

ANSWER: After drying. If you want the technology, we can tell you how we have acidified the milk. Acidification is important from two points of view. First, the adult does not like to drink it and, second, acidification increases iron absorption.

QUESTION: Have you used lactobacillus acidophilus?

ANSWER: Streptococcus.

QUESTION: Have you used anything to try to change the flora of the infant's gut.

ANSWER: We have studied it but the flora has not changed really. Another question would be whether acidification

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decreased the contamination of the milk, but we weren't able to demonstrate it.

QUESTION: Your unique contribution has been to increase the priority of your government to nutrition. What is the percentage of the 110 million dollars represented by your nutrition intervention programs as a part of your national budget? I'd like to compare that with what our government is spending on our WIC program.

ANSWER: It's more or less 3% of the total.

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SUPPLEMENTAL FEEDING AS A NUTRITIONAL INTERVENTION: THE CHILEAN EXPERIENCE IN THE DISTRIBUTION OF MILK

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Milk distribution was introduced as a nutritional intervention in Chile in 1924 and thereafter became an increasingly important component of government health policy. The program reached its greatest extension during the three-year presidency of Salvador Allende when every Chilean child under 15 and pregnant and nursing mothers were entitled to receive the equivalent of approximately one-half liter of milk per day.

While rarely on the scale of the milk distribution program in Chile, the provision of free food to specified population groups has long represented the single most common approach to reducing malnutrition in developing countries. According to Alan Berg supplemental feeding programs have been initiated in nearly 100 countries and account for more than 95 percent of all resources directed to child nutrition.(1:160) Considerable controversy, however, has been generated among nutrition specialists in Chile and elsewhere concerning the effectiveness of food distribution programs in raising national nutritional levels. The United Nations Children's Fund, which has been a major sponsor of child feeding programs, argues that "there is a need for countries to establish permanent supplementary child feeding programs."(2:11) Nevin Scrimshaw, on the contrary, is persuaded of "the general failure of food distribution programs intended to reach the preschool child and prevent protein-calorie malnutrition."(3:793)

On their face, supplementary feeding programs appear as a logical and appropriate solution to the nutrition problems facing developing

countries. In these countries a high proportion of children suffer from a range of nutrient deficiencies; the provision of additional food stuffs to complement their inadequate diets would seem a rational way to overcome the deficiencies. Advocates of supplementary feeding programs argue that such programs, besides supplying missing nutrients, "may assist in educating mothers in sound nutritional practices, and act as an incentive for the increased use of health services."(4:3)

In questioning the value of feeding programs Scrimshaw warns against the misconception that "because a missing nutrient is the cause of most nutritional deficiency disease, the way to prevent it is to supply food." He argues that, since malnutrition results from a complex of interrelated biological, environmental, and social factors, the simple provision of foodstuffs or nutrients is not necessarily the most appropriate means to its eradication.(3:793) He does, however, report that, with the introduction of a reasonably efficient child feeding program in a village in the Guatemalan highlands, both morbidity and mortality rates fell sharply over a five-year period.(3:795)

Other arguments against supplementary feeding programs relate to the high cost of such programs, estimated by UNICEF in 1972 at $15 to $30 per year per beneficiary,(2:13) and the extreme difficulties of reaching the most needy groups in developing countries. It is further suggested that distributed foods are often consumed by the entire family rather than by the intended recipient, and that feeding programs may change behavior in negative ways, e.g., milk distribution resulting in trends toward earlier

weaning. John Mellor, one of the few observers concerned with the political economy of malnutrition, objects to feeding programs on political grounds, flatly stating that such programs generally assist only a small proportion of the malnourished, but effectively divert attention from basic problems of insufficient income and food.(5:73)

The two sets of arguments are not really joined. The proponents of supplementary feeding programs point to their potential contribution to overcoming malnutrition by filling important gaps in inadequate diets and by encouraging nutritionally beneficial changes in food and health practices. Critics argue that institutional and cultural barriers are likely to prevent feeding programs from achieving even their minimal objective of supplying vulnerable groups with needed foodstuffs. They further assert that even where such barriers can be surmounted, the mere provision of nutrients will not, by itself, resolve the problem of malnutrition. These differences between critics and proponents suggest to us that an assessment of the usefulness of supplemental feeding as a nutritional intervention cannot be made in the abstract, but only within the context of a specific national setting.

This study will explore the Chilean experience in the distribution of milk over a 50-year period. The first section discusses the origins and history of milk distribution in Chile within the country's evolving political and economic contexts; we next provide a detailed examination of the milk program in 1971 and 1972, during the first two years of the government of Salvador Allende. On the basis of the information and analysis presented, we then proceed to a more general discussion of the consequences of the milk program in Chile and of the factors which have influenced its development.

THE ORIGINS AND DEVELOPMENT OF THE CHILEAN MILK DISTRIBUTION PROGRAM

Government distribution of milk in Chile began in 1924 with the passage of the country's first social security legislation. This legislation, the earliest of its kind in Latin America, provided medical care insurance to a portion of Chile's industrial workers. As part of their medical coverage the small number of working mothers insured under the law were entitled to receive the equivalent of approximately one-half liter of milk per day for each child under the age of two. The provision of milk was justified on the grounds that working mothers were not able to breastfeed their children.(6:119)

The passage of social security legislation was one of a series of social and economic reforms introduced in Chile in 1924 and 1925. These reforms, which included the adoption of a new constitution, had been the basis of the successful comoaign of Arturo Alessandri for the presidency of Chile in 1920. The election of Alessandri, who had achieved relatively broad support from the country's middle- and working-class sectors, signaled the end of the domination of Chilean politics by the so-called traditional oligarchy and the initiation of Chile's modern political era.

Antedating the government's distribution of milk under social security, a private charitable organization had initiated the provision of free milk to mothers unable to breastfeed and to malnourished preschool children at centers in low-income neighborhoods in Santiago and Valparaiso. The centers -- called "Drops of Milk" -- were first established in 1901 and continued operating until the 1950's, but never enrolled

more than 3,000 children in any given year, a coverage far too limited to have had any significant impact on the country's overall nutritional problem. They did, however, pioneer the idea of supplemental feeding in Chile, and the records of their experience, which indicated that their beneficiaries had far lower morbidity and mortality rates than found among children generally, strengthened the case for government milk distribution.(7)

Legislation adopted in 1937 introduced important changes in the concept and practice of health care in Chile. Attention began to turn to preventive care rather than curative medicine, and special emphasis was given to maternal and child health care aimed at reducing the country's high rates of infant mortality and improving nutritional standards.(8:19) The passage of the so-called "Mother-Child Law" extended medical coverage under social security to the wives of insured workers and their dependent children up to two years old. The coverage provided for the distribution of the equivalent of a half-liter of milk to the children.(9) The first National Council of Food and Nurition was also organized in 1937.(6:155)

The Minister of Health at the time was Eduardo Cruz Coke, one of the most prominent names in Chilean medical history and a man of considerable political influence. He participated in the founding of the Christian Democratic party and later, in 1946, was to become a presidential candidate. As a professor of medicine in the 1920's Cruz Coke is credited with the introduction of nutrition courses at the University of Chile. His students and associates subsequently provided the leadership for most nutrition programs in Chile and were responsible for a large share of the research done in the area for the next 30 years or so.

Cruz Coke's importance, however, should not be overstated. Pressure for changes in health care practices had long been building in the medical community. Under the initiative some of Chile's most socially progressive doctors, many of whom had studied in Europe, reform movements were organized in the early 1930's in several of the country's larger cities. Through publications, public forums, and private lobbying efforts, groups of physicians brought attention to the backwardness, disorganization, and ineffectiveness of health services in Chile and sought comprehensive reforms in those services.(10) Infant mortality rates in Chile, which were above 200 per thousand and had declined only marginally during the previous 20 years, gave special cause for increased concern to maternal and child health services.(9) Several surveys, including a nationwide survey conducted under the auspices of the League of Nations in 1935, demonstrated that malnutrition was a widespread, serious affliction among low-income groups. These surveys, incidentally, indicated that the most serious deficiencies were calcium, vitamin B, and proteins, suggesting that the distribution of milk could be a particularly effective remedy.(6:53, 74)

This early reform and expansion of public health care cannot be analyzed in isolation from the broader social and political changes occurring at the time. Congressional elections in 1936 had resulted in important victories for the newly formed Popular Front, a coalition of the working class Communist and Socialist parties and the middle-class Radical party. Salvador Allende, a doctor himself and a vocal advocate of health reform, was reelected to Congress. Two years later, in 1938, the Popular Front candidate, Pedro Aguirre Cerda, assumed the presidency of the Republic.

These years were a period of transformation in the balance of political forces in Chile as middle- and urban working-class groups began to occupy increasingly dominant positions in the country's politics.

Even after the passage of the "Mother-Child" law the distribution of milk was still limited to about five percent of Chilean children under two years of age. The restricted distribution in part reflected the still limited extension of health care under social security. Most workers in larger and middle-sized industries and public employees were covered, but agricultural workers, the self-employed, and persons in service occupations were typically excluded. Public agencies had been established to provide medical care to persons lacking social security (and unable to afford private services) but their coverage was also limited and the lack of adequate resources restricted their activities.(11:363) Only small quantities of milk were distributed outside of the social security system.(12)

Through 1954 the quantity of milk distributed increased relatively slowly. By 1943, some five years after the passage of the "Mother-Child" law, approximately 370,000 kilograms of powdered milk (the equivalent of 3.7 million liters when reconstituted) were distributed to some 18,000 beneficiaries who represented less than ten percent of the 260,000 children of this age group in Chile. In 1948 a total of 460,000 kilograms of milk were dispensed by Chile's health services, and in 1951 approximately 630,000 kilograms were designated for some 32,000 beneficiaries -- slightly more than ten percent of all children in the eligible age category.(6:122)

In 1952 the different government agencies responsible for health care in Chile were merged to form a unified National Health Service. The new

Health Service assumed responsibility for all of the country's preventive health activities and the provision of medical care to families insured by social security and to those classified as medical indigents. The creation of a unified health system in Chile, which has been accomplished in few other developing countries, led directly to an expansion of health coverage and a general upgrading in the quality of care provided. The medical profession had long been supportive of the proposed integration since it was expected to improve efficiency of health care delivery without affecting the profession's autonomy or income.(10,13)

The legislation creating the National Health Service, like much of the country's other social legislation, was enacted in a presidential election year. The election of 1952 was won by General Carlos Ibanez del Campo, who promised an authoritarian but populist government. He ran as an independent albeit with support from factions of the Socialist party, and his victory has generally been interpreted as an indicative of a widespread disaffection of the Chilean electorate from traditional parties. The period immediately prior to Ibanez's election was marked by the inauguration of Chile's first nationally owned milk-processing plant and by a decree of the Ministry of Health requiring that wheat flour used for bread be enriched by vitamin B.(6:155)

The newly formed National Health Service included among its agencies a department of nutrition. The Department, however, was understaffed and underfinanced and its efforts were largely confined to the sponsoring of small surveys and pilot projects, particularly in the area of education. The distribution of the milk, which continued to be the country's most

important nutritional measure, was managed by the Maternal and Child Health Care Division as a part of the overall medical attention provided to mothers and young children.

Following the inauguration of the new National Health Service the milk program began to expand more rapidly. Families outside the social security system became eligible to participate in the program and children from two to six were included as beneficiaries along with infants and pregnant and nursing mothers. In 1954 some 1.4 million kilograms of powdered milk (double the amount provided in 1951) was distributed to approximately 70,000 recipients.(14:16) The growing cost of the program was offset by an increase, from five to ten percent, in the amount of social security funds allocated for the purchase of milk. By 1956 distribution had expanded to about two million kilograms.(14:16)

In 1958 the Chilean Congress effectively doubled the funds available for the milk distribution program by allocating five percent of the family allowance then paid to Chilean employees and workers to the purchase of milk. As part of their lobbying campaign for this measure, public health authorities solicited letters in support of the milk program from foreign nutrition specialists and brought to Santiago a delegation of Italian doctors to report on the results of milk distribution in Italy following World War II. The measure, which was formally introduced by the four women members of the legislature, provided the first and only independent review of the milk program by the Chilean Congress.(15) That it was approved unanimously in both houses is suggestive of the program's broad political appeal and of a general consensus among elected officials regarding its popularity among Chilean voters.

The only serious opposition to this measure was generated by milk producers in Chile, who were troubled by the prospect of sharply increased milk imports to supply the program -- even though assured by government authorities that the Service would purchase all domestically produced milk offered for sale before turning to foreign suppliers.(15) The milk producers themselves did not have significant political influence, but they could generally count on the support of the powerful National Agrarian Society, the organization of Chile's rural landholders. The approval of expanded resources for the milk program again occurred in a presidential election year. The election saw Jorge Alessandri, the candidate of the traditional right in Chile, achieve a narrow victory over Salvador Allende, the candidate of the Socialist and Communist Parties.

With the increased financing the quantity of milk distributed rose in the first year of the Alessandri government to nearly eight million kilograms. The beneficiaries numbered approximately 400,000 or some 25 percent of those potentially eligible to receive milk.(14:16) Politically conservative, fiscally orthodox, and closely tied to the interests of large rural landowners, the Alessandri government, however, allowed no further expansion of the program during its six-year term. The program's growth was fundamentally limited by the government's unwillingness to import additional quantities of milk, probably reflecting as much the influence of agricultural interests on government policy as the administration's concern for its balance-of-payment situation. Alessandri also vetoed a bill to allow CARE to assist Chile's school-feeding programs with surplus food donated under PL 480 -- a veto incidentally, which was subsequently overridden by Congress.(15)

Eduardo Frei, candidate of the Christian Democratic Party, was elected to the Chilean presidency in 1964 by a substantial majority. His program promised extensive social reform and some structural change, particularly emphasizing the reduction of inequalities among different social classes and the incorporation of previously excluded groups into the national community. High priority was assigned to both health and education, and a substantial expansion of these services pledged. Just prior to Frei's election, Congress had approved the establishment of a new organization, the National Junta for School Assistance and Scholarships, to coordinate and oversee the growth of government assistance, including school feeding programs, to students from low-income families.(16:8) Soon after his inauguration, the country's first national plan for health care was formulated.(17:12)

The milk program expanded rapidly during the first years of the Frei administration. From eight million kilograms in 1964 the quantity of milk distributed increased to 18 million kilograms by 1967.(18:67) By then the program was reaching some 900,000 children and mothers, representing about 50 percent of all potential beneficiaries. The final years of the Frei administration were marked by growing political and economic difficulties which induced a retrenchment in the area of social reform generally. Particularly preoccupied by accelerating inflation and balance of payments problems, the Frei government, among a number of other measures, sharply reduced the importation of milk in 1968 and subsequent years.(19) As a result, the amount of milk available for distribution declined by about 25 percent. The quantities distributed to infants and pregnant mothers

were held approximately to previous levels, but the supply of milk for children ages two to six dropped by more than 50 percent between 1967 and 1969.(18:67)

Changes in the leadership of the National Health Service and the mounting criticism of the milk program by sectors of the medical community were also factors in the Frei's administration's decision to reduce the program. With increasing frequency questions were raised concerning the program's real contribution to improved nutritional status, particularly in view of Chile's continuing high rates of infant mortality. It was argued that funds allocated for the program were excessive and that investment in other less costly measures would have greater nutritional impact. Critics cited the poor utilization of the milk by recipient families and alleged possible harmful consequences including low rates of breastfeeding and increased incidence of diarrhea [redacted] There existed little hard data to support these objections to the milk program (or, on the other hand, to justify its continuation), but they were being voiced by prominent and influential scientists and doctors in Chile.

Even with the reduction, however, the Frei government distributed nearly one hundred percent more milk than its predecessor Alessandri government. The increase was made possible by the growth in national production, and by the assistance of the United States Agency for International Development (USAID), which donated some 18 million kilograms of powdered milk accounting for about 20 percent of the amount distributed from 1964 to 1970.(21:8) Once Frei left office, and Salvador Allende assumed the presidency, USAID, for political reasons, stopped its donations to the milk

program as well as most other forms of assistance. Only school feeding programs, which USAID assisted through voluntary agencies, were exempted from the general termination of aid.

Salvador Allende, the candidate of the Popular Unity coalition (bringing together the Communist, Socialist, and other smaller left-wing parties with the centrist Radical Party), was elected to the Chilean presidency by a narrow plurality in 1970. His program called for a fundamental restructuring of established social, political, and economic relationships in Chile with the stated objective of moving the country toward some form of socialism. In practice, the Allende government mixed Marxism and populism, seeking to expand the electoral base of the Popular Unity coalition while, at the same time establishing the "Chilean road to socialism."

Allende, a former Minister of Health, had long been an advocate of improved and expanded government health care. As a senator he had played an important role in the drafting and passage of much of the country's health legislation. Priority attention during his administration was given to providing rural and marginal urban population groups with greater access to health services, reducing the inequalities in health care among different social classes, and increasing resources for maternal and child health care.

Allende's campaign promise of a half-liter of milk per day for every Chilean child under 15 and for pregnant and nursing mothers was motivated, at least in part, by electoral considerations. He turned out to be correct about the political appeal of the measure; a survey taken following the municipal elections of April 1971 showed the "half-liter" to have been the most popular initiative of the Popular Unity government.(22) The

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measure, however, was consistent with other health and social policies of his administration and was in addition considered a means for redistributing resources toward lower-income groups. The two candidates opposing Allende had also pledged an amplification of supplementary feeding programs to combat malnutrition.

During the Allende government the quantity of milk distributed rose to some 39 million kilograms annually (excluding the milk provided in the school feeding programs) benefiting approximately three million children and mothers -- about 70 percent of the total population below 15 and pregnant women.(2?) Most of the program's expansion is explained by the inclusion for the first time of children between the ages of six and 14, but sharply increased amounts were also distributed to preschool children and mothers.(18:67)

The military junta which toppled Allende in September 1973 has established a highly conservative regime with economic and social policies fundamentally oriented toward order and stability. Social change and reform have been assigned a low priority, and there has been a general reduction of health and other social services provided by the government. Nonetheless, nutrition programs continue to receive some support. Although six to 15 year old children are no longer counted amont its beneficiaries, government officials reported that 25 million kilograms of milk were distributed in 1974.(24)

Table 1

EVOLUTION OF THE CHILEAN MILK PROGRAM

Year	Metric Tons of Powdered Milk Distributed	Historical Antecedents
1924		Passage of first social security law providing for insured working mothers to receive milk for infants (0 to 2 years old).
1937		Passage of so-called mother-child law extending social security coverage, including the right to receive milk quotas, to spouses and infants of insured workers. Five percent of social security revenues allocated for milk program.
Presidencies of Gonzales Videla and Juan Antonio Rios, Radical Party		
1943	400	
1948	500	
1951	600	
Presidency of Carlos Ibanez, Independent		
1954	1,300	National Health Service begins to function. Preschool children (2 to 6 years old) and pregnant and nursing mothers become eligible to receive milk, and program is extended to all beneficiaries of health service. Social security allocation increased to ten percent.
1955	1,500	
1956	2,000	
1957	1,700	
1958	2,700	
Presidency of Jorge Alessandri, Democratic Front (Coalition of Right Wing Liberal and Conservative Parties with Centrist Radical Party.)		
1959	7,600	Legislation allocating five percent of family allowances to milk program takes effect.
1960	8,400	
1961	8,100	
1962	8,600	
1963	8,000	
1964	7,300	

Table 1 (Cont'd)

Year	Metric Tons of Powdered Milk Distributed	Historical Antecedents
Presidency of Eduardo Frei, Christian Democratic Party		
1965	9,300	
1966	13,200	USAID initiates donations of powdered milk.
1967	18,400	
1968	13,600	Milk imports restricted in face of growing economic difficulties.
1969	11,800	
1970	13,700	
Presidency of Salvador Allende, Popular Party (Coalition of Socialist, Communist, and smaller Left-Wing Parties with Centrist Radical Party.)		
1971	40,500	School children (7 to 14) become eligible to receive milk for home consumption. Program no longer restricted to beneficiaries of National Health Service. Government provides direct allocation from general revenues for milk purchases.
1972	38,700	

MILK DISTRIBUTION DURING THE GOVERNMENT OF SALVADOR ALLENDE

ORGANIZATION AND ADMINISTRATION (25)

Following the inauguration of Allende in November 1970, the fulfillment of his pledge to provide each Chilean child with a half-liter of milk per day became a first-order priority of the National Health Service. A temporary agency directly responsible to the director of the Health Service was charged with the design and organization of the expanded milk program. On the recommendations of this agency, health authorities decided to use existing channels for the purchase and distribution of the milk and to turn the administration of the program back to an existing department of the Health Service, rather than creating an independent infrastructure to manage and implement the program.

The expanded program was put into operation in January 1971 on an "emergency" basis, and within six months was assigned to the permanent administration of the Health Service's Nutrition Department. The Nutrition Department was responsible for setting standards of quality, determining the quantities of milk to be purchased and allocated to each distributing agency, designing educational and informational material, and generally monitoring and evaluating the program. It was not, however, involved in the actual purchase or delivery of the milk. Milk was acquired from national producers on the basis of competitive bids by the regular purchasing office of the Health Service, while imported milk was secured through the Agricultural Marketing Service (ECA), the government agency responsible

for all food imports. ECA also had the task of moving the milk from ports to the warehouses of the Service and other distributing agencies.

The largest group of beneficiaries (children to six years old and pregnant and nursing mothers attended by the National Health Service) were to receive their milk quotas through the Health Service's extensive network of some 1300 clinics located throughout the country. Other agencies involved in the direct distribution of milk to preschool children and mothers included the Medical Service for Employees (SERMENA) and the armed forces and national police force. The National Board for School Assistance (JNAEB) was responsible for distribution to school children newly eligible to receive milk for home consumption (in addition to the meals provided by in-school feeding programs).

Although regional variations did exist, the internal distribution system of the National Health Service, involving the delivery of milk from central warehouses to health centers, functioned reasonably smoothly despite problems of inadequate storage facilities and insufficient transport vehicles. In one survey of nearly 1000 households in Santiago only 13 percent complained that milk was not available at clinics when called for.(26:38) The internal distribution systems developed by the other agencies were less adequate. For example, in 1971, SERMENA managed to fulfill less than 40 percent of its distribution quota -- compared to some 86 percent fulfillment by the National Health Service.(16:58, 61) The JNAEB, which recent evaluations (26, pg. 9) have shown to be abysmally inefficient in managing school feeding programs, also had difficulty on fulfilling its obligations under the milk program, despite an extensive network of storage and transportation

facilities. An analysis done of the milk program in 75 schools in the province of Concepcion, one of Chile's more urbanized provinces, showed that, in a three-month period in 1971, only 43 percent of the schools had supplied milk to 80 percent or more students, while 40 percent of the schools had distributed no milk at all.(28:8)

Procedures varied among the different agencies for the actual distribution of the milk to beneficiaries. In the National Health Service's clinics the acquisition of milk was associated with the regular medical checkups required of infants, preschool children, and pregnant mothers. In urban areas at least, the percentage of children normally brought in for regular visits was quite high, exceeding 80 percent in several surveys.(26:36) Neither SERMENA or the armed forces required any medical control for receipt of the milk; milk was either delivered to the beneficiary's place of employment or recipients obtained their quota at specified distribution points on demonstrating eligibility. The milk for school age children was sent by the JNAEB to the schools where it was given to students or parents to take home.

COSTS AND FINANCING

According to the published statistics of the National Health Service the cost of the milk program was 496 million escudos in 1971 and 1,024 million escudos in 1972, amounts which, given Chile's inflation rate, were approximately equal in real terms.(23:20) These sums represented some nine percent of the country's total expenditures on public health, but less

than one percent of overall government spending.(29:31) The official figures, however, understated the real cost of the program for the following reasons: (1) the exchange rates used for importing essential food items such as milk overvalued the escudo; (2) the price of domestic milk was fixed at relatively low levels; and (3) many of the costs involved in the actual distribution of milk to beneficiaries continued to be charged to the regular budgets of the participating agencies, and were not passed on to the program.

A more accurate measure of the cost of the milk program for Chile is the expenditures incurred in foreign exchange, which became the scarce factor for the Chilean economy. Dollar expenditures on the program totaled $23.3 million in 1971 and, although the quantity of imported milk used in the program declined, rose to $28.4 million in 1972 because of the increase in world milk prices (from approximately $650 per ton to more than $1000 per ton).(23:20) These expenditures accounted for less than two percent of Chile's total import bill for the two year period, and slightly more than seven percent of all expenditures on food imports.(30:5) In the absence of the program, milk imports (although of a lesser magnitude) would have still been required for supplying consumers through commercial channels. The foreign exchange spent on the milk program was appropriated from the country's overall budget for food imports, thereby reducing the amounts available for other items but not necessarily increasing Chile's food importation bill.

By far the program's largest expenditure was for the purchase of milk, as indicated in Table 2. Had all administrative and operational costs been

charged to the program, its total costs would have probably been some 10 to 20 percent higher.

Table 2

COSTS ALLOCATED TO NATIONAL MILK PROGRAM IN 1972 (23:16)

	Expenditures in U.S. $ (million)	Percentage
Imported Milk Purchases	$28.2	99.3%
Purchase of Vehicles	.2	.7%
	$28.4	100.0%

	Expenditures in E^0 (million)	Percentage
Domestic Milk Purchases	E^0 233.9	84 %
Transportation of Domestically Produced Milk[a]	5.9 5.9	2.1%
Repackaging of Imported Milk	13.1	4.7%
Diffusion and Education Activities	2.5	.9%
Research and Evaluation	5.0	1.8%
Miscellaneous	6.4	2.3%
Construction of Storage Facilities	9.2	3.3%
	E^0 276.0	100.0%

[a]The costs of transporting the imported milk to the centers of distribution were borne by the agency responsible for its importation, which included these costs in the price it charged the Health Service for the milk.

This review of the costs of milk distribution in Chile suggests the conceptual and practical difficulties in attempting accurately to determine the real costs of such a program. First, there is no fully satisfactory way to compare foreign exchange and local currency expenditures, particularly under conditions of controlled domestic prices, overvalued exchange rates, and rapid inflation. Secondly, both the actual and opportunity costs to the program's administrating agency (in this case the National Health Service), depending as they do on accounting procedures, can differ substantially from the outlays the government must make for the program. And finally, some expenditures charged to the program (e.g., a portion of the amount spent for the importation of milk) would have to be maintained even if the program were reduced or eliminated.

From its inception the milk program was financed from social security revenues. In 1958 legislation assigned the program five percent of the social security system's annual budget for family allowances. This mechanism assured the program a stable and growing budget, although, as we have seen, the program's size was dependent on annual government allocations of foreign exchange for importing milk. It also meant that, in effect, the program was largely paid for by the beneficiaries themselves.

The milk program's expansion coupled with the cutoff of food donations from the United States made it necessary for the Allende government to supplement the program's traditional sources of financing with a direct allocation from general government revenues, amounting to some 60 percent of the program's cost. The willingness of the Allende government to cover all shortfalls in the program's financing and provide significant quantities

of foreign exchange, despite the sharp rise in international milk prices and the country's critical foreign exchange situation, is suggestive of the high priority assigned to the program. The use of general revenues to finance the milk program probably increased its distributional consequences for lower-income groups.

Table 3 illustrates the potential income effects of the milk distribution program for low-income households of different sizes provided that milk was regularly obtained for all beneficiaries.

Table 3

POTENTIAL INCOME EFFECTS OF THE MILK PROGRAM IN 1971

Family Income and Size	Value of Milk Quota Per Month	Percentage of Total Family Income	Percentage of Family Food Budget
One Minimum Salary (E° 850) x month			
2 Children	E° 43	5.1%	10.2%
3 Children	E° 65	7.6%	15.2%
4 Children	E° 86	10.2%	20.4%
Two Minimum Salaries (E° 1700) x month			
2 Children	E° 43	2.5%	5.1%
3 Children	E° 65	3.8%	7.6%
4 Children	E° 86	5.1%	10.2%

The calculations are based on data from mid-1971, when the minimum monthly salary for urban workers in Chile was approximately E° 850,(31) and the commercial price of powdered milk was fixed at E° 10.75 per kilogram.(32:111) Although legal quotas varied with age, we are using an average quota of two kilograms of powdered milk for each child and not taking into account the milk obtained by pregnant mothers. According to a survey taken in 1968 some 30 percent of all families in Santiago had incomes below one minimum salary, while 32 percent earned between one and two minimum salaries; expenditures on food represented approximately 50 percent of total family income for families earning less than two minimum salaries.(33) These figures had probably not changed significantly by mid-1971.

POTENTIAL NUTRITIONAL BENEFITS

Table 4 indicates the quantities of milk to which different age and beneficiary groups were entitled, and the proportion of total caloric and protein requirements that the milk quotas satisfied.(23:13, 16) The largest quotas were designed for the most nutritionally vulnerable groups, while school children were expected to receive an additional glass of milk daily through school feeding programs. The milk distributed was theoretically sufficient to overcome most of the protein deficiency encountered among Chilean children. Its potential caloric contribution was considerably less, although still significant for the younger age groups.

Table 4

CALORIC AND PROTEIN CONTRIBUTION OF MILK QUOTAS

Beneficiary Group	Monthly Quota in Kilograms	Equivalent Liters Per Day	Percentage of Total Requirements for Age Groups	
			Calories	Proteins
0-5 Months	3	1.	50%	>100%
6-23 Months	2	.67	23%	>100%
2-5 Years	1,5	.50	14%	60%
6-14 Years	1[a]	.33	9%	36%
Pregnant Mothers	2	.67	100%	100%[b]
Nursing Mothers	3	1.	100%	>100%[b]

[a]The quota for school children was intended to supplement the milk provided through school breakfasts.

[b]Percentage of estimated additional requirements resulting from pregnancy and breastfeeding.

In accord with findings elsewhere, it was long believed in Chile that the country's major nutritional problem was protein deficiency in children. Milk, with its ample content of high quality protein, consequently appeared to be the most suitable product for mass distribution. Even food technologists seeking less costly milk substitutes focusing on the development of products with protein values approximately equal to milk. In recent years, however, evidence has accumulated suggesting that caloric shortages may be a more critical problem, and that a caloric restriction has prevented adequate utilization of protein consumed.(34)

Nutrition authorities in the Allende government became aware of the importance of the caloric problem and recognized that, for certain beneficiary groups, milk could appropriately be replaced by a less costly product with a higher ratio of calories to proteins. Milk continued to be distributed, however, in part for historical and political reasons, but also because no other product both had proven acceptability among the Chilean population and was readily available for purchase in sufficient quantities from domestic and foreign suppliers.

COVERAGE

Under the Allende government all children under 15 and pregnant and nursing mothers were designated legal beneficiaries of the milk distribution program. The prospects of reaching the entire target population in Chile, with its comparatively high rates of school attendance and its extensive network of public health facilities, were far better than in most other developing nations. Yet a portion of the country's population, principally marginal urban groups and rural dwellers, had only limited access to these educational health services, and were therefore doubtful beneficiaries of the milk program. By 1960, for example, some 87 percent of all Chilean children of school age were actually enrolled in school, but enrollments were less than 65 percent in rural areas.(35:59) According to a recent study of the distribution of health services in Chile, "residents of rural areas and those with very low incomes and people without social security benefits make less use of

health services and have greater unsatisfied demand, i.e., they are frequently unable to use the services of the health system for reasons of distance, lack of time or money, or for failure to be attended."(36: 116) In quantitative terms, some 15 percent of infants in Chile in 1969 were born without professional attention, and about 20 percent of all deaths were not medically certified.(37:38, 52)

From the outset public health authorities recognized that the milk program would not, in fact, reach all its legal beneficiaries. On the basis of past experiences they established somewhat lower goals ranging from a high of 85 percent among infants to 70 percent among preschool children and pregnant women. Even these targets, however, turned out optimistic. National Health Service statistics presented in Table 5 reported coverages ranging from 54 percent among pregnant mothers to 90 percent among school children.(23:16, 18) Since reporting and monitoring systems were not fully satisfactory, however, there probably exists a margin of error in the distributional breakdown among the different groups. On the basis of survey data discussed below, we suspect that a portion of the quota for school children was diverted to in-school feeding programs.

Table 5

COVERAGE OF NATIONAL MILK PROGRAM IN 1972

Beneficiary Group	Population[a]	Coverage	
		% Programmed	% Achieved
Infants (0-23 months)	523,000	85	57
Preschool Children (2-5 years)	981,000	70	59
School Children (6-14 years)	2,027,000	80	90
Pregnant Mothers	431,000	70	54

[a]To arrive at these figures, we used the total population reported for Chile in the United Nations Yearkbook for 1972 and broke it down by age groups according to the calculations of the University of Chile's Department of Public Health and Social Medicine. The population figures presented here are approximately ten percent lower than the figures of the National Health Service which were based on 1960 census data projected through 1972.

The statistics do not, of course, tell us which socioeconomic groups participated as beneficiaries in the milk program, whether participants received their milk quotas on a regular basis, nor whether participating family units obtained milk for all eligible members of the family. Several household surveys(26, 28, 38, 39, 40) performed over the past several years partially respond to this set of questions. The most

complete study was done in early 1972 by Maria Eugenia Hirmas, a sociologist working for the National Health Service, who performed interviews in a representative sample of one thousand Santiago households.*(25)

Her study showed that some 78 percent of the families eligible to participate in the milk program were actually participating -- a result consistent with the findings of an earlier more limited study in a single health zone of Santiago, which found that 75 percent of eligible beneficiaries took part in the program.(38:6) Both studies concluded that more than 75 percent of participating households secured the alloted quantities of milk for all beneficiaries in the family, and that upwards to 90 percent of these households obtained milk on a regular basis.

The Hirmas study also showed that lower-income families in Santiago took greater advantage of the program than more affluent families and that the larger number of eligible beneficiaries in a household, the greater the likelihood of the household's participating in the program. Both findings are important as nutritional status tends to decline not only with decreasing family income but also with increasing household size. The relevant data are presented in Tables 6 and 7.

Table 6

HOUSEHOLD STATUS AND PARTICIPATION

Socioeconomic Status of Household	Percentage of Households Participating in Program
Middle to Upper Income	65%
Lower Middle Income	78%
Low Income	82%

* The sample was designed by the National Institute of Statistics, regarded for its technical skill in such matters. A comparison with income distribution data in Santiago suggests, however, that lowest-income groups were somewhat underrepresented.

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Table 7

HOUSEHOLD BENEFICIARIES AND PARTICIPATION

Number of Beneficiaries in Household	Percentage of Households Participating in Program
1	69%
2	72%
3	80%
4 or more	88%

These results would suggest that a large proportion of all families in Santiago participated in the milk program, did so on a regular basis, and received a significant share of the milk quota to which they were legally entitled. Furthermore, higher rates of participation occurred among lower-income and larger families. Nonetheless, still further and more refined analysis of both participating and nonparticipating low-income households would be required to determine whether the program's benefits reached Santiago's poorest families who, in general, made less use of health services and among whom serious cases of malnutrition and high rates of infant mortality were concentrated.

From the Hirmas study we learn, for example, that only 64 percent of those households without social security or other medical insurance coverage, among which predominate families from the lowest income strata, took advantage of the milk program. This figure compares with an 82 percent participation among households with such coverage.(26:30) And in light of the statistics presented earlier concerning the quantities of milk distributed nationally, the high rates of participation in the milk

program among Santiago's urban residents suggest that rural communities received less than a proportional share of the program's benefits. The available data does not permit us to confirm this supposition, although health service authorities have conceded the existence of marked regional disparities in the program's coverage.

EDUCATIONAL EFFORTS

The Nutrition Department of the National Health Service had principal responsibility for disseminating information and conducting educational activities related to the milk program. The general public was informed of the program through the mass communications media, i.e., television, radio, magazines and newspapers, and posters. In Chile, where some 90 percent of all homes have radios and 50 percent television sets, the broadcast media appeared particularly suited for public dissemination activities. In addition special materials were prepared for distributing agencies, health service workers, and community organizations in the expectation that they would provide important assistance in further communicating information, organizing education programs, and, in general, increasing the capacity of beneficiaries to understand and take full advantage of the milk program. The content of educational and informational activities was designed to advise the population of their rights under the program, set forth the procedures for making use of these rights, provide guidelines for the correct preparation and utilization of the milk received, and explain the program's nutritional and health benefits and its overall objectives at the national level.(18:49-54)

During the first six months or so of 1971 television and radio broadcasts carried extensive information concerning the milk program. Following this initial phase, however, informational activities sharply diminished as the mass media, which had donated time to the milk program, became occupied with other themes. The participation of community organizations in the program's development, which had been considered critically important by the government, never really materialized on a national scale, probably due, at least in part, to the poor definition of the responsiblities that these organization should assume. Finally, the clinics and schools -- the principal centers for dispensing the milk -- offered limited guidance or instruction to recipients. Only three percent of parents interviewed in the Hirmas sample expressed any knowledge of educational activities related to the milk program provided to their children at school, while only six percent recalled receiving information at the health centers.(26:15, 16, 21)

Available data does not permit any conclusion regarding the effectiveness of the various forms of communication used to disseminate information about the milk program, nor regarding the potential benefits that might have been derived from a more intensive diffusion, expanded educational activities, or greater participation of community organizations. When specifically asked about the milk program, nearly 90 percent of the respondents in two different surveys knew of its existence. On the other hand, among eligible families not participating in the program more than half were unaware that they had the right to receive milk. Nearly 60 percent of the population interviewed either could not remember the content of any information furnished or recalled only Allende's campaign promise

(made prior to the initiation of the program) to provide each child with a half-liter of milk per day. Less than 20 percent recalled having received information concerning procedures for acquiring or using the milk. But nearly one hundred percent of the respondents were aware that regular milk consumption contributed importantly to the health and growth of their children.(26:38)

UTILIZATION

In the Hirmas study 58 percent of the households interviewed reported that the milk obtained under the national milk program was shared among all family members, while 42 percent indicated that the milk was reserved exclusively for the intended beneficiaries. Since 30 percent of the families surveyed purchased no additional milk, it was probably unrealistic to expect that consumption could be restricted to specified beneficiaries and sharing among family members avoided.(26:42) In food-short households it would appear that available foodstuffs are distributed according to family rather than government criteria.

Reliable data concerning the sale of milk or its use for other than family consumption were difficult to secure, particularly in view of the wide publicity given to possible legal penalties. Direct inquiries concerning the sale of milk brought an expected insignificant percentage of positive responses.(39:1039) Some 29 percent of the respondents in the Hirmas survey did report that they had heard of milk being sold, but that statistic has little significance since a single case widely commented upon

or unfounded rumor could be the basis of replies. Only some five percent of the persons interviewed indicated that there might be circumstances in which the sale of milk could be justified, while nearly all respondents advocated strong sanctions against persons selling milk. Less than two percent admitted that they gave a portion of their milk quota to persons outside their immediate household, while only six percent of families reported discarding leftover milk or feeding it to animals.

Findings regarding the preparation of the milk, i.e., its reconstitution from the milk powder provided by the program, indicated that a high percentage of families either excessively diluted the milk (thereby reducing its nutrient value) or prepared it in too concentrated a form (which had the effect of reducing the time period for which milk was available). These findings, which were confirmed in other surveys, are presented in Table 8.(26:44) Reasons suggested for the widespread inadequacies in

Table 8

INADEQUACIES IN MILK PREPARATION

Form of Preparation	Percentage of Households Surveyed
According to SNS Norms (10% dilution)	27%
Excessively Diluted	26%
Excessively Concentrated	47%

the preparation of the milk were the lack of information concerning correct norms and procedures as well as the wide variety in the size of cups and spoons used to reconstitute the milk -- the latter reason leading to the SNS's designing a standard size spoon for mass distribution. There did exist some positive correlation between adequacy of

preparations and socioeconomic status (reflecting also educational level), although no more than 50 percent of the households in any income group prepared the milk in accord with Health Service norms.(38:7)

In general, the beneficiaries had a high opinion of the milk distributed through the program. Of the families surveyed only 17 percent felt that milk purchased commercially was of higher quality. For many of the respondents the fact that the National Health Service supplied the milk served as sufficient grounds for believing it to be of superior quality.(26:50) These findings belie the widely held belief that donated foods are automatically considered inferior by recipient groups. Rather, it would appear that the recipients' image of the donating institution is likely to be an important factor in their evaluation of the products' quality. It should also be noted that publicity concerning the milk program emphasized that the milk was not a free good but, instead, had been paid for by the beneficiaries and was a right of all Chileans.

In many Chilean homes it is probable that the milk was stored and prepared under less than adequate sanitary conditions. Among low-income groups overcrowding (more than four persons per room), lack of running water, and inadequate or nonexistent systems of sewage and garbage disposal are prevalent and a high percentage of Chilean children suffer from gastrointestinal diseases. Nearly 40 percent of households surveyed by Hirmas failed to store the milk under suitably hygenic conditions.(26:45) But these problems of hygiene and sanitation existed for the entire food supply of the family, from which freely distributed foods could hardly be expected to be exempt.

SOME CONSEQUENCES OF THE CHILEAN MILK PROGRAM

Even during its period of greatest extension the milk program reached only approximately 70 percent of its eligible beneficiaries. Coverage was somewhat higher in larger cities and correspondingly lower in rural areas. Lower-income families, particularly those with larger numbers of children, were more likely than middle- or upper-income families to participate regularly in the milk program, but indications are that participation rates among the poorest sectors of the population (in both urban and rural areas) dropped below the national average -- probably because of their more limited access to health services generally.

The channels used to distribute milk to recipients, especially the clinics of the National Health Service, functioned relatively efficiently. The potential nutritional benefits of the program, however, were diminished somewhat by the home utilization of the milk, especially among low-income households in which the milk was more likely to be consumed by all family members and in which conditions and procedures for preparation and storage were often inadequate. The selling, discarding, utilizing for animal feed, or other improper uses of the milk did not appear to have been common practices.

The principal objectives of the milk distribution program in Chile included the reduction of infant mortality rates and the general improvement of the nutritional status of vulnerable groups. Infant mortality has declined in the past 35 years from above 200 per thousand live births in 1937(41:26) to 65 per thousand in 1973.(42) But the

contribution of the milk program to that decline cannot be identified or separated from the effects of improved health and sanitation conditions, increased per capita income, better educational levels, etc.

Likewise, during the three years of the Allende government the infant mortality rate dropped by nearly 18 percent (from 79 per thousand in 1970 to 65 per thousand live births in 1973); mortality among children from one to 11 months declined by 20 percent and deaths due to diarrhea and respiratory infections declined by 15 and 30 percent respectively (43:26) -- all indications of an improved nutritional situation. Direct measurements of nutritional status also demonstrated improvements. The National Health Service reported that, among samples of more than 300,000 children below six attended by its clinics throughout the country, the incidence of malnutrition declined by some 17 percent between December 1970 and October 1973,(43) while researchers examining clinical records in Santiago's Northern Health Area observed a 20 percent reduction in malnutrition during approximately the same period.(44:13) Again, however, the impact of increased milk consumption cannot be separated from government measures to reduce income disparities among different social groups, control food prices, and provide increased health care services to low-income families.

A study in Valparaiso found that between 1970 and 1971 malnutrition had decreased by 23 percent among infants and 15 percent among preschool children, and concluded that the expansion of the milk program was a major factor in that decline. The data presented, however, did not support the study's conclusion. The researchers sought to isolate the factor of

increased milk consumption by comparing the amount of milk distributed per capita by each clinic with the degree of nutrition improvement encountered in the population served by that clinic. No significant correlation was found.(40)

On the other hand, several commentators have suggested that the milk program may have led to a worsening of Chile's nutritional situation by contributing to a decline of breastfeeding.(1:90, 91)

That milk, particularly in powdered form, has become a staple in the diet of most Chilean households can, at least partially, be attributed to the long history of milk distribution in Chile. The program directly provided milk to families who, for economic reasons, would have been unlikely to purchase it in significant quantities, thereby accustoming these families to the regular use of powdered milk. Indirectly, the milk program helped stimulate the development of a national milk production industry, thereby augmenting the supply available to consumers.

The Chilean dairy industry has grown steadily in recent years. In 1957 a total of some 253 million liters of milk (about 35 liters per capita)

were sent for processing to industrial plants.(47:340) By 1966 the amount had increased to 415 million liters (50 liters per capita) and by 1971 to 571 million liters (62 liters per capita).(19:2) The milk program probably contributed to this growth by providing a stable and assured market for processed milk and by influencing a change in consumption patterns from whole to powdered milk, thereby facilitating transport and storage. Moreover, the origins of Chile's national milk processing industry can be traced to the efforts of health authorities associated with the distribution program.(15, 41:274)

We would additionally suggest that the very existence of the milk program has had some educational impact. The extent of the influence cannot be accurately measured, but it has probably contributed to the public's general awareness of the importance of milk in the diets of young children, and of the relation between adequate nutrition and health. The program -- and the public discussion and controversy it has generated -- has also likely been partially responsible to the concern for nutrition problems among such groups as medical professionals, social workers, and even political decisionmakers.

Finally, we believe that sustained high-level government attention to the problem of malnutrition and the country's experience with the milk program have served as an important stimulant to development of research in nutrition and food technology. Chile's scientific and technical capacity in these areas is matched in few other developing countries, and several Chilean research laboratories have acquired international reputations for their work. It is significant that a good share of these research efforts has been focused on the development of milk substitutes.

INTERPRETING THE CHILEAN EXPERIENCE

This study has treated the evolution of one nutritional intervention in one country over a period of some 50 years. It does not compare the milk distribution program in Chile with similar efforts in other countries, nor does it attempt to relate or compare supplemental feeding with other nutrition measures. One cannot generalize with confidence from this or any other single case, but we believe it useful to attempt to place our observations in a broader perspective. The generalizations which follow move us somewhat beyond the data at our disposal and should be taken as suggestive rather than conclusive.

Four interrelated factors conditioned the evolution of the milk program in Chile: the outreach of the country's governmental institutions, particularly those of the health sector; the country's changing economic and balance-of-payments situations; the leadership provided by health professions; and the evolving nature of Chilean politics. We would propose that these four factors are likely to asume a critical role in the development elsewhere of supplemental feeding programs and of other specific measures designed to raise a country's nutritional status.

INSTITUTIONAL DEVELOPMENT

The probability of a food supplement program, or indeed any so-called nutrition intervention, making a significant contribution to improved nutritional levels is directly related to the proportion of the nutritionally vulnerable it attends. The critical variable is the extent

to which government institutions penetrate to all regions of a country and to all levels of society. A high degree of institutional penetration not only provides a means for distributing food supplements but generally also implies the existence of services (in such fields as health, education, sanitation, agricultural extension, etc.) reinforcing the potential nutritional impact of food distribution.

In most developing countries governmental penetration is slight or nonexistent among the poor as indicated by statistics concerning access to health and educational services, enrollment in social security systems and regular labor force participation. Those most likely to be either fully or partially excluded from the benefits of public services are recent migrants to cities, persons with irregular employment, families living in squatter settlements or other forms of unstable housing, agricultural workers, and small farmers -- in short, those typically most nutritionally at risk. The argument has been made that, given the extreme difficulties of reaching these marginal groups, they should be neglected and that nutrition measures purposefully be targeted at families somewhat higher on the socioeconomic scale.(48) Whether intentionally or not, nutrition interventions in many countries conform to that model, often tending to harden further existing patterns of stratification and poverty and thereby perpetuating the conditions responsible for the persistence of malnutrition.

The potential coverage of the program was limited by the outreach of public health services generally, and its growth was fundamentally dependent on extension of these services to additional sectors of the population. There was no institutional mechanisms by which milk could have been distributed to those groups not served by government health services, nor, to our knowledge, were there any efforts made to develop such mechanisms.

The coverage achieved by the milk program during the Allende government was made possible by the prior existence of a countrywide network of some 1300 health clinics,(37:36) and by a school system enrolling more than 85 percent of children aged seven to 15.(35:59) Those families outside the reach of health and educational services were unable to participate regularly in the milk program. Not surprisingly coverage appeared lower in rural areas where health services were less accessible and school attendance rates were considerably below the national average.

Commercial channels and community organizations are often presented as alternatives to government agencies for the distribution of supplemental foods. Commercial channels, however, are not likely to be well developed in countries of low institutional capacity, and they cannot provide any of the desired complementary services. Moreover, their participation in a public feeding program requires a degree of government supervision and coordination which would probably exceed the capacity of a governmental apparatus with limited outreach. Likewise, the existence of strong community organizations in most cases entails a

degree of social mobilization rarely found in countries with low levels of state activity. And where social mobilization exists without the corresponding penetration of public institutions, it is likely to be viewed as a threat to the established order and authority; under such circumstances community organizations are unlikely to be entrusted with the implementation of programs (like food distribution programs) which have the potential for contributing to further mobilization outside government control.

The Allende government actively promoted the development of community and union organizations, and policy directives called for their ample participation in the milk program and in other health sector activities. Even under these favorable circumstances, however, non-governmental organizations contributed significantly to the program's operation only in a few areas where local health personnel made special and continuing efforts to encourage participation and to define, in concrete terms, responsibilities for such organizations. Somewhat greater success was achieved in the organization of local committees (called Boards for Supply and Control of Prices -- JAP's) initially to supervise commercial distribution of foodstuffs and subsequently to distribute food directly to consumers as food shortages, hoarding, and black marketeering assumed increasingly serious proportions. The accomplishments of the JAP's varied from locality to locality, but they appeared to be most effective where political mobilization was high.(49)

The operation of a supplemental feeding program is a complex enterprise involving the importation and domestic purchasing of food;

its packaging, transportation, storage, and eventual delivery to recipients; the preparation and dissemination of information to a wide variety of groups and individuals; and overall coordination, monitoring, and evaluation. The potential nutritional impact of supplemental feeding will depend importantly on the efficiency with which this multitude of tasks is accomplished. As the Chilean experience demonstrates, a well-functioning system can also contribute to the formation of a positive image of the food provided.

The coverage of the Chilean milk program, the regularity with which beneficiaries obtained their quotas, and the fact that the milk was received in good condition, all suggest that, during the Allende period, the program functioned reasonably well -- an accomplishment probably facilitated by Chile's long experience in the distribution of milk and the government's use of existing institutions to implement the program. Nonetheless, difficulties did arise at the outset of the expanded program and, of the agencies participating in the program, only the National Health Service, which had managed the program during previous governments, attained a satisfactory level of efficiency.

Even where wide coverage and reasonable standards of efficiency are achieved, we have observed that the nutritional objectives of a supplemental feeding program may be thwarted by the inadequate household use of the distributed food. Problems of home utilization in Chile were intimately related to the extreme poverty of many recipient families. The milk was not reserved for its intended beneficiaries in low-income households where overall food supplies were probably insufficient.

In these households utensils required for adequate preparation were also lacking, suitable storage facilities unavailable, and sanitary conditions wanting.

The magnitude of the sharing problem would suggest that feeding programs might be more effective if they were designed for the entire family unit rather than for certain specified members. Largely for political and administrative reasons, all Chilean families, regardless of their nutritional status or income level, were potentially eligible to participate in the milk program. Nutritional objectives might have been better served had participation been restricted to those households most nutritionally at risk and foodstuffs provided for consumption by all household members.

Nutrition education, widely advocated as a means for improving the utilization of available food, has not been notably successful in Chile despite the extensive coverage of the country's mass communications media. It could reasonably be argued that the educational activities associated with the milk program were too limited in scope to have achieved any meaningful impact. But the information that was provided -- largely through mass media campaigns which presumably reached most Chilean households -- was poorly assimilated by the general public. The evidence does not allow us to predict whether more intensive efforts would have brought different results.

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ECONOMIC CONSIDERATIONS

As the Chilean experience indicates, the establishment of a supplementary feeding program that reaches an important share of a country's vulnerable population and, at the same time, provides a nutritionally meaningful quantity of food to each beneficiary represents a substantial investment. At a thousand dollars per ton on the world market, for example, the annual opportunity cost of distributing the equivalent of one-half liter of milk daily would be about $18 per beneficiary -- without considering losses and wastage or the expenditures required for managing the distribution system. For some countries this sum would represent 20 percent or more of the national income per capita. In these countries, where the nutritionally vulnerable probably constitute a high percentage of the overall population, the costs of an extensive food distribution program could absorb a large fraction of government spending, particularly when the government's capacity to tax and generally raise revenues is restricted as is often the case.

The milk distribution program in Chile required significant expenditures in both local currency and foreign exchange. Except during the period of Allende, when a supplementary allocation from general government revenues was provided, the local currency expenditures were financed from a fixed percentage of social security revenues (a means of financing which provided insufficient funds for the program to reach all of its legal beneficiaries and which implied no significant redistribution of resources among social groups). These domestic

expenditures were never the object of particular controversy, probably because of their limited distributional consequences, and grew steadily regardless of the government in power. Increases in the amount of the social security contribution, leading to substantial expansions in the program, were approved in 1954 and 1958 without major opposition.

In view of Chile's perennial balance-of-payments difficulties the foreign exchange costs of the program came under greater scrutiny. Indeed, since 1958 the program's size depended in large measure on the government's allocation of hard currency for importing milk. Fiscal caution combined with the resistance of domestic producers led the Alessandri government to restrict milk imports and hold the quantity of milk distributed constant over a six-year term. Frei lifted those restrictions in early years of his administration but reimposed them in 1968 when confronted with an accelerating inflation and a worsening balance-of-payments situation -- resulting in an initial expansion and then a substantial contraction of the program. The Allende government, facing a more critical foreign exchange shortage, continued to import large quantities of milk but gave serious attention to the development of less costly milk substitutes, to the point of approving the financing of industrial plants for their production.

Like Chile, most developing countries face precarious balance-of-payment situations, and many are barely able to manage the importation of sufficient food to supply commercial channels. Avoidance of the foreign exchange limitation would require that feeding programs be based on domestically produced commodities. But, in a free market economy,

there is no assurance that domestically cultivated food items will be made available for government purchase and distribution. Milk producers in Chile typically sold less than ten percent of their output to the milk program, preferring to deal with commercial distributors from whom they could generally command higher prices.(32:62 and Table 3) In 1956 the producers refused to sell any milk to the Ministry of Education for its school feeding programs.(50) During the Allende government an unusually large portion of the milk produced in Chile (the price of which had been fixed at relatively low levels even for commercial sales) was converted to cheese and other dairy products.(19:1) Under the implied threat of further government control, however, producers sold some 50 percent more milk to the Health Service in 1972 than they had in 1971.(23:20)

THE POLITICAL SETTING

Milk distribution per se, even during the Allende years, was never a central issue of Chilean politics. Unlike such issues as agrarian reform, expropriation of industry, or wage policies, the milk program was not the object of national political conflict or controversy. The program represented -- following Hirschman's classification(51:252) -- a nonantagonistic approach to the problem of malnutrition in that it implied no significant shifts in wealth or power from one social group to another. With the possible exception of milk producers, no group felt particularly threatened by milk distribution while large numbers

apparently perceived themselves better off because of it. The program did, however, achieve some political importance, particularly during the Allende administration when it was displayed as a symbol of government concern for the health and well-being of children from disadvantaged backgrounds.

The establishment and growth of the milk distribution program along with other social welfare measures in Chile reflected the evolution of Chilean society and politics in this century. Beginning in the 1920's Chile's traditional elites were increasingly forced to share power with emerging middle- and working-class groups. Political participation, of which voting statistics are one measure, expanded gradually but steadily, and center and left-wing political parties achieved increasing electoral and parlimentary strength. The growing influence of middle- and lower-income sectors created pressures for the extension of the state bureacracy and the expansion of all types of social services.

The development of the milk program paralleled the growth and extension of government health care services but also reflected the shifting priorities and objectives of these services. From the 1930's health legislation gave increasing emphasis to preventive medicine and to maternal and child health care. These changes were long advocated by progressive sectors of the medical community who also sought reforms in the institutions responsible for the provision of health care. Chile's evolving political and social order provided the setting in which such reforms and changes could take place; their content and direction, and perhaps the pace at which they were implemented, however, were defined

largely by health authorities and other medical professionals, including such men as Salvador Allende and Eduardo Cruz Coke. The milk program was initially conceived and justified by health authorities as a response to the widespread and serious problem of malnutrition. Surveys and other research conducted largely by medical doctors demonstrated the prevalence and persistence of malnutrition and its consequences for health, and legitimized its claim on public resources. While there was continuing controversy within the medical community concerning the appropriate size of that claim vis-a-vis alternative health expenditures, nutrition advocates -- a forceful minority in the community -- regularly occupied key positions in the health bureacracy and were also able to press effectively their case through access to the mass media and more directly through political connections. Their leadership, reinforced by the concurrence of foreign experts, was a decisive factor in the sustained attention given to nutrition problems in public policy and in the development of the milk program and other nutritional measures.

That attention, however, did not readily translate into an improvement in the situation of the country's most nutritionally vunerable groups. The primary beneficiaries of expanded health services and nutrition programs, like other social welfare measures, were public and other white-collar employees and organized sectors of the working class, who comprised the principal constituencies of Chile's political parties. The costs of these measures, according to several analysts, were largely borne by the urban and rural poor who lacked political representation.(52:133, 53:12) Along with the continued extension of

voting rights, the benefits of social programs, including the milk program, gradually reached down to include groups lower on the socio-economic scale. But established groups were able to protect their economic interests and prevent any lessening of social and economic inequalities.(52:119) Some redistribution of wealth toward lower-income sectors occurred during the Allende period and perhaps during the first three years of the Frei administration, although portions of the marginal rural and urban population were probably excluded from that redistribution, as they were from the benefits of the milk program.

The development of an extensive program of milk distribution in Chile was made possible by the country's social and political evolution. That evolution, however, also resulted in a highly stratified society -- with sharp disparities of income and wealth among social classes, with a large segment of the population living at or near subsistence levels, and with high incidences of malnutrition among low-income groups. The milk program may have contributed to some improvement of nutritional standards in Chile and certainly led to heightened attention to nutrition in the practice of health care. Malnutrition, however, has remained a feature of Chile's social order reflecting the persistence of certain patterns of distribution, consumption, and production -- patterns which have been reinforced, with few exceptions, by the country's strategies of economic development. The eradication of malnutrition in Chile, as elsewhere, will require sharp changes in those patterns, and is unlikely to be accomplished by autonomous measures grafted onto them.

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THE VOLUME OF BREAST MILK PRODUCED

BY MALNOURISHED MOTHERS

ROSS LABORATORIES

ABBOTT DIVISION

JUNE 8, 1978

Introduction

For infants to attain optimal growth and development in the first 6 months of life, their nutrition must be adequate, from whatever the source. Breast milk is considered the ideal food for infants, but it must be consumed in adequate quantities to meet their nutrient needs. Malnourished mothers may produce daily volumes of breast milk significantly below those of normal mothers at 3 to 6 months post partum (Table 1). While analysis of breast milk shows that composition remains fairly constant despite variations in maternal nutrition(1), the quantity produced by malnourished mothers is frequently insufficient to meet the calorie and protein requirements of infants 3 to 4 months old (Figure 1).

Certain growth parameters (eg, weight) of breast-fed infants nursed by malnourished women in developing countries have been shown to be low compared to those of babies nursed by women in developed countries (Figure 2). The data of Puffer and Serrano indicate that nutritional deficiency is the most serious health problem related to childhood mortality in Latin America.(2) Their studies indicate that 34% of deaths in infants fed only breast milk were associated with nutritional deficiency.

TABLE 1

Summary of Studies on the Volume of Human Breast Milk.

DEVELOPED COUNTRIES		Lactation Interval (months)	Volume (ml/day)
Great Britain			
	Morricon(1)	0 - 1	600
		0 - 6	1000
DEVELOPING COUNTRIES			
India	Gopalan(1)	0 - 6	470-530
	Rao(2)	0 - 12	550-750
	Rajalakshmi(3)	1	460
		2	600
		3 - 6	710
Congo (Kinshasa)			
	Holemans(4)	0 - 6	400
		6 - 12	325
		12	290
	Demaeyer(1)	0 - 8	350-400
		8 - 12	250
		12	300
Soudan - British Somalia			
	Housden(1)	10	200
Nigeria	Jelliffe(1)	8 - 14	275
Uganda	Rutishauser(5)	2 - 12	660
		13- 18	600
		19- 24	530
South Pacific Islands			
	Jansen(6)	1 - 6	400
		6 - 12	400
		12	200-300
	Venkatachalam(6)	1 - 6	700-400
		6 - 12	450
		12	400-200
	Malcolm(6)	6 - 18	525
		18	350
	Oomen(6)	6 - 18	320
	Bailey(6)	6 - 12	400-600
Mexico	Chavez(7)	2 - 6	540-580
		8 - 18	450
		18	350

Adapted from Muller H: Nutrition and infant mortality, Nestle documentation presented at a press conference, November 28, 1975, Bern, Switzerland.

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FIGURE 1

RECOMMENDED CALORIC INTAKE FOR INFANTS VS CALORIC CONTENT OF BREAST MILK

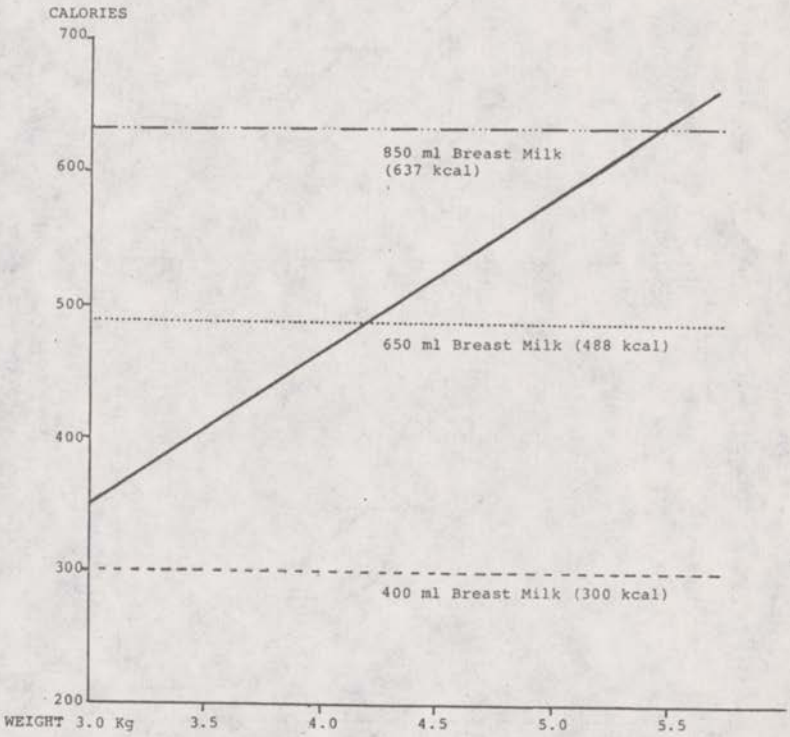

Figure 1. The caloric intake of infants consuming the recommended daily requirement of 117 kcal/kg body weight/day is shown by the bold solid line and is compared to the daily caloric content of breast milk (assumes 75 kcal/dl) from the range of volumes produced by malnourished mothers (400 - 650 ml) and well-nourished mothers (850 ml).

FIGURE 2

WEIGHT RANGES OF BREASTFED BABIES IN DEVELOPED VS UNDEVELOPED COUNTRIES

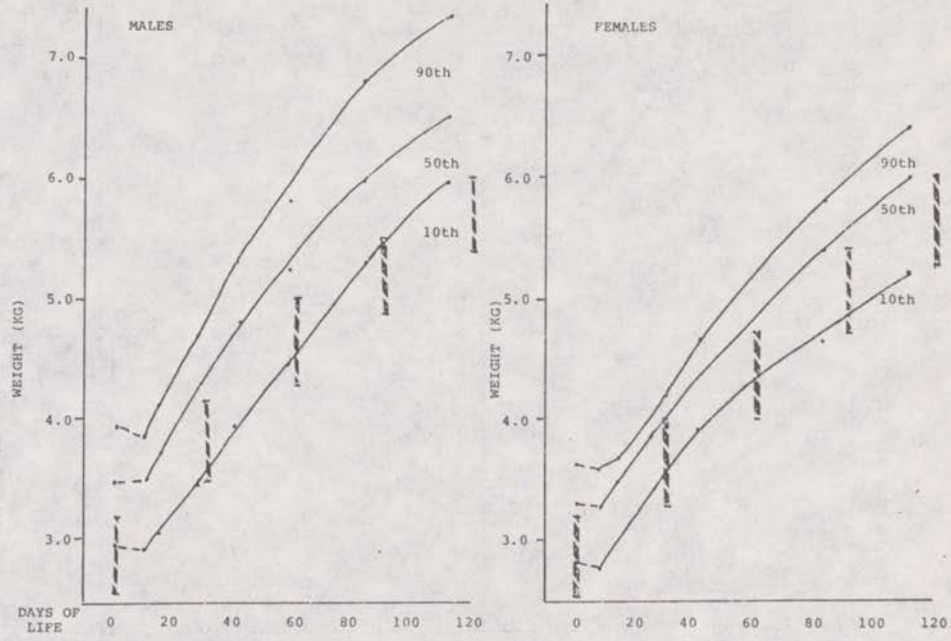

Figure 2. Weights of 58 male and 46 female breast-fed infants during the first 112 days of life showing the 10th, 50th and 90th percentiles (15). Ranges of weights of breast-fed infants in a Third World setting have been calculated from data of Chavez (6) and are designated by broken lines. This compares ideal growth rates of breast-fed babies obtained under optimal conditions and maternal lactation with babies nursed by malnourished mothers. (See Appendix II)

The following discussion will emphasize two points.

1. Malnourished mothers produce daily breast milk volumes at 3-6 months of lactation well below those of well-nourished mothers. Consequently insufficient calories and protein are provided to some infants after 3 months of age.

2. The weight of breast fed infants nursed by malnourished women in developing countries is generally low compared to the weights of babies nursed by women in developed countries. This is assumed to be due to a deficiency of protein and calories.

BREAST MILK VOLUME IN NOURISHED VS MALNOURISHED WOMEN

The average volume of breast milk produced by normal, adequately nourished mothers has been estimated to average approximately 840 ml/day during the first 6 months post partum.(3) Milk output in malnourished mothers, during the same period is significantly less, ranging from 400 to 700 ml/day (Table 1). Also, in the latter women, milk production gradually tapers off after 6 months. According to Jelliffe(4,5) the often-quoted "average" breast milk production rate of 850 ml/day may be too high for malnourished mothers in developing countries. He concludes that breast milk intake may not be adequate for some infants beyond 3-4 months of age, as

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judged by these babies' weight gain.(5) Table I summarizes published observations of researchers who confirm Jelliffe's conclusions.(6)

A 2-year longitudinal study by Chavez(7) revealed that peak milk production of poor malnourished Mexican women was 650 ml/day and was reached only 2-6 months after onset of lactation. He concluded that the infants studied generally need supplemental calories at 3 months of age.

Edozien(8) stated, "In a recent study in Nigeria we found that well-nourished mothers produced 850-1200 ml of milk/day, while protein-deficient village mothers, on 40-60 g/day of protein of low biological value, produced less than 500 ml of milk/day. This reduction in milk yield results in poor growth performance of breast fed babies on malnourished mothers especially after the second month of life."

Whitehead(9) wrote, "The average output of milk by mothers in Africa is certainly not as high as 850 ml. In Uganda, for example, up to 6 months of age, the mean value is 660 ml and in The Gambia it is 500 ml. Clearly, everything should be done to raise breast milk output.....but one must be realistic. Over a litre of breast milk would be required by the average child after 6 months (assuming a weight of 6.5-7.0 kg). This, I believe, emphasizes the critical need for the development of adequate preweaning foods."

NUTRIENT CONTENT OF BREAST MILK VS INFANT REQUIREMENTS

To determine whether the nutritional needs of a breast-fed infant are being met, one must consider (a) the basic nutrient needs of the baby at a given weight, (b) the total nutrients provided by the volume of milk produced, and (c) the child's growth and development compared with normative data. Table 2 shows the relationship between the first two factors when breast milk production is assumed to be 850 ml/day, a level often quoted as an average for most lactating women during the first 6 months of lactation.(10) As an infant approaches 5 to 6 kg of body weight, the requirements for protein and calories begin to exceed the quantities obtainable from 850 ml of breast milk. While many infants of malnourished mothers attain a body weight of 5 to 6 kg at 3 months of age(7,11) seldom does the breast milk production of their mothers appear to average 850 ml daily at any time during the first 6 months of lactation (Table I). Whitehead(9) reported that Gambian women produced 500 ml of milk daily during the first 6 months of lactation; he also reported that 49% of the infants breast-fed for extended time periods suffered severe protein-calorie malnutrition.

The caloric requirements of normal infants and the energy contained in different volumes of breast milk are illustrated in Figure 1. Even if 850 ml is assumed to be the average daily milk production, the breast-fed infant requires supplemental

TABLE 2

PROTEIN AND ENERGY AVAILABLE TO INFANTS OF VARIOUS WEIGHTS FROM 850 ml OF BREAST MILK (9)

Weight (kg)	Nutrients Available*		Requirements+	
	Energy (kcal/kg)	Protein (g/kg)	Energy (kcal/kg)	Protein (g/kg)
3	221	3.4	120	2.4
4	166	2.6	120	2.4
5	133	2.0	120	2.4
6	111	1.7	115	1.9
7	95	1.5	115	1.9

* Assumes breast milk contains 1.2 g protein and 78 kcal/dl.

\+ Based on W.H.O/F.A.O Expert Committee. Wld Hlth Org Tech Rep Ser, 1973, no. 522.

calories shortly after 3 months of age to maintain optimal growth. (Chavez(7), noted that milk output by malnourished mothers in a rural Mexican community averaged only 400 to 650 ml/day and was maximal between 2 and 6 months into lactation. Therefore, breast-fed infants may receive adequate nutrition during the first 3 months of life, but the risk of malnutrition increases thereafter without an additional caloric source. Similar conclusions have been drawn by Thomson(12).

As mentioned above, growth and development are the ultimate determinants of adequate nutrition. Morley(13) has stated, babies who gained less than 500 g in any 4 week period in the first 4 months of life or 250 g in any week period in the second trimester are likely to be malnourished later. Adaptation to a low food intake obviously leads to minimal weight gain and according to Chavez(7) "means resignation to a limited (physical) effort and to a limited contact with the environment; consequently, in the long run, it means resignation to a very limited life." Moreover, poor nutrition can precipitate gastrointestinal disease and parasite infestations, further increasing nutrient needs and thereby aggravating the malnutrition of these infants.(14)

WEIGHT GAIN PATTERNS OF BREAST FED INFANTS

Thus, it has been documented that some populations of malnourished women produce low quantities of breast milk, well

for infants. That these factors result in less growth and weight gain can be illustrated by comparing the weights of breast-fed infants of lesser developed countries to an analogous population of breast-fed infants from developed countries. As shown in Figure 2, generally the weights of breast-fed babies from developing countries are lower than those of breast-fed American infants.(15) Many of them take up to 6 months to reach 6 kg(11,16-18), whereas average American infants take 3 months.(15)

Bailey's(19) study of breast-fed infants in New Guinea showed that 6-month-old infants weighing 6.5 to 7.0 kg were consuming 60% to 70% less protein and 60% fewer calories per kilogram of body weight than the intakes recommended by the National Research Council.(33) He states: "the dietary deficiencies of purely breast-fed infants of 6 months are therefore relatively gross, and quite sufficient to explain the retardation of growth beyond this age in the absence of good supplementary feeding."

Whitehead's(20) studies of children in Gambia and Uganda showed that slowed weight gains began around 3-6 months of age when compared to modified Boston growth standards developed by Jelliffe (21); significant retardation of weight gains occurred thereafter. Similar developmental trends were noted for body

length, skin-fold thickness, and mid-upper-arm circumference measurements. (The mothers in the study populations were malnourished.)

In his studies of rural Mexican populations, Chavez(7) noted weight increases of approximately 625 g/month (about 21 g/day) in breast-fed male babies during the first 3 months of life. This rate of weight gain places these infants in the 25th percentile group for a similar group of American breast-fed male babies according to Fomon's data.(15) The same was true for females. The data in Figure 2 illustrate these results. An analysis of Chavez's(7) data revealed that his infant population had a caloric intake very close to levels observed by Fomon(22) to be inappropriate for infant feeding (Appendix II). Continued low levels of caloric intake allow greater susceptibility to infection and disease. His growth curves of malnourished infants led Chavez(7) to conclude that: "the third month of life would be the most appropriate age for supplementation, taking into consideration the decline in milk production which occurs after the peak at eight weeks....The data suggest that breast feeding alone does not insure good nutrition for the child, at most, it may do so only during the very early stage of lactation when production is increasing."

Hanafy(23) studied malnourished and healthy lactating urban mothers. Due to larger daily breast milk volumes produced by the healthy mothers, more protein and calories were available

to their infants, resulting in higher values for arm circumference, weight and height. Malnourished mothers produced lower volumes of breast milk, so that after 4 months of life caloric intake declined from 115 to 66 kcal/kg body weight per day in the fifth and sixth months. The malnourished lactating mothers in this study could provide enough breast milk, and therefore calories, to support infant growth for only 4 months.

The studies of Fomon(22) indicate that 4-month-old male infants require approximately 95-100 kcal/kg body weight per day if they are to gain about 19 g/day. When caloric intake is restricted to 75-80 kcal/kg per day, the growth rate falls to about 13 g/day. During this time skin-fold thickness also decreases, indicating that fat stores are mobilized to maintain weight gain and suggesting that a prolonged low caloric intake of 75-80 kcal/kg per day could jeopardize an infant's health.

As noted above, the caloric intake of some Third World infants is close to 75-80 kcal/kg per day, although the phenomenon is certainly not limited to underdeveloped countries. Malnutrition among breast-fed infants has been documented in developed countries,(24) as well. For any infant, 70-80 kcal/kg per day is not enough energy to maintain the infant's growth without mobilizing fat stores. Certainly it is not enough to sustain optimal growth.(22)

SUMMARY

Although methods to measure breast milk volume vary (Appendix I), reported data suggest that average daily volumes of milk from malnourished lactating women range from 400 to 650 ml in some less-developed regions. This figure is below that of well-nourished women, who produce approximately 850 ml or more each day during the third to sixth month of lactation.

Breast milk volume may be low early in lactation and still be adequate for a small infant. But for infants more than 3 months of age or who weigh 5-6 kg, the requirement for protein and calories often exceeds the ability of malnourished lactating mothers to secrete the volume of milk necessary to provide these nutrients. If one uses less stringent criteria for optimal weight gain and accepts that smaller babies need fewer calories/kg body weight, then breast milk could be adequate for a slightly longer period. But when breast milk delivers no more than 75 to 80 kcal/kg per day, the infant is at risk of becoming malnourished.

Scientific evidence suggests that breast-fed infants of malnourished mothers need supplemental protein and calories after 3 months of age. Ways should be sought to help both the mother and the infant obtain the necessary supplements under current environmental conditions. This will require further investigation and evaluation for many different cultural and environmental settings.

APPENDIX I

METHODS FOR MEASURING BREAST MILK VOLUME

The precision of methods used to measure breast milk production have been variable.(19,25) The methods used to collect data have varied from those conducted in hospitals(26,27,28) to those used in field studies.(19,25,29,30) Some investigators have used a manual expression technique(18,19) but most weighed the study infants before and after each feeding.(19,25,26,27,28) Some authors measured yields for 6 to 12 hours and then applied a correction factor to state volume/24 hours.(19,26,29,31) Others measured volume secreted in 24 hours(27,28) or 72 hours.(25) A common finding of these studies is production of low volumes of milk and slight time-related decreases in volumes following the first 6 months of lactation.

Measuring daily milk output using mechanical or manual expression is not easy, nor are the amounts measured necessarily indicative of physiological production rates achieved in the natural condition of lactation stimulated by a nursing baby. Frequency and vigor of sucking can influence milk production.(32) Estimates made by weighing the infant prior to and immediately after nursing may also vary because the procedure interferes with the "natural" nursing process which is usually undertaken casually or on demand.(12) These are some of the factors which urge caution when interpreting data on breast milk output.

APPENDIX II

The infant weights in Figure 2 were calculated in part from Chavez's(7) data by adding incremental weight gains taken from his second figure to the birth weight range he reported for all infants studied,ie, 2.5-3.2 kg. These ranges were then superimposed over Fomon's(15) data.

Three month old infants in Chavez's study population(7) range from 4.7 to 5.5 kg and would require 550 to 640 kcal per day (assuming 117 kcal/kg/day). We calculated an estimate of breast milk volume for 84 days using Chavez's measurements at 56 and 112 days and found it to be approximately 560 ml daily. If this amount were produced each day in the third month of lactation, the infants studied by Chavez were probably consuming 350 to 500 kcal/day or about 75-90 kcal/kg body weight per day. A caloric intake of 75 kcal/kg per day was found by Fomon(22) to be inappropriate for infants and caused an increase in volume of milk consumed from an average of 812 to 999 ml daily. This volume was a difficult achievement for some infants. Chavez(7) also noted that the growth rate of babies fell off sharply 2 to 4 weeks after the decline in peak milk consumption/production.

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THE HOUSEHOLD CONTEXT OF INFANT FEEDING PRACTICES IN SOUTH TRINIDAD

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THE HOUSEHOLD CONTEXT OF INFANT FEEDING PRACTICES IN SOUTH TRINIDAD

ABSTRACT: The infant feeding practices of a community of rural East Indians in south Trinidad are described, drawing on interviews conducted in 1969 and 1976. The Rampat community is a dispersed settlement of small-plot cultivators and wage laborers which has experienced rapid expansion of economic opportunities in the last decade. Hinduism, Islam, the patrilocal extended family and arranged village-exogamous marriage are the primary East Indian cultural patterns which derive from India, while caste, jajmani ties and lineage organization have weaken to insignificance.

The infants of this community are fed in the mixed pattern of breast feeds alternating with bottle feeds. During the past decade there has been no shift in the distribution of feeding histories toward either the exclusive use of the bottle or exclusive use of the breast. However, there has been a significant change in the content of the bottles. In 1969 infants were given bottles containing flour pap, sage, arrowroot and bush tea. In 1976 these had been overwhelmingly replaced by the use of commercial milk powders, including some infant formula powders.

The decisions which are made regarding modes of infant feeding in the Rampat community are embedded in a larger strategy for the comfort and economic survival of the patrilocal extended household group to which the infant belongs. Infant survival, while desired, is not given precedence over the interests of the household group as a whole. Corollaries of this situation include the low status of new mothers, subordination to the senior generation in the household and the labor value of both men and women to the household.

Mothers do not decide to purchase commercial milk powders in response to advertising or the desire to emulate "modern" or urban behavior. They are pressed and directed to use this mode of feeding in combination with breast milk in order to maximize their utility to the group while not discarding their own milk.

Policy planners have become alarmed by the apparent decline of breast feeding in the non-industrial world. The Nestles suit, the suit against the Bristol-Myers Company brought by the Sisters

of the Precious Blood, the research initiatives of A.I.D. and other government agencies testify to a movement to save infants from dirty coke bottles filled with the milk of American technology. To a surprising extent, this movement has been nursed by public health reports of infant morbidity and mortality which, at best, iterate only the surface characteristics of the varied situations of which these infants are a part. Nutritionist Michael Latham says that "...for about two-thirds of the world's population bottle feeding of infants is highly undesirable, and in many instances placing an infant on a bottle might be tantamount to signing the death certificate of the child." Latham is also quoted as saying that advertising and marketing of products for bottle feeding "is probably the single most important reason for the rapid decline in breast feeding in developing countries in recent years."[1]

These statements don't seem to make anthropological sense. The potency ascribed to advertising would suggest that mothers around the world are poised waiting to be told what to want and what to do, and in the interim are living lives of no reality, no culture. More important, the stress on linking bottle feeding to mortality ignores the real problems of living infants - the continuous low-grade morbidity and poor growth - in favor of the drama of death. And it ignores the many pathways for enteric pathogens found in humid environments, with poor drainage of contaminated water, inadequate supplies of potable water and contamination from human and animal waste products, clothes, bedding. To isolate the feeding bottle as the source of fatal

insult is curiously myopic, and to isolate the feeding bottle as the source of poor infant growth is naive.

An anthropological perspective on why women carry out one or another mode of infant feeding would suggest, even before we look at any evidence, that 1) infant feeding behaviors are likely to be embedded in a context of other cultural values and behaviors, and 2) infant feeding behaviors, like many culture traits, may not be developed to achieve the straightforward goal of feeding the baby.

The case study of this report - rural East Indians of Trinidad - provides an example of a culture in which the comfort and economic survival of the patrilocal extended household group takes precedence over the prosperity of any of its individual members, and among these members a mother and her new infant are both particularly low in status. Infant survival, while desired, is not given priority over the interests of the household group as a whole. For the past two decades and perhaps longer, most infants have been fed in a mixed mode of breast and bottle feeding followed by early weaning, and this may be viewed as an adaptation which best serves the family group, not the infant.

The East Indians of Trinidad are the direct descendants of indentured laborers brought from India to Trinidad in the second half of the last century. They now compose almost half of the Trinidad population, and number about 500,000 people. Much of their family organization is derived from north Indian culture. Because their villages were established at the behest of the sugar cane estates house lots and garden land were sold equitably to members of all castes. Through succeeding genera-

tions this pattern of land ownership has greatly weakened caste and lineage ties. Caste has almost disappeared as an organizing principle in every area except marriage arrangement. The caste hierarchy has been replaced by more subtle and familial indicators of worth such as land, capital, religiosity, political power, family authority and personal conduct. But the sense of status and rank is still pervasive in Indian thinking. It colors all social contexts with potential for insult, maneuver and mistrust.

Because of the decline of community wide organizing principles households are the central focus for personal loyalty and identity. Households are like small islands, separated from each other by suspicion, competition and sometimes extreme differences in status and comfort. Every household has a standing or reputation among its neighbors, based in part on its physical amenities, in part on its ritual cleanliness and the comportment of its members in part on caste. Every household also has its own store of economic resources and reserves, quite meager for some, plentiful for others. Like the statuses, the economic resources do not flow freely from household to household. The great range of differences in social prestige and in economic levels is central to the way the culture works. Because households are separated from each other by these status differences they are untrusting and guarded in their dealings with each other, reinforcing the importance of one's own household as a safe and comfortable place.

The separation between households has been further aggravated by recent growth in the cash economy. The rural East Indian districts of Trinidad have experienced rapid expansion in wage

employment and commercial development in the last decade, stimulated by the rise in the price of sugar, the discovery of new off-shore oil reserves and the development of light industry in the north. While the East Indian population is still tied to the agricultural seasons for subsistence most families also attempt to perform wage work year round. Land is not being ignored for cash employment, but employment possibilities are luring families into working harder to profit from both sources of support. Women are valued for their economic contribution to the household through gardening, animal care, market selling of produce, and, in poorer families, work as agricultural laborers. Thus the value of women's labor is rising even as the district is moving closer to a consumer economy.

The factors I have noted thus far - the north Indian inheritance of family and sex roles, the subsistence base in agriculture, the importance of the household as the only significant identity group and the increasing value of women's labor for the household as men move into the wage economy ser the context for the status of mother and infant in the household group.

Marriages are arranged by parents and should ideally be neighborhood exogamous, hypergamous and caste class endogamous. Hypergamy, the marriage of a girl to a higher status boy, sets the tone of the relationship between wife-givers and wife-receivers even when it is not based on the reality of their relative statuses. The bride is by definition from a lower status family.

When a bride enters her husband's family circle she is an intruder. Her success in this new role will rest in her ability to demonstrate her receptivity to direction and guidance, and

quite literally the absence of any ideas of her own. This is of course, the traditional Indian model of the tabla rasa child bride, but Trinidad East Indian brides are now approximately eighteen and the role requires a very skillful mixture of innocence and maturity. Suspicion of the girl's willfulness is heightened by the fact that an increasing number of marriages are "love matches" - arrangements made after the boy and girl have "seen each other." If it appears that the girl entered the marriage by choice rather than by obedience to her parents then she will be regarded by her husband's household group as a threat to their solidarity - a girl with ideas.

Appropriate respect behavior requires her to be a cheerful, willing and deferential assistant to her mother-in-law. Her daily life is at the mother-in-law's direction. She will be expected to stay at home, stay in the background and stay on her feet.

The first infant is conceived and born during a period in which the new mother is most likely the lowest status female in the house. The birth may actually create a series of test cases in which the low status of the young mother is affirmed by separating her from her achievement - the infant.

For instance, young mothers are expected to continue their household chores, such as preparing food for the entire extended family and maintaining the kithcen garden despite the presence of the infant. It is not considered good form for a mother to fondle her infant, especially not to create a situation in which the infant shows attachment to the mother (or father). Rather the baby should pass willingly from hand to hand to hammock without protest, a "spoiled" infant will cause criticism of the

INFANT DIETS DURING FIRST MONTH OF LIFE - 1969 n=1'2

Type of Food	n=	%
breast milk alone	47	27 3%
breast milk and powdered milk	33	19 %
breast milk and powdered milk, brown sugar	28	19 %
breast milk and powdered milk, sago	12	16 %
breast milk and powdered milk, Farax	12	7 %
powdered milk, brown sugar	5	3 %
breast milk and powdered milk, sago, brown sugar	4	2 3%
powdered milk alone	3	1 7%
breast milk and diluted cow's milk	3	1 7%
breast milk, powdered milk, Farax, brown sugar	3	1 7%
powdered milk with glucose sugar	2	1 1%
breast milk, diluted cow's milk, brown sugar	2	1 1%
breast milk, powdered milk, arrowroot	2	1 1%
breast milk, powdered milk, glucose sugar	2	1 1%
breast milk, powdered milk, lime bud tea	1	
breast milk, powdered milk, green tea	1	
breast milk, powdered milk, flour pap, brown sugar	1	
breast milk, diluted evaporated milk	1	
breast milk, diluted cow's milk, sago	1	
powdered milk, brown sugar,sago	1	
powdered milk, glucose sugar, sago	1	
powdered milk, Farax and glucose sugar	1	
powdered milk and green tea	1	
diluted cow's milk	1	
diluted cow's milk, sago, brown sugar	1	
diluted cow's milk with flour pap	1	
breast milk and diluted cow's milk, flour pap	1	

mother. The mother should not use infant care as an excuse of avoiding more arduous (or more demeaning) work. As a sign of respect for the parents-in-law she should entrust the daytime care and feeding of the infant to their direction and devote her own attention to chores for the benefit of the whole family. At night the young couple and infant share one bed. In matters of clinic attendance, private doctors, jahree healers or other health care the initiative properly comes from the husband's mother and father.

The infant feeding patterns facilitate this relationship between the young mother, the family circle and the infant.

I have conducted systematic feeding history interviews with mothers at two points - the spring of 1969 and the summer of 1976[2]. The diets described in 1969 for the feeding of infants during the first month of life are listed on the accompanying table. Essentially, only 27% of the infants were maintained on breast milk alone during the first month; 57% were given bottle supplements in addition to breast milk and 16% were fed exclusively by bottle. The actual content of bottle feeding varied enormously. Water was mixed in varying proportions with granulated brown sugar, sago, glucose sugar, flour pap arrow-root, green tea, coffee or commercial whole or skim milk powders such as Cow and Gate or Klim. These commercial milk powders were not infant formulas. Cow's milk was used rarely, buffalo and goat's milk not at all.

In the second and third months, the number of infants who were given bottle supplements or fed exclusively by bottle rose

rapidly. By the end of the third month over one-third of the total group had been weaned from breast milk to these liquid diets. While an increasing number of infants were weaned over the next four or five months, there was also a small proportion (perhaps 10%) who continued night nursing into the second year of life. For most infants the introduction of solid supplements described by the mothers as "salty food," began in the sixth month, usually in the form of plain rice. Eggs were mentioned in only a few instances and meat is apparently absent from the infant diet until well after the second year.

Children learn to drink green tea or coffee diluted with condensed milk and sugar in the second year and this is the daily drink of all children and adults.

In 1976 the profile of infant feeding in the early months had not changed. Exclusive breast feeding was maintained for 26% of the infants during the first month of life, breast and bottle were used in combination in 64% of the cases, and exclusive bottle feeding was established in 10% of cases. The comparable figures for 1969 had been 27%, 57%, 16%. Thus the only possible contrast between practices reported in 1976 and those of seven years earlier was a slight shift away from exclusive bottle feeding toward the mixed model utilizing both breast and bottle. There is no evidence of a decline in breast feeding.

What did change dramatically during this seven year interval was the content of the bottles. Powdered milk (usually Klim whole milk powder) used alone with water or with an additive of brown or glucose sugar has become the standard bottle feed, while

indigenous supplements such as arrowroot, sago and flour pap have greatly declined. It appears that the proportion of powdered milk to other substances have increased substantially, since the only other additives used now are sugars.

What causes the mothers of this community to change from flour pap to powdered milk, to add brown sugar or the very expensive glucose sugar to bottle feeds? Are they motivated by status? By advertising? The explanation for changing from indigenous feeds to commercial milk powders may well be as simple as the mothers and their mothers-in-law say it is: they say that milk is better and now that they can afford to use it, they do. Only the poorest families now use flour pap for very young babies. The explanations most often heard for the introduction of bottle feeding in combination with breast feeding were: 1) that if you breast feed during the day "people will quarrel with you," other members of the family will argue that you are avoiding work. A woman should not sit down; her work is not finished. 2) Sugar is necessary to "strive" in the tropics. Using the bottle for some feeds allows the addition of more sugar to the infant's diet. 3) If a baby does not begin to accept the bottle early he will be difficult to wean from the breast later and will "upset people," make the household group uncomfortable.

In effect, young mothers are well aware of a need to balance their loyalties, to give up the child during the day, but nurse at night. Some of the explanations for bottle feeding reported for other cultures do not occur here. No woman responded to the suggestion that lactation might annoy husbands, interfere with

appearance, or hamper health of the mother. All agreed that lactation does not require any change in diet or workload (an extension of the model of the industrious woman who never sits down). Several mothers felt that their milk supply was not adequate to the baby's needs but none reported failure to initiated lactation. Mothers do not decide to purchase commercial milk powders or bottle feeding equipment in response to advertising or the desire to emulate "modern" or urban behavior. They are pressed and directed to use this mode of feeding in combination with breast milk in order to maximize their utility to the household group.

Clearly many of the factors that appear to determine infant feeding behavior are culture and situation-specific. Vulnerability to the milk companies must also be culture and situation-specific.

NOTES

1 The Washington Star, February 20, 1976: The Baby Bottle May Be a Third-World Death Warrant, by Vernon A. Guidry, Jr.

2 In both cases,the population interviewed included all mothers of living infants under twenty-four months of age and residing contiguously to the study district. The mothers of 172 infants were interviewed in 1969; because a smaller area of the district was covered in 1976 the mothers of 100 infants were interviewed at that time.

The Weanling's Dilemma

BACTERIAL CONTAMINATION IN TRADITIONAL GAMBIAN WEANING FOODS

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Summary Although emphasis on infant feeding is rightly being placed on breast-feeding, the need for safe weaning foods for the developing world must also receive its due attention. Traditional weaning foods used for young infants in a typical West African village can be as hazardous, bacteriologically, as commercial milk products, and providing a breast-fed child with supplements under the conditions which prevail in much of the developing world is potentially dangerous, whatever the source of the food.

INTRODUCTION

WEANLING diarrhœa related to poor hygienic conditions has long been recognised as a major health hazard for infants in the developing world.[1] However, in the past year or two, publicity has focused on just one aspect of this health hazard—namely, that associated with commercial baby milks or the so-called "occidentogenic" aspect. Unfortunately, much less attention has been paid to the role of local weaning foods in weanling diarrhœa. There is a danger that traditional weaning foods will be assumed to be free from this problem (particularly when heat is used in their preparation), but this is far from being the case and it is important that we face up to the more basic environmental issues involved.

We describe the situation in an isolated, rural, West African village where it is as true now as it was in 1962–63 that commercial milk preparations and the use of feeding bottles are virtually unknown.[2] In spite of this, infantile diarrhœa is common and we have measured its impact on the growth and general wellbeing of the infant.[3-5] Although there will be differences in detail, the problems described here are probably relevant to most of the developing world; there are, for example, many similarities between this community and those in Central America described by Gordon and colleagues.[6]

METHODS

This study was carried out in the village of Keneba, The Gambia, a subsistence farming community which has been described in detail elsewhere.[7,8] The custom is to breast-feed the child for about the first 18 months, but traditional weaning foods are introduced as a supplement after 3 months. Since 1974, we have observed each child from birth for growth, dietary intake, and health status. Daytime breast-milk intakes (6.30 A.M.–6.30 P.M.) were measured each month by a carefully standardised test-weighing procedure. In order not to lose subjects over a long follow-up period, measurements were made of intakes over only 12 hours and these were carried out in such a way that the mothers could continue with their normal daily activities.

Traditional weaning foods were tested at regular intervals after cooking and in different seasons for *E. coli*, *B. cereus*, *Staph. aureus*, *Cl. welchii*, and *Salmonella*; the total viable count was also made.[9] The first weaning foods to be introduced are watery cereal gruels, the most common being made from millet or rice. The time-consuming and tedious method of preparing these foods includes the pounding of the damped grain, mixing of the resultant flour with cold water, and perfunctory boiling which, if prolonged, would result in a gelatinous mixture too thick for a young infant. Because of the time involved, and because food is too valuable to be thrown away, the common practice of cooking a relatively large amount at one session means that residual food may not be eaten until 8 hours after preparation and storage at ambient temperatures of 30–40°. Water was examined for *E. coli* count and total viable count[10] and for the presence of *Salmonella*.

RESULTS

From 3 months of age onwards the body-weight of the infants fell behind the internationally accepted standard (fig. 1A),[11] intake of breast-milk fell (fig. 1B), and traditional gruels were used increasingly to supplement the diet (fig. 1C). Diarrhœal disease also appeared at 3 months and was commonplace by 6 months (fig. 1D) although the exact prevalence was subject to seasonal variation.

Preliminary studies established that the supplementary gruels were frequently heavily contaminated with potentially pathogenic microorganisms. To determine the points at which bacterial contamination occurred, investigations were carried out at various stages during the process of preparation and storage.

The millet flour itself was contaminated; for example, counts of up to 10^6 total organisms/g and 10^2 *E. coli*/g

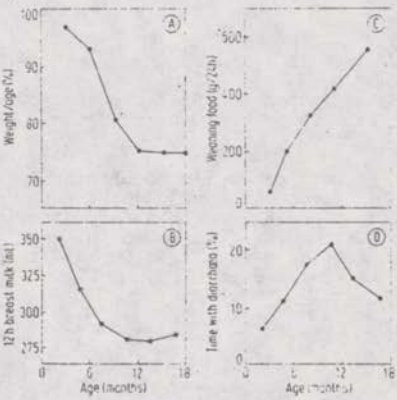

Fig. 1A—Percentage expected weight of village children by age (1422 data points).

Fig. 1B—Breast milk consumed between 6.30 A.M. and 6.30 P.M. (417 data points).

Fig. 1C—Traditional weaning food consumed (1681 data points).

Fig. 1D—Percentage of each month the average child is ill with diarrhœa (772 data points).

BACTERIAL COUNTS IN A TRADITIONAL WEANING FOOD 8 h AFTER PREPARATION AND IN TWO BABY MILK FORMULÆ PREPARED WITH BOILED VILLAGE WATER AND STORED UNDER SIMILAR CONDITIONS

Preparation	*E. coli*	*B. cereus*	*Staph. aureus*	*Cl. welchii*	*Salmonella*
Traditional weaning food	$<10^3$	10^4–10^6	10^2–10^4	10^4–10^5	Not isolated
Milk 1	$<10^3$	10^3–10^4	10^3–10^4	$\leq 10^2$	Not isolated
Milk 2 biologically acidified	$<10^3$	10^3–10^2	10^2–10^3	$<10^2$	Not isolated

Values are microorganisms/g food except for the *Salmonella* which was sought in 25 g. 1 ml of milk = 1 g.

have been obtained. The water used in cooking was also highly contaminated; during the wet season, for example, in September, 1977, levels of 10^3 total organisms per ml and 10^2 *E. coli*/ml were common.

Because the cooking cannot be prolonged, many of these organisms survive and even in the simmering mixture contamination of up to 10^4 total organisms/g have been measured. This food is then poured into the child's feeding bowl. These bowls are rigorously washed with fresh well-water, scrubbed with palm leaves until they appear genuinely clean, then left to dry on stands in the sun. In spite of this, total viable counts of the order of 10^3–10^6 organisms from an empty bowl were usual. Fig. 2 shows the rate of bacterial multiplication in a typical gruel during storage in a bowl; the initial total viable count was considerable and it increased rapidly thereafter.

To place our findings on traditional weaning foods into the perspective of current controversies surrounding commercial baby milks, two well known, readily available milk formulæ were reconstituted with boiled well-water. When freshly prepared, the reconstituted milks were bacteriologically similar to the freshly prepared local gruel, a total viable count of 10^2–10^3 organisms ml of milk reflecting mainly the degree of contamination of the containers. Milks prepared with unboiled well-water were contaminated by 10^4–10^7 organisms/ml, depending on well-pollution which varies with seasons.

Since prepared infant foods are stored until they have been completely consumed different weaning foods were examined under these conditions. By 8 hours (see accompanying table) the levels of *B. cereus* and *E. coli* in one of the reconstituted milks were not much higher

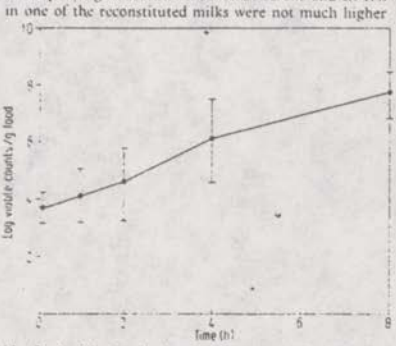

Fig. 2—Aerobic bacteria (total viable count/g) in traditional weaning food immediately after preparation and at progressive intervals afterwards. Values are the mean of four studies ± S.D. carried out at different times of the year.

than in the gruel, regardless of whether the milk had been made up with boiled or unboiled water. Only *Staph. aureus* contamination was greater in the milk, but not in the milk that had been "biologically acidified"; levels of *B. cereus* were noticeably lower in the biologically acidified preparation. *Cl. welchii* was essentially absent in both milks but was present in appreciable quantities in the traditional gruel. A more detailed report on our bacteriological studies of Keneba infant foods will be presented elsewhere, but it is clear that traditional foods as well as imported ones are subject to marked bacterial contamination.

DISCUSSION

In a developing country such as The Gambia, feeding babies with any food other than breast-milk is bound to be hazardous. The main aim in such areas is to maximise and sustain production of breast-milk, and this has been given top priority in our applied research programme. Nevertheless, it would be naive not to expect that some degree of supplementary feeding will be necessary for many infants after 4–6 months of age, if rates of growth approaching those given by Jelliffe (1966)[11] are to be achieved.[12]

Microbiological contamination is clearly not just confined to commercial baby milks and feeding bottles. It is found equally in traditional weaning foods and the simplest of feeding containers: it is difficult to envisage any container which would be easier to clean than a bowl and spoon). Health workers and educators should appreciate that traditional weaning foods are often contaminated and that stereotyped advice about domestic and personal hygiene can have only a limited impact in a situation where sterility can never be achieved. The most important single piece of advice would probably be to give infants only freshly prepared food. However, even this simple piece of advice is difficult to implement when mothers have considerable demands on their time besides the preparation of food for their children.

Unless one can seriously envisage a radical improvement in the home environment of mother and child in the third world, food scientists and nutritionists must pay more attention to the development of better weaning foods. These should be easy and quick to prepare and, if intended for the young infant, should be of a liquid or, at most, a weak semisolid consistency. Moreover, they must be reasonably resistant to bacterial overgrowth for at least the 1–2 hours when the infant is likely to be feeding.

Apart from microbiological contamination, traditional Gambian weaning foods, like those of many other countries, are nutritionally inadequate. The average available energy density of the millet gruel is only one half that of the Keneba mothers' breast milk: 34 kcal or 140 kJ instead of 70 kcal or 290 kJ/100 g. Mineral

requirements are also poorly served, either because of low absolute levels, as in the case of calcium (2 mg/100 g compared with 35 mg/100 g in human milk), or because of virtual unavailability due to chelation with phytic acid or unavailable carbohydrates, as occurs with copper and zinc. Vitamins A and C are virtually absent in the gruel and riboflavin and nicotinic acid concentrations are also lower than in human milk. Intelligent use of local food resources may well produce a "multi-mix" supplement adequate for the older infant and pre-school child, but the problem for the young baby is more difficult to solve. Since most nutritionists believe that the optimum food for young infants is milk, especially human milk, supplements should resemble breast-milk as closely as possible. Whilst this is perhaps counsel of perfection, particularly in the third world, breast-milk should nevertheless be the reference standard for any substitute food intended for the young infant.

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MOTHERS IN POVERTY

Breastfeeding and the Maternal Struggle For Infant Survival

A Study by The Human Lactation Center, Ltd.

Under a Grant From the Agency for International Development 1977.

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Trends in Breastfeeding--1977*

by Dana Raphael

The International Conference on Human Lactation held this spring in New York City was a milestone in our evolving awareness of the value and problem of breastfeeding in Third World countries. We renewed our confidence in the superior value of breast milk and breastfeeding and have found much that is insightful and new. For instance, we have learned that infant morbidity and mortality have many etiologies, but insofar as breastfeeding is concerned, they are highly correlated with that period of weaning which begins between four and six months of age.

Many researchers demonstrated the striking relationship between poverty, the absence of food and malnutrition/-morbidity/mortality. Despite the superiority of breast milk, the average mother in any Western culture has a far greater chance of keeping her children alive and healthy, even if she does not breastfeed, than the economically destitute Third World mother who does.

Weaning is the magic word. It is grossly misunderstood with many definitions. Contrary to accepted ideas, we've learned that mothers commonly mix-feed from a very early age on. In fact, we've learned that what children eat (or don't eat) is a matter to be dealt with on a social, governmental and industrial level. It seems that the problem is less what weaning food than not enough of any food.

A review of the international agency programs in breastfeeding seems very encouraging. There is a real commitment to placing breastfeeding high on the list of priorities. We shared some of the insights gained from the Center's year-long project for AID. We showed how difficult fieldwork is, how varied different cultures are, how sensitive we must be to understand the problems of the breastfeeding woman and how gently we must tread if we want to make changes.

Finally, the political and economic factors which determine the framework within which a woman can or cannot breastfeed were explored and potential areas of weaknesses and strengths in the political and economic systems were uncovered. It became clear that there are already methods--tested and available--that would be usefully applied in efforts to enhance the practices of breastfeeding, such as interesting innovations in non-formal education.

But, we must shed our sentimental, myopic views and open our sights to real women in real situations, struggling against some horrendous odds. Recently, a study showed that breastfeeding took only two hours of a woman's time. As such, it seemed to the analyst there was no reason in the world why women could not breastfeed and work. However, in order to be able to breastfeed for those two hours, the woman must have completed the care, feeding, purchasing, clothing and working routines which are a necessary part of every day life. Now, if there are others to share these aspects of the female role, then the woman has the space and time to concentrate on her infant and do the cleaning, holding, burping, tendering, consoling and breastfeeding which is part of that role. It has been suggested that the psychic energy needed to be ready to breastfeeding must be measured before we can hope to understand how long it really does take.

(Continued page 19.)

* This is a slightly revised version of a paper delivered March 4th, 1977, at the International Conference on Human Lactation, sponsored by the Human Lactation Center, Ltd. and the New York Academy of Sciences.

REPORT OF FINDINGS AND RECOMMENDATIONS FROM THE HUMAN LACTATION CENTER LTD.

INTRODUCTION AND BACKGROUND

Agencies concerned with infant health have turned their attention to the problem of the reduced incidence and duration of breastfeeding--a global pattern which seems to accompany modernization, industrialization, urbanization and a cash economy. At the same time, in the developing world the absence of safe infant supplemental weaning foods within the financial means of most parents, appears to be a major threat to child health.

With these concerns in mind, the Technical Assistance/Nutrition Office of the Agency for International Development (AID), under its mandate to reduce malnutrition and improve infant health, particularly in Third World countries, issued a grant to The Human Lactation Center, Ltd. (The Center). The Center was expected to study the conditions and patterns of behavior that have brought about a downward trend in the practice of breastfeeding which was suggested as having resulting in impaired infant health. The Center was also expected to suggest elements for particular remedial action programs at different socio-economic levels.

The one-year project which AID/Washington granted to the Center on March 22, 1976 (actually effective on January 1, 1976) was later extended to April 30, 1977.

Since January, 1976, as a result of this support, the Center has attempted to set human lactation into a broad systems view and to apply its expertise in lactation to problems of infant health in the Third World.

To the twenty years of investigation into human lactation by its Director, have been added the input of a dozen knowledgeable consultants and the accumulation of a wealth of information, stimulated by an exchange with researchers, world agencies and foreign government personnel concerning the state of breastfeeding and weaning practices throughout the world.

The investigation required the development of a methodology (The Protocol) to guide eleven anthropological field studies into child feeding practices. This work was completed in nine developing countries, and in two U.S. cities with Spanish-speaking migrant populations.

In order to do this we developed a field guide (The Protocol, see Appendix C) for the anthropologist: an investigation of maternal/infant behavior involving the women themselves in the process. It was designed to allow the women to describe their actions and attitudes, conjecture on the future direction of their lives, and suggest the kinds of programs related to improving the health of their children which they would find useful and acceptable.

Our study departs from the usual practice of collecting data in clinical or hospital settings by medical personnel not personally known to the women involved. The Center's approach was to reach the mothers in their home environment under normal conditions and to have people familiar to them record their everyday life experiences.

Because of the sensitive and intimate material of the subjects discussed, only female anthropologists familiar and accepted by the people in the communities and cities in which they worked, were contracted to obtain the data. Traditional anthropological techniques were used to collect supporting ethnographic data and, there was also a review of all secondary data relevant to the community to the women and to breastfeeding.

In addition, there was a follow-up in-house workshop at The Center with eight of the participating anthropologists, a three-day review of the data by four consultants, an International Conference on Human Lactation co-sponsored by the New York Academy of Sciences, and, a one-day workshop with thirty of the Conference participants.

While the central purpose of the grant was to obtain data on current practices, The Center also developed guidelines and a framework for an action plan. It contains a comprehensive methodological approach for developing and carrying out activities to improve breastfeeding and weaning practices in developing countries.

THE CENTER'S WORK

An outline of the various stages in the implementation of the project is now reviewed. A more detailed review appears in Appendix B.

- The Center undertook a study of the status of breastfeeding, weaning and the cultural patterns surrounding them in eleven different cultural settings by eleven anthropologists. The program used only female researchers who were known and trusted by the community and were thus, the most logical candidates for obtaining this sensitive data.

- A Protocol was developed to aid the fieldworker in collecting data on the behavior of the mother, infant and other members of the family during the early stages of reproduction, especially in regard to breastfeeding. The study was aimed at reaching breastfeeding mothers in their normal environment.

  Designed as an open-ended guide rather than as a questionnaire, The Protocol format and field instructions encouraged the collection of any and all relevant data by omitting the restrictions and rigidity inherent in a preconceived set of queries. The logic of this approach was to permit the fieldworkers to obtain data beyond the confines of a rigid format.

  The Protocol was designed to produce data which is exploratory, insightful and interpretive. The credibility of the work rests in the validity of the Protocol and the methods used by the anthropologists in collecting the ethnographic material. Because of the limited sample, it was not expected that we would come up with results where the reliability was dependent on quantitative data.

  We intended to uncover the unique, personal level of experience. We were careful to point out whenever the data were intuitive and not to extrapolate human universalities from these initial studies.

  On the other hand, the primary motive for using this approach was to reveal the meaning of women's actions rather than only report about them.

- Other relevant factors, particularly the economic and social framework of the community and the effect of changing socio-political conditions, were studied as a background for interpreting the informants' statements.

- Two support studies were included (Appendix D) One reviews the major trends in public health, and the other offers an overview of the economic factors which affect breastfeeding. The rationale for undertaking these studies was to help the project analysts put the research data within a broader context of health and economics.

  Short abstracts of the public health and economic studies follow this section.

- Field work for this project was conducted in Jamaica, St. Kitts, Trinidad, Spain, Sardinia, Egypt, Nigeria, India, The Philippines and the United States (Houston and Miami).

- The Project Director made site visits within the U.S. and overseas to all but three of the field settings. These visits provided a firsthand broad overview of all of the cultures and helped to identify similarities and point out differences. The visits also enabled the Director to provide technical guidance and to work with the ethnographer to make revisions appropriate to her field situation.

- Center staff made an analysis of the current literature on breastfeeding (Appendix D). A bibliography of this report is published in The Center's special issue of The Lactation Review (Appendix F). A brief abstract of this work follows this section.

- Center staff and eight fieldworkers participated in a three-day workshop to share data and make a preliminary review and analysis of the ethnographic work.

- Center staff and four expert consultants in pediatrics, economics, nutrition and public health took part in a three-day workshop to analyze the ethnographic reports.

- The Center co-sponsored with The New York Academy of Sciences, an International Conference on Human Lactation the first week of March, 1977. Forty-five researchers presented papers relating breastfeeding to the areas of their particular expertise. Abstracts of each of the papers were published in a special issue of The Lactation Review (Appendix F).

- A special workshop was held on the fourth day of the International Conference to consider many of the issues raised and

to draft recommendations for possible future action by AID. The original reports from workshop participants are attached (Appendix G).

- A video documentation of the highlights of some of the work of The Center during this program was produced.
- A final review of all of the above steps was made before writing this report.

MILK IN FOREIGN AND DEVELOPING DAIRY INDUSTRIES IN THE THIRD WORLD
by Wesley Cohen.

The inclusion of food as part of USAID programs to Third World countries dates from the Marshall Plan era in 1954, under the U.S. Congressional Mandate P.L. 480. The dollar value of food aid declined during 1961-69 and, though it rose dramatically after 1970, price increases reduced its real value in 1974, to less than half the 1964 value.

So, the U.S. was giving less total aid in 1974 than in 1964. It gave less food aid (in current prices) in 1974 than it did in 1960.

Dairy products averaged about 8 percent of total U.S. agricultural aid between 1954 and 1974. Skim milk represented a little more than half the U.S. dairy aid (by dollar value) between 1954 and 1966, jumping to 75 percent after that period and rising to over 90 percent of all dairy aid in recent years. About 300 million pounds were shipped each year between 1967 and 1972, with a fall off to 65 million pounds in 1974 after the Viet Nam War ended.

The amounts of food and milk aid available depend upon the level of surplus stocks. Weather and agricultural price supports also explain the level of output. Surplus milk is given away through aid programs and export subsidies are provided to commercial milk exporters.

World milk prices rise and fall accordingly. Surpluses are sometimes used as cattle feed. Such fluctuations in the surpluses and the export subsidies levied in developed countries have an arbitrary impact which leads to an adverse effect on dairy industries in Third World countries.

The Center was interested in examining the ramifications of the development of a national dairy industry as an alternative to the importation of milk from multinational milk companies. The research showed the question to be complex. Many factors affect the life and milk production of cattle. For example, thermal stress (the impact of heat) in tropical areas can decrease the amount of feed consumed and, thus, the volume of milk. Food intake, actually the most critical variable, is also affected by other elements. Rainfall and soil conditions, for instance, contribute to the amount of feed available to cattle. Dry seasons in vast areas of the subtropics reduce the edibility of pasture grass and have a correspondingly negative impact on milk output. Natural grasslands as a whole are usually not practical for commercial dairying, although they can be improved by the use of fertilizers, good management and specific varieties of grass.

Several researchers suggest that the semi-arid grasslands can be greatly improved in parts of Brazil, Colombia, Mexico, in Africa between 8° and 15° north latitude and between 18° and 30° south latitude, and in India between 10° and 20° north latitude. At the same time, they conclude that the prospects for the development of dairy industries are not particularly good in the wet-dry areas of western Central America, northwest South America, upland Brazil, south central and eastern Africa, and in most of India and southeast Asia.

In other words, the future does not seem to hold out much hope in large parts of the Third World for replacing commercial milk imports with local dairy output. These ecological factors are further complicated by the widespread presence of disease and parasites that directly attack cattle in many developing countries.

On the other hand, dairy farming can and does pay in some countries. Though it appears that non-mechanized small scale operations based upon stall feeding do not bring adequate revenue for a family nor a competitive profit rate on invested capital, dairy enterprises based on pastures do appear to be viable when a minimum of five acres of good land is available. Thus, generally a farmer can realize a sufficient income if the operation is of medium size with a relatively intensive use of labor and a viable investment of capital, given land and cattle breeds of adequate quality. There is clearly a range of technology which allows for a competitive return on capital invested. In fact, the literature suggests that the viable enterprises would generally demand a level of investment which would clearly exceed the resources of the vast majority of farmers in developing nations. Such a level of investment could only be provided by private multinational investors or state enterprises.

THE RELATION OF PUBLIC HEALTH PRACTICES TO BREASTFEEDING by Karen Gordon.

The synergistic interaction of infection, disease, and malnutrition constitute major health problems affecting the whole community, but they have the greatest impact on children under five years of age. Of the 500 million children under the age of five years, 400 million live in the developing countries, and it is in this area that 97 percent of all deaths in this age group occur.

Severe malnutrition among children, particularly protein-calorie-malnutrition (PCM) has been recognized as a universal problem and the consequences has been high infant morbidity and mortality.

In fact, in a joint FAO/WHO report on infant mortality, it was estimated that some form of malnutrition is directly or indirectly responsible for at least fifty-two percent of identified cases. In many Third World Countries less than fifty percent of the children reach the age of fifteen years. In Latin America, for example, statistics show that over half the deaths occur in children under five years, the significant proportion occurring among children after the first year of life.

An example of a major public health problem related to feeding practices is weanling diarrhea. Studies in India illustrate how malnutrition and infections act synergistically to produce this syndrome. The epidemiologic features regarding the extent of weanling diarrhea indicate that a high incidence occurs among infants during the transition period from breastfeeding to a mixed diet. The weaning period produces an increase in exposure to infectious agents and possibly a decrease in immunity. Control of diarrhea represents a complex picture of inadequate water supplies; contaminated food containers, poor sanitation, limited medical care, poverty and a slowly rising economy. In fact, most infant health problems can be described as social and economic in origin.

Weanling diarrhea and other nutrition-related syndromes contribute to susceptibility, incidence, severity and length of infection and illness in infants. The danger from measles, which has a high incidence in urban and rural areas, occurs when secondary factors such as upper respiratory infections, tuberculosis, whooping cough, or enteritis are present. Intestinal parasitic conditions also have a significant impact on the development of anemias. These diseases are largely preventable. Epidemiological field studies in rural Guatemala, for example, point out that regardless of availability of medical care, the incidence and intensity of diarrheas and respiratory infections are largely related to the quality of environmental Canadians, especially poor water and inadequate sanitation.

Control Measures

The source and spread of infectious diseases can be reduced when clean water is accessible to households and when hygienic storage facilities are maintained.

Immunizations against certain childhood diseases have been demonstrated to have a significant impact on reducing the incidence and severity of other infections. In many countries immunization campaigns have been carried out, but the overall long-term effectiveness has been limited, despite the argument that immunizations represent the most cost-effective public health measure in infant disease prevention. The incidence of malaria is highest among infants and children one to four years of age and persons over 40 years of age (Morley, D. 1973[1]. Outbreaks are shown to be lower during periods of mosquito eradication campaigns and rising economy levels.

The most effective immunization measures for infants are breastfeeding, DPT and BCG vaccines in early infancy and the integration of immunization activities into already established maternal and child health programs/clinics.

Health and Medical Care Services

Difficulties in delivering health services fall into five general categories.

- Use and organization of resources.
- Cost of providing services.
- Consistency of service delivery.
- Access and coverage.
- Degree of community participation and lay involvement in decision-making.

Within the health sector more emphasis is being placed on primary,

family-oriented health service by...

- extending coverage of preventive-oriented primary care services. One approach is to place greater emphasis on training and employment of midwives as village level health workers.

- extending existing primary and secondary care facilities through better management practices and use of existing services provided through traditional/local systems of care.

- improving the geographic, economic and social aspects of the service, for example, through mobile health teams. The "under-five" clinics and mothercraft centers located in many developing countries are examples of services being organized and delivered on a decentralized primary care level.

- planning programs and activities that will help create a balance between curative care and public health services such as health education, environmental health, and economic community development.

The health and medical service sector is only one component in the improvement and maintenance of infant health. Though essential for acute and severe conditions related to malnutrition, clinical and curative care tackles only a small portion of the affected population. Recent program developments within international agencies providing bilateral and multilateral assistance in the health sector are focusing on integrating "health" with other development programs in education, industry, and agriculture.

There is a need to emphasize the role of infant feeding in training programs for primary level health workers. Both supplementary foods and breastfeeding need to be considered within a complex of national public health policies, and infant feeding should be placed in a complex of infant growth and development.

Breastfeeding: a Critique of the Literature by Elisabeth Cole

This critique will focus on the worldwide trends in breastfeeding, weaning practices and the relationship between infant feeding practices, morbidity and mortality. It will not cover the physiological aspects of lactation, the uniqueness of human milk, the psychological dimensions nor the contraceptive value of lactation.

This survey and evaluation is based on over three hundred-fifty published sources. It will focus on the problems encountered in the use and analyses of the data, point out some of the difficulties and make recommendations as to the optimal methodology which would be useful in future studies.

A most serious problem in the literature is the fuzziness of the terminology. Take the word "weaning." A child may be weaned from the breast (which implies the termination of breastfeeding) or may be weaned onto an alternate food source (which implies the initiation of supplementation). Weaning is not an event, but a process. Studies should specify the beginning and the end of the weaning process.

Equally troublesome is the term "breastfed" and "breastfeeding." Some research distinguishes between wholly and partially breastfed infants, while others do not and a third group do not define these terms at all.

There is an urgent need for a generally accepted set of definitions and for the researcher to mention whether the point of reference is the mother or the infant.

To help correct this situation, this writer suggests that "weaning" be separated into two primary usages: the first referring to the gradual process of removing the child from the breast, and the second referring to the process of introducing solid foods into the infant's diet. In order to avoid confusion, the term "beikoating" should be used to refer to the transition from a liquid diet to a solid diet in infants.

There is a lack of understanding of scientific method. Only a comparatively small number of studies make use of proper methodology in sampling technique, research design and in the handling of statistical data. Thus, it is often impossible to replicate the study or validate the results. Often the investigator is only interested in proving a point. Many studies are purely impressionistic.

While data on changes in worldwide infant feeding practices is incomplete, some trends seem to emerge from the literature. Breastfeeding is no longer universally practiced and in many developed (Western) countries it occurs in a minority of cases and for severely shortened periods of time. There has been a dramatic decrease in the U.S., Poland, the U.K. and Sweden.

Attempts at altering this trend by using medical personnel resulted in a larger number of women initiating breastfeeding but they did not continue this function following discharge from the hospital.

In developing countries duration of breastfeeding has been most drastically reduced in urban areas, moderately reduced in semi-urban areas, and least affected in rural areas.

Many different factors have been implicated. For example: women are working, the support needed to breastfeed is lacking, there are very few doctors experienced in the management of breastfeeding, many hospitals do not encourage breastfeeding, there is a cultural bias towards bottle feeding, women fear that breastfeeding will alter the breast shape or interfere with the resumption of sexual activity, exposure of the breast will be embarrassing, and free distribution of milk samples and advertisements has led to the idea that bottle feeding is best and the "modern" method of infant feeding.

But, Petro-Sarvarian warns, "...most of these ideas are based mainly on assumptions or 'speculation' rather than on objective findings."[2]

The reasons given why women should breastfeed suggest that it is the natural method, that human milk is the best, purest, safest food for human infants, that it will not create allergies, that breastfeeding is easier than bottle feeding, is ecologically better, fulfills a woman's role as a mother, is good for the psychological development of the infant, helps the new mother lose weight gained during pregnancy, is a contraceptive aid in child spacing and is less expensive than bottle feeding.

The literature deals with the advantages and disadvantages of breastfeeding and introduces a paradox. In developed countries formula fed babies develop as well as breastfed babies and suffer from fewer illnesses.

The relationship between infant health and feeding practices is not clear. Various studies seem to be providing contradictory evidence and conclusions. In any case, the beikoating process is a particularly difficult stage for infants and weight loss during this process often coincides with the very time when the infant is exposed to more pathogens than previously. There is no indication in the literature that there has been any appreciable change in the solid diet of adults or infants, nor is there any evidence to indicate that infant malnutrition has been increasing in Third World countries. This would suggest that the problems of beikoating and malnutrition, at least, cannot be ascribed to either urbanization or Western influence.

Methodological recommendations suggest that researchers...

...take the utmost precaution not to bias the investigation,

...separate a theoretical position,

...develop an impartial question for questionnaires which will not lead to predetermined answers,

...search out the fullest range of alternate hypotheses and of independent variables which might even remotely be construed as causing the dependent variable.

Sample size is also critical. A small population provides far less reliable information than a larger one. Many studies use a small select population to make larger generalisations about the community or even all the world's women. Often already existing data is used where it is not comparable. For instance, in regard to breastfeeding and amenorrhea, the samples used in the various studies are often not similar. Breastfeeding mothers who were not supplementing are compared with women who were supplementing.

Many studies use both retrospective and prospective data without differentiation. The circumstances surrounding the collection of the data are often ignored. For example, in hospitals in the Third World, women are more likely to report behavior they imagine occurs among "Western" women rather than their actual behavior.

Frequent errors occur in the analysis of the data. The "mean" is often used without the standard deviation and, the methodology is not described and, therefore, cannot be replicated. Finally, in the aftermath of a successful piece of research, it is all too easy to become carried away and over generalize the results.

The study of breastfeeding has been treated as an art rather than as a science. Impressions, guesses and estimates may be appropriate conclusions in an art, but they should serve only as the impetus and foundation for research in a science.

FINDINGS, COMMENTS AND POLICY GUIDELINES

Breast milk is unquestionably the safest and best option for infants according to the general consensus of workers in all the health fields. They agree that it offers unequaled benefits to the infant and that breastfeeding is also of value to the mother. Our findings are consistent with this conclusion.

Many advocates further suggest that infant health would be dramatically improved if the global trend towards the decrease in the incidence and duration of breastfeeding could be reversed and if women could be motivated to return to this natural function. We feel this is a simplistic view and that a much broader concept is needed in the attempt to solve the world's infant health problems. A host of other factors affect the health of women and infants and must be considered. The Center presents below those elements which we deem the most relevant. Each of these findings is described, explained and followed by a section of comments and suggested guidelines for policy action.

Poverty and Infant Malnutrition/Morbidity/Mortality

The major underlying cause of infant morbidity and mortality in both urban and rural areas is malnutrition not a reduction in breastfeeding. Under conditions of poverty and poor sanitation, even breastfed babies have high rates of malnutrition, morbidity and mortality.[3,4 Solimano, G. 1977 ICNL*].

In one rural area of Jamaica, the extent of malnutrition was found to be directly related to the amount of money available for food. Helen Fox of the Jamaican Ministry of Health, reports an infant malnutrition rate of 80% where money spent on food was $1 per person per week and no malnutrition when $3 per person per week was spent.[5]

Strong relationships between breastfeeding and decreased morbidity, or, bottle feeding and increased mortality were not revealed in any of the Center's eleven field studies. In the Egyptian village, where infant morbidity and mortality are higher than in the other communities in our study, so is the degree of poverty and the number of breastfeeders.

The field research bears out the general consensus in the literature that women at the lowest socio-economic levels breastfeed the most and that millions of infants live. It appears that the lower the income, the higher the incidence of breastfeeding. But, independent of breastfeeding, also higher is the incidence of infant morbidity and mortality.

There are many other similar contradictions. Some of the poorest mothers have no choice but to breastfeed, while others cannot breastfeed because they must work to survive. Women in both of these situations also have the least amount of supplemental foods. Most poor people spend the major portion of their income on food. But, infant food, even powdered milk, is far too expensive relative to their available funds to be more than a rare purchase (Latham, 1977, ICNL).

In the upper strata of societies where infant foods are safely used and cost is not a factor, breastfeeding does not seem to afford major survival advantages.[6] Immunological and other health factors are not as crucial where sufficient food is available under sanitary conditions.[7] However, health problems associated with non-breast milk foods, such as obesity, are frequently observed where bottle feeding is widespread.

In Third World countries, breastfed babies develop better and suffer from fewer illnesses than bottle fed babies.[8] However, even breastfed babies in poor traditional cultures have rates of mortality as high as 50 percent.[9] And, breastfeeding continued beyond six months without supplementation or with insufficient or inappropriate supplementation, usually leads to malnutrition.[10]

Comments and Policy Guidelines

Infant mortality during the 60s and 70s was greatly reduced in many regions from that of previous decades.* (See Figure I, Appendix G.). But, these reduced rates appear to be leveling off.

Due to the manner in which current medical resources are allocated in most Less Developed Countries, the beneficial effects to infants' health may have reached a threshold. Further improvement will depend on other socio-economic changes including the reintroduction of breastfeeding. We must not be lulled into complacency after reviewing the positive demographic trends in infant mortality as shown in Appendix I. Surprising reversals happen. For example, take the amazing demographic fact that while infant mortality was decreasing, the life expectancy of adult males ceased to improve or in some areas even declined.

THEREFORE, when looking at causes for poor infant health and low survival levels, we must fault the ravages of poverty, not the lack of breastfeeding. And, in looking for solutions we need to include the improvement of public health facilities such as water supply and sanitation. The encouragement of more breastfeeding in such disadvantaged settings cannot be expected to improve infant health without these additional efforts.

The Advantages of Breast Milk

Participants in the International Conference on Human Lactation (ICNL) cite some of the newest discoveries of the advantages of human milk over cows' milk. Gaull (ICNL, 1977) notes that human milk contains less ash content (reducing the demand on the immature kidney); a higher whey protein (which may inhibit the growth of some pathogenic bacteria); less casein (allowing easier digestion); and higher nitrogen compounds such as taurine (important in brain development). Breast milk does not provoke allergic reactions and its presence creates an immunological response which results in a lower incidence of respiratory and gastrointestinal illness (Pitt, J., ICNL, 1977).

Cows' milk supplies more calories and proteins and maximizes growth when high quality food continues to be abundant and the organism is shielded from disease and trauma.

In terms of diarrhea, cows' milk may further irritate the infant's guts, whereas breast milk can have a therapeutic effect. Several long-term effects of cows' milk are currently under investigation (Stini, ICNL, 1977).

The recent discovery of foreign substances polychlorinated biphenyls (PCBs) in breast milk is a negative factor that must be mentioned. Apparently, these substances are secreted from the body only in females, and then solely through the lactation function. Animal studies have shown the potential dangers of this pollutant. Full treatment is given to the matter in the Conference report (Appendix F).[11] David Hall emphasizes that "...although human milk contamination by PCBs has probably existed for 10-20 years, no ill effects have as yet been linked to PCBs...(but)...there have been no studies designed to test for an association between PCBs and breastfed infants (Hall, D., ICNL, 1977)."[12]

Comments and Policy Guidelines

Almost all the studies comparing the physiological benefits of human and cows' milk show how much the composition of human milk is uniquely suited to the needs of the growing infant. But, there is no assurance that human beings will breastfeed even when they believe breast milk is the better food. Nor will they necessarily accept medical evidence describing the negative effects of bottle feeding. Take overfeeding for instance. In areas where there are still vivid memories of malnutrition or starvation, the concept that obesity can be dangerous is usually resisted.

Our fieldworker in Spain reports that a cradle 50cm by 95cm was brought down from the attic and the 12 month old placed in it. His legs stuck out. The grandmother exclaimed in amazement, "But your father was in that cradle until he was two years old and running." The consensus in the community is that excessive weight, far from being a liability, has its virtues, for the baby is fatter, taller, and besides, he or she moves less, walks later and gets into less trouble.

The Advantages of Breastfeeding

Ashley Montagu (ICNL, 1977) points out some advantages of the breastfeeding process, particularly the low protein-fat composition of human

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* Abstracts of the International Conference on Human Lactation (ICNL) are published in a Special Issue of The Lactation Review 2:2.

[6] Infant Mortality Rates Per Thousand. Live Births Under One Year of Age Based on the United Nation's Demographic Yearbooks.

1952	84.24
1962	59.28
1970	47.80

Milk which is well adapted to the regimen of demand feeding. He adds that suckling (from a breast) rather than sucking (from a bottle) makes a difference in facial morphology and in the eruption and occlusion of teeth. John Kennell (ICHL, 1977) reports on research which demonstrates the psychological importance of immediate postpartum mother/infant contact to the development of the affectional mother/infant bond that is reinforced by breastfeeding.

Breastfeeding provides the infant with a maximum opportunity for sensory stimulation. Research with nursing mothers shows that they touch their babies more often than bottle feeders. Keep the nipple in the infant's mouth longer, and rock, sleep or rest with them more often.[12]

Many researchers have reviewed the value of breastfeeding for the infant.[13] But, there are many aspects of lactation which also benefit the mother, for instance, breastfeeding causes the uterus to shrink more quickly to its prepregnant size and tends to reduce the incidence of postpartum depression.[14]

The Lack of Concrete Field Data

The large number of infants who do survive under the most horrendous conditions in low socio-economic settings attests to the incomparable value of breast milk, though empirical studies which would prove this outside the laboratory have not been done. Thomson and Black conclude an extensive study on the nutritional aspects of human lactation with the following statement:

"A considerable amount of work has already been done on the anti-infective properties of human milk and on the prevalence of various infections in fully breastfed and fully bottle-fed infants. There is, however, a need for more information, particularly from developing communities where standards of hygiene are poor. If breastfed infants have few infections, is this due to a protective influence of breast milk or to less exposure to a highly infected environment? Is the prevalence of infection related to the amount and nature of supplementary feeding?...Information on types of morbidity other than infection in relation to infant feeding is so fragmentary as to be little better than speculation."[15] They conclude, however, in light of the existing evidence, that breastfeeding is best.

In general, most studies among either the poor or the affluent do not include as factors in infant survival, hygienic facilities, the presence or absence of refrigeration, the quality of water, the amount of funds available for substitute foods, the need for the women to work apart from the infant, or the amount of support available to the mother during the perinatal period. Therefore, the relative value of breastfeeding and other factors affecting infant mortality is not clear.

Additionally, since the literature does not distinguish between wholly and partially breastfed infants (and there is reason to believe that weight gain, morbidity and mortality are different in wholly and partially breastfed infants), this distinction should be added to all studies (Cole, Elizabeth, ICHL, 1977).

Comments and Policy Guidelines

For the guidance of policy-makers and others concerned with infant health, research studies and action programs, it must be pointed out that breastfeeding is but one of many factors involved. Social conditions such as poverty, poor sanitation, the loss of the supportive kinship networks are all interrelated. Persuading mothers to change any one factor will produce some improvement but leave a great deal still to be accomplished. WE RECOMMEND, therefore, that future studies take into account the multiplicity of factors affecting infant health.

To Breastfeed or Not

We sought to learn why mothers are breastfeeding less and what is changing at the very core of their lives to disturb the traditional relationship of the "breastfeeding pair." We were not content with the commonly repeated ideas that Third World poor women are ignorant of its benefits. As noted by Petrozarvasian, "The stated reasons for the rapid decline of breastfeeding in many countries appear to be based mainly on assumptions or 'speculation' rather than on objective findings."[16]

In our field studies we find that women are acting out of both necessity and choice. They are not motivated to breastfeed solely to improve the state of their infants' health. They act in accordance with their own needs or opt for a pattern of behavior which is consistent with their life style. Unfortunately, for so many women this is a way of life only slightly above a mere subsistence level. In none of the cultures studied did we find a method of infant feeding which did not fit logically into a broader cultural pattern.

Women are moved to maximize their children's health within a social context that ultimately determines their choices. In other words, they do the best they can in situations which are often untenable. Women do express feelings of satisfaction, even pleasure, about breastfeeding, but poverty and the pressures of a life style which cannot support breastfeeding take precedence.

A woman in the Trinidad study commented, "If you want to breastfeed people will quarrel with you. They will be jealous that you're sitting down when there's work to do. If you want to get along, you have to be on your feet all the time. Therefore, you have to get the child on the bottle as soon as possible so that the grandmother or someone else can feed it, other children, even men will hold a baby and bottle feed it. But you have to play a humble role. That is, take up the work that has to be done and do it."

And, from Jamaica, "What appears to be the real problem in Kingston is that the whole daily life experience, the whole quality of life for a woman doesn't allow her so much time to just sit with one child. Whether she is actually employed in labor or not, she has many other obligations in order to make her life go on."

Comments and Policy Guidelines

THEREFORE, we should not expect that a little education on the subject will produce a turnabout in practice, nor that women will be convinced to breastfeed to improve their infants' health simply because others say they should. We repeat our plea for an openness, a consideration of the whole life pattern of the women under scrutiny before we tamper with their lives.

Weaning and Mixed-Feeding

We uncovered great confusion in the common and scientific literature about weaning. "Weaning" has variously meant the change in infant feeding to liquids, or to solids, or the beginning and end of either process, as well as the period between. It has even been used to describe a move off the bottle and onto solid foods. And, as Fox found in Jamaica, "Bottle feeding usually does not mean formula feeding. The container is variously filled with bush tea, fruit juice, diluted porridge, condensed milk."[17]

We have suggested the use of the phrase "mixed-feeding" (See Appendix F.) to describe the action or feeding of any foods in addition to breast milk. The word "weaning" could then be reserved as a general term defining the gradual process of removing the child from the breast onto other foods. The term "boiknating"[18] has been used in the literature to mean the change from liquid to "solid" foods. We agree with this usage.

Most of our fieldworkers agree with the general observation that complementary foods are usually increased at around four to six months in response to a tapering off of the mother's milk supply, or when the supply appears to become insufficient for the developing child.

This phenomenon has been attributed to the quicker emptying of the breast and the reduced stimulation of the endocrine system brought about by a reduction in the amount of time the child actually spends suckling at the breast.

Women in our studies also picked that same six months of age as the most dangerous time for infants. They refer to it as the "teething time." It is, of course, also when foods and fluids are insufficient due not only to less breast milk but to the lack of adequate supplemental foods. The highest child mortality rates occur during and after this "weaning" period from six months to about two and a half to three years of age (Ghosh, S. 1977 ICHL). We reexamined the earlier data which attribute infant morbidity at six months of age to reduced or no breastfeeding but could find no causal relationship.

In fact, there is a higher mortality rate at this time irrespective of the presence or absence of breastfeeding.

Our worker in the Philippines examines some possible causal factors, "In my village, infant mortality has gone down sharply but I don't think that morbidity has necessarily decreased. These children grow up and exist in a highly contaminated environment and this hasn't changed significantly.

The environment remains a great problem for children. Ways of dealing with health crises have improved, so medical intervention has brought the mortality rate down, but the major disease-causing factors are still there. They haven't changed."

Researchers have said that even a small amount of breast milk increases the infant's chance for survival especially during bouts of diarrhea. We suspect they are correct but cannot produce studies which show this to be true in the infant's normal environment. Most research is based on assumptions about the quality and amount of breast milk and other foods described retrospectively by mothers in answer to very structured either/or questions. Patterns of mixed-feeding do not show up in these studies.

On the other hand, some breastfeeding with supplemental foods appears to almost double the amount of value in these foods. According to Moises Behar at WHO, the infant can utilize 50 percent of the protein in corn when eaten separately whereas when a small amount of breast milk is added, as much as 90 percent of the protein can be digested.

In many of the Center's reports women mentioned their custom of breastfeeding after they returned from work and often throughout the night. This common practice is usually not accounted for in most studies which purport to accurately differentiate the women who do or do not breastfeed. Many mothers do not believe that their children get much milk from this night feeding but we suspect that its effectiveness may be more significant than the amount ingested.

Sometimes the mother is so weighed down with work and the care of other children she does not have the time to cajole the child to eat. A mother in Mysore told our fieldworker, "The child refuses, won't eat soft rice every day and we have nothing else."

The absence of a weaning doula (Raphael, D., See Definitions, Appendix F) has been noticed particularly in poor urban areas where migration and a poor minimal family structure exists. During the Project Director's visit in Trinidad a mother reported of her three year-old, "He just want bottle until his papa come home. Then he eats from papa's plate."

Comments and Policy Guidelines

WE SUGGEST that concrete data on the process, dangers and effects of weaning have not been adequately researched. They are vital to our knowledge of infant health and, therefore, WE RECOMMEND investigation of weaning practices based on intensive field observations.

There is sufficient practical and commonsense suggestions from researchers to indicate that even some breastfeeding is beneficial. Therefore, WE SUGGEST that breastfeeding be encouraged as a valuable addition to the infant's health even if it is considered a supplement to other foods or practiced just at night. Reinforcing this type of mixed-feeding should be a part of all action programs described in this report.

The Dairy Industry - National and International

In developing countries even where the climate is suitable and dairying is a viable industry, there is never enough milk to supply sufficient weaning or supplementary foods to the population in need. Often there is insufficient land for growing grain and the desire for meat on the part of the middle classes prevents using the limited resources for increased milk production (McDowell, H. 1977 ICHL). The mounting demand for milk by the urban population further intensifies the disparity. For example, in the areas surrounding Bombay where dairying is successful, the milk is not available to the needy infants in the villages because the farmers get more income by selling the milk to urban buyers.

Likewise, national efforts to develop weaning/supplementary foods have produced few successful products that are acceptable, nutritious and cheap enough to be available to the needy. The free milk and high protein blends provided under the World Food Program and PL 480 cannot be expected to do more than reach the tip of the iceberg, buying time in the most urgent situations.

Margaret Mead suggests, "We need to enlist the multinationals on the side of sensible supplementation of breastfeeding...to develop good weaning foods that save children's lives instead of a kind of wholesale supplementation that doesn't work (1977 ICHL)."

Abbott Laboratories has recommended the formation of an objective independent multi-disciplinary group of scientists to investigate what is sound and what is not in the breastfeeding research. They also recommend the education of the poor mother who cannot afford proper weaning foods as to the best best weaning food; the development of local nutritious foods in rural areas; a sensitivity to the plight of the urban poor mother by those in power; an emphasis on the need for increased resources for in situ technology; a knowledge and consideration of the cultural taboos; and, the integration of the weaning food problem into existing services and organizations (McCollough, T. 1977 ICHL).

Reminding us not to get locked into a "breastfeeding only" approach, Nakin noted that efforts to improve the safety and reduce the costs of bottle feeding may make a more significant contribution to child health and nutrition than campaigns to increase breastfeeding or control commercial advertising (1977 ICHL).

Our own research reveals that the extent of milk company advertising and promotion was correlated with the level of modernization/urbanization and a lower incidence of breastfeeding, but that although significant, the presence of advertising could not be singled out as the primary cause for reduced breastfeeding.

Milk advertising is present everywhere in the Caribbean, but our fieldworker did not agree that eliminating it would solve the problem. From her observations in Trinidad, our ethnographer notes, "Taking the milk off the shelves is not, in itself, a solution because the mothers aren't buying the milk just because it allows them to indulge in other activities. Unless we give them a reason--a way --to be able to stay home and breastfeed, we can't blame advertising for making people buy milk. They've had milk shortages (but) that doesn't increase breastfeeding. When the milk is gone, they'll use something else."

And, from Jamaica, we hear, "The basic problem of whether or not to use a bottle as opposed to the breast, involve many, many decisions and many of these are outside of extended family living. If the mother is going to sit down and breastfeed, then someone else is going to have to get up in her place and chase a cow or do something else."

Comments and Policy Guidelines

McCollough reminds us that the USSR with a high level of modernization and no advertising has just contracted for a huge formula manufacturing plant (1977 ICHL). Advertising techniques of the multinational corporations probably exacerbate an already existing problem, but to credit them with superhuman influence and power is to put down the intelligence and humanity of the mothers.

Though efforts to develop local supplementary/weaning foods have been fraught with difficulties, ultimately locally produced foods must be the answer. In the interim, women who can afford to rely on the available commercial milk will buy it even when it requires a sacrifice and a major portion of their income. Therefore, WE SUGGEST a continual dialogue with the dairy companies to obtain their cooperation in developing weaning foods by sharing the valuable infant food technology they possess. At the same time, we must continue to press national governments to earmark resources to develop local weaning foods and make them available at low cost.

Supportive Networks - Basic Needs and Cultural Factors

The absence of family members or other concerned persons who can help the new mother with her physical and emotional needs during the perinatal period is highly correlated with the reduced incidence and duration of breastfeeding (Raphael, D. 1977 ICHL). This support after childbirth enables the mother to establish the ejection reflex which is essential to lactation. The supportive person (called doula when performing this function) is usually a woman. There is a preponderant preference throughout the world that she be the mother's mother.

Her role is to care for the mother and infant's immediate needs. Her presence "permits" a mother to breastfeed. Even if the distance between the newly delivered mother and the woman who can best assist her is but a few miles, if she cannot afford a telephone or the transportation costs to bring that person to her, breastfeeding is most likely to fail.

Often, particularly in towns and cities, a women may be without assistance for her basic material

needs--clothing, shelter and food--which her village family and kin would have provided at the critical time of childbirth. Though physically able, without someone else assuming the provider role, women often cannot produce sufficient milk (Gussler, J. 1977 ICNL).

Substitutes for kin support are possible. In the U.S., support groups (La Leche League) "fill-in" for absent relatives. In China, even though the culture is undergoing rapid change, the community assumes the supportive role and sees to it that the woman is cared for (Chung, A. 1977 ICNL).

In our field studies we found a high incidence of breastfeeding where migration was minimal, where traditional institutions had not yet been modernized, and where support networks were still strong and intact. However, there are signs of trouble ahead. In the traditional Egyptian village our ethnographer noted that "...in rural areas, the network of support is decreasing in the sense that women are complaining that their kinswomen are not extending the help and the services that they did in the past."

And, in a Mysore village it was observed that Indian women now "...get more assistance from their husbands but the rural men can claim no expertise to advise one on breastfeeding as the elderly women can do." Thus, there is a breakdown in the support network which was very much alive in the recent past. In the absence of a grandmother, the eldest daughters in the 8 through 14 years of age group are playing important supportive roles...(but)..."...daughters above the age of 14 will themselves get employment and wages."[19]

Comments and Policy Guidelines

WE, therefore, SUGGEST that field-workers and policy-makers be guided by the extent to which women have a full or partial supportive system in determining whether they can or cannot breastfeed (Raphael, D. 1977 ICNL). The presence or absence of these support networks are reliable clues as to the level of integration of a culture. WE also SUGGEST that health workers in the community could play supportive doula roles for new mothers where such persons are absent and in doing so enhance the lactation function.

The Effect of Migration on Breastfeeding

In the last few decades, many appealing factors in urban areas have been attracting rural inhabitants overflowing the towns and emptying the countryside all over the world. Young adults constitute the majority of the migrant group. Many are single women.

These "new" arrivals quickly form relationships and bear offspring. In this new urban setting they must care for the newborn without the support of protective kin or the benefits from the attention given a new infant in the traditional rural community. This lack of supportive relationships especially during maternescence,[20] when a woman first assumes the mother role, bode ill for successful lactation.

Most women in our sample, once involved, prefer the new amenities of urban life and give every indication of wishing to move even further away from the traditional culture. The availability of better living conditions, paltry but present health services, a varied diet, a release from kin obligations, a variety of stimuli, or a potential or actual schooling for their children and improved status for themselves and their children--all influence their decisions and color their compromises.

Though a woman's responsibilities often double, and this life style puts pressure on her to work, she still opts for the new way of life. Obviously, some aspects of her daily routine must be eliminated to permit time for this work. Breastfeeding is often an early "casualty." Even if she wishes to breastfeed she cannot give as much time as it requires. Though the actual feeding time is short, one must remain available for that process. So, since she must contribute to the family income (frequently all alone) or is the sole support of herself, her infant and perhaps other children, it becomes difficult if not impossible to breastfeed.

Additionally, because major emphasis must be placed on obtaining sufficient cash to survive, the new arrivals take whatever shortcuts they can to minimize the time spent on the routine of child rearing.[21]

There is also a move toward individual achievement in the urban family, which is no longer under the restricting confines and responsibilities of the traditional family. As the integrity and integration of the larger kin group breaks down, the significance of family ties change. Obligations to the group become less important. Cousins and aunts no longer see the value of the newborn in terms of their own future and so they become less willing to invest time and energy in the infant's care and survival. In this commonly seen pattern of social change, the circle of kin who are vitally interested in the infant shrinks from the community or kin/clan group to the extended family, then to the nuclear family, and finally to the mother alone.

(We have shown above that as support networks shrink or are eliminated, so is a mother's ability to breastfeed.)

In Nigeria, when trying to explain why they are breastfeeding less, some market women reminded the Project Director that they needed the extra time not breastfeeding to organize and work for food and other things for themselves and their older children.

Comments and Policy Guidelines

In areas where migration is a continual and old pattern, we reckon that very soon there will be a sufficient number of supportive kin gathered in the urban center to re-establish the network necessary for breastfeeding success. We must learn how to use them. If the breastfeeding know-how has been lost, a new pattern must be invented. For instance, fifty years after breastfeeding started to disappear in the U.S., supportive groups like the La Leche League came into existence.

There are some indications that a slowdown (though not a stop) may occur in the migration flow. The growing burden of debt in the developing countries, exacerbated by rising energy prices, is severely hampering industrial expansion. In response to this, comprehensive rural development programs are receiving increased attention in an attempt to counteract this rural to urban move. The objective is to extend agricultural production, the number of support industries, cottage industries and social services. Breastfeeding programs could fit smoothly into this broader plan (Gaynes, B. and L.O. Hale 1977 ICNL).

The Slightly Better Off

One of the more puzzling aspects of this study was why women who have a choice, who do not have to work to support their family and who could breastfeed, do not. These women have sources of support, usually a husband, for the life-sustaining economic needs of the family, and yet, they choose to work, or choose not to breastfeed and not to work. While interviewing women during this project it became clear that some women did try to breastfeed but their family relationship did not include a doula and they failed. This did not, however, explain why those who were economically comfortable and even had their own mother living with them, chose not to breastfeed.

Their motivations stem from a desire to provide additional cash income for themselves and their families or to make themselves available for a life style which excludes breastfeeding. The desire to make life a little bit more comfortable, over and above the basic subsistence level, overrides many other seemingly rational decisions.

Comments and Policy Guidelines

Even though AID programs will focus on the least-cared-for portion of the population, it behooves the Agency to understand the behavior of the slightly better-off income group as well. WE SUGGEST that there is but a small economic step between the very poor and the next socio-economic level where breastfeeding is rapidly reduced. Thus, AID and national policy makers would do well to explore the motivations and life style of this group who are next in line for changes which affect breastfeeding.

Placing Women in Proper Focus

Even though the phenomenon of breastfeeding includes a "nursing couple," the individual most frequently targeted as the focus of concern is the infant. This is justifiable in view of our heightened awareness of the enormity of the worldwide problem of under- and malnourished children. But is it the best approach?

Gopalan[22] commented recently that prior to the last two decades "... we used to talk of maternal and

child health. The mother was always considered to be somewhat important. I find that with the emphasis on the pre-school child, the mother has been pushed into the background. She is illiterate... we have tended to treat the mother as an outcast, somebody who cannot be trusted. We have been more or less concerned with the mechanics of the feeding operation. The mother is nowhere in the picture...is not motivated...has not been educated. We have tried, in other words, to short-circuit the mother."

A glance at the graph in Figure II gives an idea of the burden carried by the 20-40 year old female population in the LDCs. Often with minimal support, especially among migrant women, they are almost totally responsible for themselves, all the children, the older people and most men, particularly in regard to feeding, clothing, health, education and, of course, breastfeeding.

Solimano has observed, "There is a lack of demonstrated causes for the reduction in breastfeeding since the emphasis has been on the infant while the circumstances of the mother have been overlooked (1977 ICNL)."

Hakim suggests that we must investigate what women do, how they perceive what they do, and how it all relates to the other demands on their time and to their calculations of "best interests" for themselves and their families (1977 ICNL).

We must consider what Butz[23] calls the competing uses of women's scarce resources which are her time and her own physical stock of nutrients. The competing uses of those resources include such activities as sleep, work in the home and field, carrying water and firewood long distances, work in the labor market, social activities, reproduction and breastfeeding.

Therefore, as an infant food, mothers' milk is not costless even when we take into account the value of breastfeeding as a method to prevent conception.

A woman's time spent earning money for her subsistence, for the extra nutrients required to adequately lactate, and for the food needed to feed her other children, must be added to the equation.

Comments and Policy Guidelines

WE SUGGEST that "targeted female populations" (an unfortunate phrase) should include all poor rural and urban women, and that we not view them as important only while serving as a vehicle or food supply source for their progeny.

It is the women who must be convinced or motivated to make the decision to maintain breastfeeding. THEREFORE, mothers, not the infants themselves or others who care for them, should be the focus of concern. We must gain insight into what women are thinking and learn from them which solutions might work.

Thus, WE SUGGEST the "real" cost of breastfeeding and the emotional and financial loss of not breastfeeding should be a part of current research programs.

Women's role - Private and Public

Women's orientation is changing rapidly (and universally) from a traditional way of life to a more urban, modern and Western milieu. Whether or not a woman is part of the massive migration move towards the urban centers, she is influenced by them though her urban sisters who experience them directly. The migrants frequently return to the village bringing the urban customs with them.[24] They make the stay-home family increasingly susceptible to innovation. This process of spill-over of urban values easily affects breastfeeding practices in rural cultures.

Urban forms of social organization change the integrated, domestic and economic production activities which belonged to the traditional "private" household sector and separates them into two spheres--public and private.[25] Usually these activities are shared by both parents. However, where only one individual assumes this responsibility, as is clearly the case in the poor urban shanty towns of Manila or the hutments near Bombay, both spheres must be assumed by the same adult and the basic subsistence aspects of the public sector take precedence. Breastfeeding is but one aspect of the domestic scene which suffers.

Along with the change of family structure from a network of kin to the nuclear family unit, there is a change in the focus of a woman's primary concern.

In the traditional setting a mother focuses most of her energy on the infant and the whole social group supports her. In the more isolated, scattered, nuclear family structures, a woman turns her energy and concern towards her partner, who is, in fact, an important source of support. Her present and future depends far less on her family than on her own efforts and the commitment of her partner.

Field notes from Jamaica explain one aspect of this behavior. "For some it depends on how the woman sees herself and who she is really identifying with. This often depends on her man because she usually identifies where he does."

Our fieldworker in discussing the Sardinian shepherd village reports, "I think the main thing we have to do is to find out what there is in it for the women who are breastfeeding. What they get out of breastfeeding.

We have to find out their own attitudes, their own values, and their own feelings. And then address ourselves to helping them develop these feelings...we have to find out what is satisfying to the women in breastfeeding and encourage that. For example, men and women in my village both spoke of the fact that there is a bond created between mother and infant. A close bond that endures for life if the breastfeeds the child for the first year. Something comes through the milk, it's connected with the blood, it's an emotional tie between mother and child. If we could get more information about these emotional satisfactions and rewards from breastfeeding, then we could start to encourage breastfeeding at the basis of those attitudes, not imposed from outside. I don't think that'll work.

Family sleeping arrangements reflect this social change. Our fieldworker in the Spanish mountain village reports that a generation ago the "...the husband left the matrimonial bed and baby came in." This served as a natural method to protect the mother from another pregnancy thus assuring the infant's food supply. "The growing emphasis on the heterosexual pair has changed this arrangement. In this poor mining community there is a trend to move the baby out of bed and even more far-sighted or modern couples move the baby out of the apartment into the grandmother's house for the night."

While the community is in a surge of prosperity, the $75 it costs to supplement the baby's food supply is quite acceptable. But, the researcher warns that such economic success is very tenuous and that the parents of this young couple remember having this amount of money their total year's income.

Comments and Policy Guidelines

THEREFORE, intervention programs must be based on these realities. The aspirations of the women must be a leading factor in determining the choice of technique and program components. And, since women are making the choices, their cooperation and participation in developing programs to modify current behavior is vital to success.

Trust Mother's Survival Wisdom

If considered within specific cultural settings, women's acts and choices are sensible and rational. Take the over-dilution of cows' milk usually attributed to a mother's ignorance. While tactfully probing for explanations concerning the preparation of infant milk, the Project Director watched a Jamaican mother's embarrassment over her illiteracy turn to anger. "I can't read," she said 'but I'm not blind." Mothers provide their children as much of this second-best food as they can, given their desperately limited resources.

Butz notes, "When the social environment changes rapidly, as it does for new urban migrants in the LDCs, there is much learning to be done. However, evidence suggests that traditional peasant farmers learn quickly about the profitability in their own fields or new agricultural technologies and react appropriately, in some cases against the incorrect advice of agricultural extension workers. Why not expect mothers to do as well in another matter of great importance to them...Mothers knew what they were doing in the traditional environment, and they will learn in the new."[26]

Comments and Policy Guidelines

WE SUGGEST that mothers are already acting appropriately in decisions about breastfeeding within their economic restraints. As the cultural setting is more clearly understood, we will see more examples of human wisdom. Studies should be made to test this assumption.

In the Philippines, an Igorot woman reported she had lost three of her

six children and that in the attempt to save their lives the family had incurred their greatest debt.

Our studies show that women were performing amazing juggling feats with their scarce resources and time. WE SUGGEST a concerted effort to learn how their time is really spent before attempting to change their behavior.

WE URGE that mutual communication replace exhortation, and that more trust be placed in the wisdom of the women in the target group. After all, there are two billion of them who are either breastfeeding or making decisions about breastfeeding all their adult lives. And, under the most difficult circumstances, they are performing the human species' hardest job--that of keeping the next generation alive.

The Medical Establishment

A positive attitude and a knowledge of the management of breastfeeding by hospital personnel can be helpful in convincing women to breastfeed. Sloper, et al.,[27] showed that such programs can result in initiating breastfeeding in a larger number of women. However, the number still breastfeeding at three months was not significantly larger than that in the control groups.

A study of breastfeeding practices in Zambia[28] compared two groups of women from the same village. One group gave birth at the local hospital where the staff had received instruction and training about breastfeeding. The other group delivered in their homes under the care of traditional village midwives. The outcome was varied. Only a few of those in the hospital group chose to bottle feed. Those who opted to breastfeed started the practice a few days earlier than those in the second group and persisted when they had trouble with breastfeeding, whereas those in the second group more often gave up. But, the hospital group breastfed for nine to ten months while the successful village breastfeeders continued for an average of 18 to 24 months.

Other studies in urban areas stress the sensitivity of the postpartum period as the optimal time for the development of a mother's affectional bond with her infant[29] and note that close contact during the very first day increases the number of months of breastfeeding (Kennell, J. 1977 ICNL). These findings suggest the need for modifying hospital regimens that routinely sedate the mother and separate her from the newborn.

Many of the women in our field studies complained about the lack of support or encouragement (in fact, the presence of total discouragement) from hospital personnel, but in the context of other information they gave, we suspect that this response held some degree of rationalization. (See Rationalizations Appendix H).

In addition, we have observed that physicians and nurses, no matter how positive towards breastfeeding, find themselves unable to fight the powerful forces which make women reduce the number of months they breastfeed. They are often forced to follow, rather than to lead mothers and to prescribe non-breastfeeding methods against their own judgment.[30]

A similar pattern occurred in the U.S. from 1900 on when even the famous pediatricians, Holt and Spock, fought losing battles with mothers who insisted on bottle feeding.[31]

Medical professionals admit they are not as aware of the normal management of breastfeeding as they want to be. Nevertheless, it is clear (just scanning the miniscule amount of information on breastfeeding found in the medical curricula) that insufficient attention is given by medical schools to the importance and management of breastfeeding. Solimano suggests that a better understanding of the specific types of support needed for successful breastfeeding should be provided to the professionals and the mothers (1977 ICNL).

Comments and Policy Guidelines

THEREFORE, we can safely say that the medical profession does have an influence on women's breastfeeding practices. However, the effect of that message on the kinds of women who choose to go to hospitals for delivery versus women who remain at home is an unknown but important variable. WE SUGGEST this should be given special attention in programs that use this avenue for intervention.

Hospital and clinic personnel need schooling about the management of breastfeeding so that they can assist and encourage women when appropriate. Efforts by hospital personnel to motivate women to breastfeed must not be unrealistic (nor too optimistic).

WE also SUGGEST that attempts to influence women should utilize the help of traditional healers and local medical practitioners who might be effective channels and excellent bridges to those women who do not attend clinics and hospitals. Contact with healers and a knowledge of their practices might be used to give credibility to medical messages.

Maternal Nutrition

The human body appears to be far more efficient during lactation than during pregnancy. Rajalakshmi (1977 ICNL) found in Baroda that even poorly nourished women are able to provide the quantity and quality of milk necessary for satisfactory growth in their children up to six months apparently without jeopardizing their own health. However, the effects of maternal undernutrition during the lactation stage can take its toll when these women again become pregnant. Undernourished women have a far greater chance of delivering low birthweight infants who, in turn, are less likely to survive.[32]

Comments and Policy Guidelines

THEREFORE, women's nutritional status, especially during pregnancy, must be protected as a precaution against infant ill health (Grewal, T. 1977 ICNL).

The Contraceptive Value of Lactation

Rose reviews the data on the longer stage of amenorrhea in lactating versus non-lactation women and the extended protection from conception in the former group (1977 ICNL). In the Less Developed Countries he estimates that lactation is responsible for more years of protection from conception worldwide than both official and voluntary planned parenthood programs together. One estimate was that breastfeeding provides 35 million couple years of protection annually, while family planning contraceptive efforts provide 27 million couple years of protection annually.[33]

Population researchers have found a high acceptance rate of fertility planning in the immediate postpartum phase. And, according to Rose, the desire to breastfeed increases that acceptance (1977 ICNL).[34]

Researchers are also suggesting that the adverse effects of some contraceptive pills on milk production may be avoided by the use of those containing only progesterone, a hormone which may enhance lactation. However, the possible side effects from this hormone need considerable further research.

Comments and Policy Guidelines

THEREFORE, WE SUGGEST the investigation of the relationship between family planning practices and breastfeeding should immediately be undertaken. WE also highly RECOMMEND that sensitive attention be paid to the possible effects of these hormones on women's health.

Exploding the Myths - the Natural Instinct.

During the 19th century it was common to romanticize male and female roles. The "maternal instinct" theory was one piece of this folklore. Women were supposed to be out of control of their bodies and ruled by a head that was flighty and subject to the impulses of the body.

When women were violent, they were called male-like; when they were strong it was considered aberrant. If women gave up their children they were unnatural, when they didn't want children they became dangerous and when they started to do non-natural things like bottle feed, they were "going to the dogs." We have learned in the past decade that some aspects of female behavior are hormonally related, but we have also learned of the important influence of cultural factors. Thomson and Slack[35] comment on this, "There seems to be little evidence that women have a strong 'instinct' to breastfeed, despite the physical and emotional satisfaction that breastfeeding is often claimed to give. Prothero[36] considered that, in a group of London mothers, the establishment and maintenance of breastfeeding was a matter of intellectual conviction rather than of instinctive urge. In Aberdeen, Scotland, very few of a group of primiparae found breastfeeding to be completely simple, satisfying and satisfactory."

Comments and Policy Guidelines

WE SUGGEST, THEREFORE, that the idea that it is natural to breastfeed and unnatural, un-maternal not to, a

notion which subtly permeates the current literature--is not supportable scientifically nor ethically and should be consciously and conscientiously eliminated.

Exploding the Myth - the Loss of Breastfeeding

When women do not breastfeed, no physiological changes occur in the mammary gland which affect their capacity to lactate. Women maintain the ability to lactate even though several generations of mothers do not breastfeed. The lactation function is not affected, nor does the gland atrophy from the lack of use.

Comments and Policy Guidelines

THEREFORE, WE DO NOT SUGGEST spending research resources to explore the reduction of the breast milk supply as a physiological phenomenon apart from the cultural and social milieu within which breastfeeding takes place.

The Nature of Intervention

Three Essential Methodological Characteristics--Participation, Community-Specific Programs and the Integration of Efforts.

Breastfeeding practices are personal matters expressed through varied cultural mores. Thus, we must have an understanding of those mores, combined with a comprehensive view of women's daily behavioral patterns, if we are to comprehend their motivations. Achieving that understanding will require not only the cooperation but the participation of the women we hope to reach. To be effective, that participation must not be passive presence but active involvement. It will be their role to teach whoever will be implementing programs how they themselves look at their problems and what they see as workable solutions.

A mother often has no choice. Social facts mitigate against her breastfeeding. Where there is no option because she cannot afford to breastfeed, cajoling or extorting may produce only frustration and guilt. Where she does have a choice, other drains on her time or limits on her decisions must be discovered. Programmers must be sensitive to these nuances and only the participants can really lead us to the problem source and the possible solution.

An anthropological or social science approach by female fieldworkers will heighten chances for getting the meaningful participation needed for sensitive and effective programming.

Once the cultural behavior patterns have been delineated, they should be looked at within the framework of the socio-economic levels and trends that characterize the community. From the picture that emerges, the workers and the women can design a program individually tailored to fit that unique culture.

Many past attempts to remedy the ills of the poor have been based on universal models, with a similarity of effort and design no matter where the program was offered. And, many such programs have greatly disappointed their initiators. These pitfalls can be avoided if we are careful to create an integration of efforts between the action and the community on which it will be tested.

Comments and Policy Guidelines

THEREFORE, WE ARE CLEAR that programs to enhance breastfeeding must encourage the participation of the recipients in such action. The projects must be culture-, situation- and community-specific. They should take into account the historical background, the present needs, the economic variations, the level and degree of urbanization/modernization being experienced by the mothers, and the stage of the breakdown in the kinship networks.

It is unlikely that change in breastfeeding or weaning practices will be sustained without some change also occurring in other interrelated aspects of the culture, such as maternal health, food or water supply, literacy and substitutes for lost supportive systems.

WE, THEREFORE, SUGGEST that programs be designed to include a technique to catalyze other changes as well. It would be wise then to connect action programs to health, welfare and other related programs directed toward improving the quality of life. Such an integrated approach is likely to yield higher success and cost-benefit effectiveness.

The Nature of Intervention - Social Realities

Our review of past attempts at changing or halting the new feeding patterns in urban settings have shown these attempts to be unsuccessful. The conditions which have made for reduced breastfeeding are usually not the elements which are targets for remedial action. For example, urbanization and migration set the stage for reduced breastfeeding, but stopping this demographic flow, even if it were possible, in itself would not necessarily change the trends towards earlier "weaning."

Comments and Policy Guidelines

WE SUGGEST that we must cope realistically with social change. Once the family pattern is changed, infant care is also changed. And, there is no going back. But, we can try to devise--invent new systems to deal with specific key elements, such as finding new ways to give the new mother the supportive help she needs during her initial mothering (matrescent) stage. There is no hope for settling the problem simply by reverting to former ways.

We must not be misled into thinking that women in the developing countries will choose to breastfeed based on what we know to be inherently good about breast milk. We must help women to devise the right solutions in the context of their entire life and include their whole family. If we keep our sights on the complete picture, we may have a chance against difficult odds.

THE ACTION PHASE

The preceding analysis summarized knowledge concerning breastfeeding and weaning practices, and offered some guidelines for policy formulation that might govern action programs.

In this section the Center suggests the characteristics that should prevail in project design, the implementation steps at the field level, general recommendations for program components, the amount of interest and resources needed, and community conditions most favorable to success.

International-Level Actions

Of the several recommendations for action developed here, those which are best carried out at the AID/International agency level include:

- the development of informational and teaching materials on breastfeeding and weaning practices (See page 97.)
- the basic research still lacking in the relationship between breastfeeding, weaning practices and infant health
- a study of the prevalence and use of local foods in infant supplementation
- the relationship between breastfeeding and contraception (See page 99.).

For the implementation programs proposed below, AID and other agencies could build on the first-step work already completed by the Center, as well as additional data and guidelines gleaned from a detailed analysis of the ethnographic reports. Such a review would be needed to simplify the development of breastfeeding programs specifically tailored to selected societies.

The Center's ethnographic data include cultures in different stages of integration and disintegration practicing breast- or alternative feeding methods. They reveal a sequence of change from traditional to modern. An understanding of this pattern could aid in designs for intervention. This work could considerably reduce the time required for developing action programs.

Another approach would be for the Agency to revise the Protocol and submit it for use in new groups in the same or different countries.

National-Level Actions. Implementation Steps for Programs in Less Developed Countries

The following steps can be initiated in whole or in part, in or out of sequence, depending on the availability of funds, personnel and the presence of related programs. It is assumed that the background material in this report will be available to the USAID Missions for orientation on the subject of breastfeeding.

1. A USAID or other agency official--undertakes exploratory planning to assess the climate, interest and resources for a program in breastfeeding; identifies likely interested government ministries and private and international agencies; establishes contact with officals in health, nutrition, family planning, education, literacy and other programs who might assist

with the development of a breast-feeding program (or component): assembles available studies on the subject; investigates the availability of an anthropologist/facilitator/social scientist/communicator (hereafter called the liaison fieldworker); reviews the ongoing or upcoming projects to see where a breastfeeding program might fit; identifies USAID project director.

2. The USAID project director recruits the liaison fieldworker who has preferably been working in the country and necessarily has a proclivity for community interchange. She will carry out a field study (approximately six weeks in a community where she is well known) to obtain information covered in the revised Protocol about what women think and are actually doing about breastfeeding. This liaison fieldworker identifies during the course of her work in the community, not only trends in breastfeeding practices, but female community leaders who would be good candidates to participate in the planning of programs.

During this collection of ethnographic information, detailed observations on weaning practices and local or other foods used are made to guide the field team in the selection of content for educational and media messages. It is important that this initial work be done in the community best known to the liaison fieldworker even though the eventual action will include many other communities.

3. The project officer (or interested government official) convenes a meeting of potentially interested persons in other government agencies, the medical profession, the liaison fieldworker and community leaders identified in the field study to discuss a countrywide national conference, a regional workshop and other aspects of the program. In this meeting, a working committee is established to be in charge of the conference and to serve until a national advisory group is established during the national conference. It is expected that this core group will stimulate interaction on all levels before and during the conference and in all follow-up program development.

4. If it is agreed, the working committee convenes a "consciousness-raising" conference emphasizing the effects of breastfeeding and weaning practices on infant and maternal health. Its central purpose is to make professionals and government officials aware of the practical value of breastfeeding and the potential health benefit which can result from an effort on its behalf. It is also intended to bring the community women's viewpoint to the attention of government officials and those interested in maternal and child health and well-being. It will bring differences in their views on current practices and problems to the surface and begin the exchange of ideas prepacatory to an action plan.

The liaison fieldworker, USAID officer and working committee director must take the main responsibility for structuring the meeting and ensuring inputs from the community level. One or two international figures or a USAID consultant might be brought in as an advisor to present the most current knowledge on the subject.

The expertise of professionals in the country or neighboring countries should be used as much as possible. Emphasis should be on promoting an exchange between the national and community workers, particularly women. This should result in the formation of an official advisory committee recognized, in fact nominated, by the relevant government ministry, USAID and the community group. The function of this group is to consult and advise throughout the duration of the programs.

The national conference should serve to place breastfeeding and weaning practices within the social and economic contexts which influence these practices and affect child health. The representatives of infant food companies and industry officials who are responsible for developing these local foods should be invited to participate. Workshops should be structured so that all parties have a chance to hear what the community women say about their problems and practices. Existing nutrition and family planning programs should be reviewed and a breastfeeding component added where possible.

5. Shortly thereafter, less formal regional meetings are convened to develop specific action plans. The advisory committee (which includes the women leaders) might develop a draft for discussion so that the meetings move immediately into the program planning stage. These actions should include both small community-supported activities and long-range plans that require national commitments or donor funds.

6. The advisory committee develops training programs for community health and other such workers in the management of breastfeeding and weaning using non-formal educational techniques developed by Paulo Freire (described later on) with the assistance of a handbook adapted to the local situation. This training should be integrated with ongoing related programs in nutrition, family planning, agricultural extension programs and the like wherever feasible.

7. Subsequently, these trainers, with the help of the women leaders, develop an educational program involving breastfeeding and weaning, learn how the community participants view their problems and assist them with solutions.

8. At the national level a video program will be developed, with the participation of the community women, to deliver the messages about the usefulness, and normal management of breastfeeding and weaning utilizing the educational content also developed with their assistance.

General Recommendations of Characteristics and Components to be Included in Action Programs

Culture- and Community-Specific Designs

We mentioned above the importance of fitting action to the unique patterns of each culture. We now explain this suggestion in greater detail.

When selecting components for a program in any society, the liaison fieldworker must first learn the status of breastfeeding (and weaning) and the direction of the trends in breastfeeding (and weaning). She must find out whether the women in a particular society are solely breastfeeding, rapidly substituting bottle feeding or are somewhere in the middle using mixed-feeding. The idea is to search for trends within the existing patterns, notice how fast and in what direction they are flowing. Then, we can pinpoint those socio-economic factors which are causing changes in breastfeeding habits.

The presence or absence of helpful kin or other supportive persons, attitudes on breastfeeding, the influence of "modern" values, and most important, an understanding of the extent to which women actually do or do not have the option to breastfeed are differently weighed in different cultures. THEREFORE, programs of action must be tailored to each culture. For example, where traditional support networks or satisfactory substitutes exist, it may be possible to maintain breastfeeding practices at their present level with "preventative" programs.

These would reinforce information on the benefits of breastfeeding, the need for improving the mother's diet, the best available supplemental foods, the preferable age for giving them, and the most hygienic method for preparing them. Such a program would be appropriate for the women of the Philippine mountains who retain their traditional breastfeeding patterns but give evidence of a move towards reducing the practice.

Where women are "choosing" not to breastfeed because they must work and cannot breastfeed, the need for alternative sources must be accepted as inevitable. In the Sardinian mountain shepherd village, the women initially breastfeed but begin to supplement with commercial or goat milk very early. They are deeply influenced by television and the very sophisticated programs originating from Rome and by the "mod" women they see in the nearby town. In these cases attention might be given to presenting a positive picture of mixed-feeding, the desirability of some breastfeeding, the importance of a "pure" or improved water supply, and an educational campaign regarding the best choice and preparation of supplemental food.

If it appears that the mother is susceptible to options, and that a downward trend in breastfeeding can be revised, a "curative" approach could be applied. This would include a media campaign to indicate how breast milk and breastfeeding benefit mother and infant. Besides this, it is important to make the effort to get the milk industry's cooperation in tempering the content of their messages. Another creative step is to encourage change in institutional practices to avoid separating mother and child at birth and to provide privacy for breastfeeding.

The professional establishment should be encouraged to provide support for breastfeeding and where poor maternal health is an inhibitive factor, to provide temporary supplemental foods.

It would also be useful to educate the family about the great value in providing supportive help for the mother in the role of a doula, especially during her first postpartum, matrescent stage. In the Philippine

Mountain community, the network of support is decreasing. We uncovered this by listening carefully to complaints by mothers that their kinswomen are not extending the help and services that they did in the past.

Controlling for Bias and Negative Results

In addition to the need for identifying the cultural, social and psychological barriers that inhibit breastfeeding within a particular society, it has also been suggested that "...programs in developing countries require knowledge about the social, cultural and psychological factors inherent in the innovating organizations and their professional personnel."[39] Anthropologists are trained to be aware of their bias and to be as open to the informants' needs and attitudes as they possibly can be But, the psychological needs and priorities of those who administer services often differ from those of the client and interfere with understanding care. In Jamaica and Ibadan several women in the hospital expressed a degree of anger towards the medical profession for "talking down to them."

Zeal and the human desire for panacess must be tempered with full awareness of possible negative ramifications. As Hammond and Todd emphasize in a recent issue of Science,[8] "Many seemingly constructive actions turn out to be less helpful than anticipated. For example, introduction of therapeutic drugs in a nation's medical care system may simply replace death from disease with debilitation from starvation in a country with a rigidly limited food supply." We must attempt to minimize the prospects of such grim results as we interfere with age-old cultural practices, as we press mothers to breastfeed against the flow away from this practice, and, as we encourage breastfeeding by undernourished women without also increasing their diet. Our best prospect for avoiding these pitfalls is to know as much as possible about the people we are trying to help so we can offer them programs that enhance, not disrupt, their lives.

An Integrated Setting

We must first bring concrete data on the value of breastfeeding to the attention of the potential breastfeeder as well as those who could be called upon to advocate for a breastfeeding program. Then we must find the proper niche for such a program wherever possible within appropriate and already existing programs. Breastfeeding must not become a new subsection of the maternal and child welfare program requiring a corps of experts to initiate, analyze and implement programs. Rather, advocacy thrusts for breastfeeding should be added to current services and ongoing programs and carefully integrated into new ones.

In their most desirable form, integrated programs are action directed for human well-being. And, the more homogeneous and reachable the population, the greater the possibilities for successful communication between the community and policy makers. In looking at successful patterns for reducing population growth, Tarzie Vittachi[9] of the United Nations Fund for Population Activities, points to the factors present in what is now called the "island approach" to family planning, namely, an integrated unit including an efficient planning/implementation "task force" team.

The natural administrative region such as Kerala in India, Bali and East Java, are examples of "population islands" where family planning has worked well. We might expect equally effective breastfeeding programs in these same areas. In China where central planning and regulation are present, action programs for breastfeeding have been successful because the programs are carried out by the local communities to whom full responsibility is assigned (See page 94.).

Margaret Mead, characteristically viewing human behavior in its most universal context, has said, "Those who plan for whole communities have their fingers on the pulse of our local and national, continental and planetary life."[40] Reversing the trends in breastfeeding and weaning requires not only motivational efforts but alterations in the whole community setting if the changes are to persist.

Actions to stimulate breastfeeding practices often fall naturally into health and nutrition programs. From a fieldworker in the Caribbean we have the report that gastro-enteritis is found "...in the best homes so to speak, as well as the poor homes. And, that's because they are faced with the same problems of inadequate drainage, water and sewage. Besides, it is a tropical environment. The worst problem is not food--it is water." A breastfeeding component also fits comfortably into the training and educational programs of family planning efforts. In fact, we have evidence that concern for breastfeeding promotes earlier acceptance of contraception.[41]

From our researcher in the Philippines, "...I'm being impressionistic now but I do believe there's a chance that the women may actually breastfeed longer if they're able to get good advice with contraception. The most frequently cited reason for early weaning is an early and unwanted pregnancy. There's a strong feeling now that it's not good to nurse one child with another in utero. They would like to avoid this. They're beginning to be aware of their own bodies and that their resources are finite and they would like to take care of themselves."

Adult literacy or agricultural extension programs may also be excellent places for introducing information on breastfeeding.

Breastfeeding is affected by a number of other social components--food technology for the manufacture of weaning foods, agricultural production for animal feed and human food, and a variety of educational and mass media programs. Representatives of these industries and ventures must be involved in such programs.

Because there are many closely related activities that could benefit from a breastfeeding component and vice versa, WE RECOMMEND, as a high priority, integrated programs which save money and human resources.

Promote Mixed-Feeding, Not Exclusive Breastfeeding

Promoting "mixed-feeding", with more attention to what the supplemental foods are, is a more positive alternative than promoting an all-or-nothing campaign. Being realistic and incorporating the actual condition in which women find themselves might do much to delay the switch away from breastfeeding. The goal of "exclusive" breastfeeding is unrealistic but citing the "natural" benefits of breastfeeding, even if only morning and night, would undoubtedly be more acceptable. Pressing for impossible goals might also foster feelings of failure and guilt. No worker should assume that all women can afford the luxury of breastfeeding, or that they can or will do so, even if they say they want to.

The ideal pattern for breastfeeding is to commence supplementation around four to six months and to continue a mixed-feeding pattern as long as possible. For working mothers mixed-feeding would improve their infants' health. Working women should be encouraged to breastfeed.

Since most women in the developing countries give their infants bits of food from the first month on, they would also, by one definition, be weaning from that stage on. Caution is advised so that our suggestion that "weaning" should start at the fourth or sixth month is not interpreted to mean "start a new pattern, take the child off the breast." Local supplementation practices should be carefully observed before suggesting they are well or ill-timed.

Use Supplemental Foods Wisely

Supplying free supplemental food in Less Developed Countries as a means of improving maternal and infant nutrition is a short-range approach to the problem, but it could constitute an effective interim means when coupled with the encouragement of breastfeeding. The utilization of that limited supply of available food should be carefully planned. And, it should be accompanied by health programs (immunizations, clinic care) to maximize effectiveness and by long-range plans for aiding communities with "soft" technology to develop local foods. Those adults responsible for the family's diet should take part in the planning of food distribution and be stimulated by educational efforts to decide what will replace that food at a future date.

WE SUGGEST that it is inappropriate that foods for maternal nutrition be used as an incentive for exclusive breastfeeding, rather they should be a part of programs that promote mixed-feeding.

Gather Insights for Long-Range Programs to Enhance Breastfeeding Practices, and Accelerate Long-Range Programs for the Development of Local Supplemental Foods

From the existing community programs and the new ethnographic work completed by the Center, we may be able to develop some higher-investment, longer-range programs to support increased breastfeeding. These might include: literacy programs for wom-

on. Creation of a shared child care system among women, modification of hospital routines and the physical plants of clinics and hospitals, community programs for training and recruiting doulas (supportive helpers) for new mothers, a network of maternity centers, and a curriculum on breastfeeding and weaning added to all formal and informal educational systems, medical and health projects.

Any long-range look should also consider an "indirect" campaign focused at the middle classes where positive Western-elite influences on breastfeeding, such as the back-to-nature approach based on an awareness of limited resources, might find a response. Just as rural traditional women are being influenced by values of the migrant urban poor, so the new urban poor will be increasingly influenced by patterns of the urban middle class. We must be cautious, however, not to select just one element, such as breastfeeding, and try to stem the move towards change in that component alone without considering the entire pattern of social change. A simplistic idea that the "trickle down" effect is the answer can be very wasteful.

Before any of these costly programs are considered, the true causes for the trend away from breastfeeding ought to be determined through the Center's method of participative studies and action designs described throughout this report.

Longer-range solutions to the problem of low cost supplemental foods acceptable to the client are urgently needed. We believe that more attention should be given to developing simpler mixes with regionally available foods. This will relieve some of the pressure to develop an adequate dairy industry and other connecting problems of product availability, transportation and distribution.

Establish Grassroots "Participative" Education Programs

Contrary to the views expressed in most of the literature about breastfeeding and the assumptions of the few promotional programs that have been carried out in developing countries, WE SUGGEST that a reversal of the trend away from breastfeeding cannot occur by pressing the issue through the traditional medical or advertising channels. Former attempts to stay the tide in the U.S. by hospital personnel, psychiatrists, psychologists (Mead, M. 1977 ICHL) and by leading physicians totally failed.[42] We claim to see similar patterns in the behavior of Third World women and suspect we are dealing with a universal trend flowing towards the same collapse of breastfeeding practices unless we find new ways to stop it.

For example, attempts at reversal through traditional educational techniques where the prime ingredient is preaching and exhortations to breastfeed because it is good for the infant's health, simply will not work. On the other hand, programs which demonstrate how breastfeeding can fit into women's harried lives, as well as benefit their children, are more likely to succeed.

Methods similar to that developed by Paulo Freire[43] should be used to educate through communication rather than extension. To learn how breastfeeding best fits into women's lives, the trainer must first learn with the women what are the related concerns and help to decode the problem into the community's recognizable life situation. Once the women understand their own status and their most pressing problems, a new critical awareness evolves. Guided by a facilitator they can then move towards the right problem-solving methods (Rainey, M. 1977 ICHL).

Most women care very much about their infant's health. In fact, it is their constant obsession. But, they have to respond also to what is best for themselves, and at times for their very survival in a culture of poverty. Some cannot enjoy the luxury of making their infants' health their only priority. Others cannot choose to make breastfeeding their priority because it simply does not fit into their life style.

The first step then is to understand the position of mothers within their socio-economic settings, and the second is to gain insight into the reasons for or not for breastfeeding which can only come from those same women. The Freire techniques can be useful in both these investigations.

It is critical at each point in the development of this informational action plan to stress that participation be organized horizontally rather than hierarchically. It must include the whole "cast" in the infant feeding matrix--mothers, fathers, community level health (and other related) workers, educators and their colleagues, planners, decision makers, and various technicians, e.g., people who prepare educational materials, distribute food and work in hospital laboratories. Though we are well aware of the difficulties in this approach, we believe that if such interaction is not included in the design and implementation of educational programs, they will have little chance of success.

Take just one example--the father's involvement in this feeding process. In Central America the father's present to the new mother is frequently a can of formula. In the Egyptian village our fieldworker repeats a woman's exclamation that her husband would beat her if she did not breastfeed. To ignore the power and influence of these relationships is to invite failure.

Use Terminology With Care

A further important caution implicit in the Freire design is that information, wording and phraseology about the value of breastfeeding and the dangers associated with the use of other alternative foods must be "de-professionalized" and "demystified". They must be put into the terms and contexts that women use and, therefore, respond to. Those terms must come from them.

For instance, just as government defense departments are really war centers, so health agencies are actually disease centers and do not represent the major illness of "health" problems of the majority of the population. In the same way, we distort reality when we refer to weaning as if it appears as a "special moment" or with a dramatic tearing of the infant from the breast.

Women in many cultures begin weaning shortly after their infants' second or third week and yet breastfeed for over a year. We must understand that when we speak of bottle feeding, we need not mean the absence of breastfeeding. We must understand that Third World women do not function as do Western women and that many women feed both breast and other foods in bottles very successfully.

The Center has begun a redefinition of terms relating to infant feeding (See Appendix H.). However, in each community project some terms may have to be adjusted to fit a cultural context understandable to that culture's professional and lay persons. The women will help with this work as well as provide the direction and content of the educational messages. We should be prepared to accept a surprising revision of current professional, Western concepts, especially in regard to the motivations that influence breastfeeding practices and the methods suggested for doing something about them.

Use Media for Reinforcing the Messages

Recent attempts at media campaigns have often taken the content of their messages from surveys designed to obtain cultural data on food practices. This questionnaire approach with prestructured queries often leads to answers which are correct but not useful. The content of the media messages should be written by the same persons who will receive that message so that the most suitable images, audio messages and channels of transmission will be used. Once the content is clear, the wealth of experience now available about distance teaching, radio study groups, video tapes, artists' representations, functional literacy and other communication forms can be drawn upon by the sponsoring agency. These can function as a "tool kit" for program developers.

As we have already explained, most women are using mixed-feeding patterns. But, many are in a transitional stage--- moving to less breastfeeding. That should not, however, be misconstrued to mean that it is the opportune time for a major campaign to convince them to breastfeed exclusively. In fact, change could go in either direction. Media campaigns planned without the benefit of the coordinated and participatory steps we have mentioned, may broadcast the message that mothers should breastfeed more when, in their real life situation because of work or other pressing priorities, they cannot.

The media might play a more productive role by reinforcing current practices, such as suggesting a proper balance of mixed-feeding which is tailored to the cultural practices of the community, or referring to supplements which are available and are appropriate to the "transitional" move onto the family's food. Breastfeeding during the nighttime is a good example. This is a very common pattern well worth promoting, and the constant stimulation of breastfeeding throughout the night is adequate to maintain an ample supply of milk.

Where downward trends in breastfeeding are clearly irreversible (or chances of success minimal), the media role is equally important to help with suggestions for appropriate supplemental feeding, but again, WE RECOMMEND all such programs be culture-specific.

The media can be useful in signaling the danger points for infants' health. Helpful information suggesting the use of liquid foods (though not cows' milk) during bouts of diarrhea is an example of excellent use of the media. A radio campaign in Kenya, which combines humor and nutrition information, is having a strong positive effect.

Community Characteristics Most Favorable to Success

We list below the characteristics of urban (and then rural) communities where, according to our field studies, programs are most likely to be successful.

We then note some variables which include desirable and undesirable factors. We think these seemingly paradoxical combinations can work because in these cases the desirable factors outweigh the undesirable ones.

These variables include some social indicators which most directly affect breastfeeding practices. Variables valid for specific cultures will evolve in the field while the projects are being designed.

Characteristics of an urban area

Communities of relatively recent formation which are on the lower end of the income scale but have had a period of time to adjust to the urban patterns are good candidates for breastfeeding programs. The inhabitants of these urban areas are more likely to be susceptible to the messages than new migrants.[44]

Among these new arrivals the trend away from breastfeeding is most pronounced. They are close to urbanized/modernized values and pressures, and have lost the network which supports the mother/infant unit--two critical elements. One fieldworker reported that in general "...people have lost sight of their tradition. You get some mothers who are very confident about motherhood and some who don't really know much about how to take care of a child even though they themselves were raised amongst lots of children. Women have become a lot more dependent than ever before upon others." As it will be most difficult to reverse trends in these groups, WE SUGGEST that they be approached later when programs and techniques have been developed and improved allowing a greater possibility for success.

Variables which pinpoint the community as a good candidate

- Integrated family units with close relatives of the new mother who are female and present.

  (These are the supportive kin who have also migrated and come to live with or near the mothers and will be available to be the doulas (helpers). Their presence is essential to the success of breastfeeding.)

- Relatively homogeneous ethnic groups within the community.

  (A common culture contributes to successful promotional programs. Therefore, single ethnic groups rather than mixed groups will facilitate the work.)

- Relatively little class differentiation within the community.

  (Homogeneity and the absence of accouterments of the middle and upper classes improve the chances for successful breastfeeding programs. However, the presence of the media, especially satellite television, can eliminate this variable overnight.)

- Relative stability and the absence of rapidly improving or deteriorating economic conditions within a community.

  (In markedly deteriorating conditions, economic stress within the culture may undermine support to the breastfeeding mother, and infant feeding supplements of any kind may be acutely scarce. Where rapid improvements are taking place, the rush of new income may overwhelm the messages promoting breastfeeding or mixed breast milk and supplementary foods.)

- Generally adequate employment for males.

- Minimal economic pressures on women to work or available work which does not separate mother and infant for long periods of time.

- A minimal amount of migratory movement to and from other societies where bottle feeding is prevalent.

- The predominance and persistence of viable traditional customs and cultural beliefs which enhance the practice of breastfeeding.

- The absence of significant promotion of bottle feeding on commercial television, radio or billboards.

- The presence of a developing self-awareness among women, a feeling of strength rather than helplessness, and a growing independence on their part as evidenced by women's clubs, self-help and/or political organizations.

Characteristics of a rural area

Communities in which there is virtually no bottle feeding or communities where bottle feeding has appeared and is likely to increase in the near future are good candidates.

In the first group, women are breastfeeding without commercial milk supplementation, but are usually adding other foods to the diet, often from the very beginning. However, if a factory is built nearby and new job opportunities are offered, it can change the entire traditional feeding pattern overnight. In this case, WE RECOMMEND the development of a "preventive" type action program stressing mixed-feeding.

In communities where milk substitutes are slowly appearing, it is likely that a reduction in breastfeeding is on the horizon. At the same time, many massive structural changes usually associated with "irreversible" swings away from breastfeeding (such as family disintegration, migrant female labor, significant transitions towards higher material well-being) are not yet present. In these communities conditions are still conducive for breastfeeding.

Variables which pinpoint the community as a good candidate

- An integrated family structure with an intact support system for lactating mothers.

- Good communications with urban areas, including radio and printed matter are necessary to get the breastfeeding message to the listener in the rural community.

- No evidence of severe deterioration of nutritional levels, public health conditions or infant health.

- An essentially non-migrant female labor force.

- Few chances for female employment which prohibit close mother/child contact.

- Relatively low levels of material well-being.

  (Rural communities that have made a transition to modern/urban and stable economic levels and have experienced relatively high incomes in the process, are not likely to be good targets for programs.)

- Successful self-help projects - women's clubs or political organizations.

Variables which pinpoint the community as a poor candidate

- Signs of significant economic and other structural transformation in the present or near future.

  (Such economic, political and social transitions create conditions for quickly changing customs in the social (support) networks followed by changes in the material (bottle) structures.)

- Signs of increasing class differentiation within the community.

- A migrant male labor force which throws women onto their own resources and forces them to assume too many roles including providing for the basic needs of housing, food and clothing for themselves and their families.

- Recently rising income, or a history of previous economic improvements which gave rise to the use of bottle feeding.

- The availability of infant formula in significant quantities and a cash economy sufficiently widespread so that most women can support the cost of that food.

Other Factors Influencing the Potential for Successful Programs are Interest and Available Human Resources

Projects will have a better chance where...

...the host government is already committed and participating in national programs (health/nutrition/family planning/agricultural extension/education) to help the poor, and have considered adding a breastfeeding component. It would be preferable if the government is positive to the approach of having women involved in the design and implementation of those programs.

...personnel in the field services, government and others (health, nutrition, agricultural extension), who are sufficiently interested in supporting a breastfeeding project and have a potential cadre of female primary health workers available for training and/or education in breastfeeding and weaning practices.

...the USAID mission or other development agency has the staff time and interest to assist in developing a program of this kind.

...An anthropologically-oriented person is available to ascertain behavior patterns and help coordinate the establishment of such a program.

An Example of a Successful Program - China

The breastfeeding program in China has been successful even though the socio-economic level is low and the culture is undergoing rapid change (Chung, A. 1977 ICNL). Some aspects of this program might be useful.

General Supportive Measures

- Light duties and no night work for pregnant women
- Maternity leave of a minimum of fifty-six days postpartum
- Accommodations for the mothers of hospitalized infants so they may breastfeed at regular intervals
- Preferential distribution of scarce foods to pregnant and lactating women and children
- Emphasis on health education by all health personnel and a philosophy that promotes child care and proper feeding as a priority

Special Supportive Measures

- Postnatal visits to advise the mother on care for herself and her child
- Crèches at or near women's work and time alloted for breastfeeding at least twice during the workday
- Regular examination by health personnel of infants at the crèches
- Encouragement for relatives who care for babies in their mother's absence to visit well-baby clinics regularly. "

OTHER RECOMMENDED ACTION AND RESEARCH

Follow-up Studies - Revision of the Protocol

If the Center's Protocol is to be used in the future, we strongly recommend that it be revised to reflect the lessons learned during its first field tryouts. The following are some thoughts as to the direction of that revision.

- Though the Protocol was effective in getting women to speak out about their concerns and attitudes on breastfeeding, the method developed to probe for suggested solutions or acceptable interventions was greatly refined during the project. A revised Protocol should reflect these improvements.
- Though we learned a great deal about what did and did not work, we only now feel we've gone far enough into developing the types of implementation which would work to establish a viable plan. There is need for an additional section to help the anthropologist collect data in the field for later use in setting up action programs.
- While the free-flow process is essential, the format must be improved, perhaps shortened and made more precise so that some comparable data can be analyzed on a cross-cultural level.
- We can shorten the Protocol by eliminating those areas which have so far yielded no useful data in regard to specific action. However, care must be taken not to eliminate data which could be useful in confirming other areas of the research.
- The Center is contemplating splitting the Protocol into two small pamphlets for better manageability. One would have instructions for the anthropologist and general theoretical and informational data, the other would include the interview and group work.
- Placing all data analysis together under each appropriate section in the Protocol would be another useful step in shortening, highlighting and eliminating material in the Protocol.

Follow-up Studies - Analysis of the Data and Elaboration of Country-Specific Models

All who have read the anthropological reports considered them a valuable data source, though too lengthy and detailed to be readily digested. Most have recommended that more thorough analyses be made of them. In their report (Appendix E), Latham, Solimano and Zeitlin noted that:

> "The full value of these anthropological reports will not be realized until they are digested, analyzed, edited and finally, perhaps excerpted and, with appropriate editorial comment, put into one publication...Such a publication would be of considerable interest and use."

The Center would like to have a thorough analysis made of this data and of other informative data related to the field work, including the in-house and post-Conference workshop and final recommendations.

Aside from the intrinsic value of such a report, the Center suggests that during the process of detailed analysis, country-specific models for action could be elaborated, shortcutting the time necessary to do so in the field implementation steps suggested in the Action Section above. We would want to place the data in a continuum on various socio-economic levels (Raphael, D. 1977 ICNL). The required time would be approximately six person months, four for a consulting analyst (assuming that person was already familiar with the project) and two for Center supervision, counsel and editing.

Informational Material and Curriculum Content on Breastfeeding and Weaning Practices

The Center recommends that content on the normal management and most common problems of breastfeeding and weaning practices be assembled as...

...a handbook for mothers and para-professionals (fieldworker/Peace Corps) oriented specifically to problems in developing countries and suitable for non-formal educational use.

...a curriculum for medical schools and for formal educational purposes dealing with the problems and management of breastfeeding with particular reference to tropical climates.

...A handbook for the secondary and undergraduate level student for worldwide use.

...A handbook for worldwide use by young (adolescent) adults.

Research - General

Elisabeth Cole's Critique of the Literature (Appendix B) points up the astounding lack of concrete field data regarding the causes and effects of breastfeeding practices. It shows how much confusion there is in even the use of the term "breastfeeding" and "weaning", and notes the common tendency to use the physiological research to explain social issues, instead of placing specific physiological research within a particular social context.

Her findings identified a wide scope of needed research. Some of more interest to scholars, others of immediate practical value to policy-makers. WE SUGGEST that for AID--one of the most urgent gaps is what Cole identified as "...a lack of concrete evidence, especially in the field, regarding the importance or lack of importance of breastfeeding with respect to infant health." Field research in the LDCs is vitally needed to determine the effect of breastfeeding on infant malnutrition, morbidity and mortality.

WE SUGGEST such work must include many of the critical related factors like maternal health, birth weight, available health facilities and utilization, disease prevalence, water supply, income level, kind of breastfeeding (exclusive, mixed),

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other liquids and foods, hygienic state of the food and the preparation process, family size, birth interval and parity. The task is enormous but it must be inclusive. Simply to record measurements of milk ingested and subsequent growth progress and rates of morbidity and mortality is a dead end which leads to distortions.

Research - Local Non-Breast Milk Foods.

Our field studies suggest that research on the supplementary foods actually ingested by infants in the developing countries (as distinct from "weaning practices" cited in the literature) is perhaps the most urgent research needed. Nearly all infants, breastfed or not, are, in fact, being given some local or other supplementary food from the first months of life. We suggest a year-long cross-cultural study in some 15 geographical areas to determine what mothers actually give infants, when, and how much.

Research - The Effects of Lactation on Fertility.

Another priority research focus should be a study of the effect of breastfeeding as a factor in the inhibition of ovulation. Especially in the poor sectors of all societies, maternal health, nutrition and other culturally related factors must be taken into account.

Research - Other Recommendations.

Other research recommendations that emanated from the AID Workshop (Appendix G) emphasized the need for research to determine...

...the effect of food supplementation on infant and maternal health.

...the effect of non-food supplements (a tonic with iron, folic acid, calcium and other macro-nutrients) on maternal health.

...the actual (not assumed) threshold where exclusive breastfeeding stops paying off nutritional benefits to the infant due to maternal health or lack of other beikoating foods.

...the effect of maternal morbidity on infant nutritional status.

CITY FOLK EAT BETTER

A major motivating force for rural migration is the availability of food. The diets of urban dwellers in developing countries are generally better than those who live in rural areas and contain more animal protein (PAG Bulletin, 1974 LV No.1). Poor people spend more than 75% of their income on food purchases. In Bangladesh, for instance, three times more meat, milk and cheese per person was consumed by people living in towns than in rural areas. In Tunisia, meat and fish consumed by city families is double that of the country folk.

According to a dietary survey by the Institute of Nutrition for Central America and Panama, urban dwellers there have better diets. Cereal consumption, particularly maize, was generally higher in rural areas, while urban inhabitants ate more protein foods.

"When the farmer has consumed all his harvest," said an official of the Jamaican Government's Department of Agriculture, "there is no more. There's always something in the city."

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RAPHAEL. TRENDS...(Continued from page 2.)

It is becoming clear that the reasons that women breastfeed or don't breastfeed are tied to their socio-economic status, and interrelated with the amount of support which the mother has available to her.

In previous work I show how critical it is for the "mother to be mothered" during the initial breastfeeding stage--that time which I call matrescence, when a woman first becomes a mother. My cross-cultural study showed that in most of the world's cultures many individuals are assigned special behaviors which they perform in relation to the new mother/infant pair during the post-partum period. Someone cares for the mother's needs, others for the infant's. These roles are usually filled by women, often by one particular woman whom I call the doula.

There is a preponderant preference throughout the world for that person to be the mother's mother. It is her responsibility to see that all goes well. When that role is not filled, when that supportive help is not available, though the woman may have sufficient milk, she is likely not to be able to let down her milk,so lactation fails. This is indeed what happens to middle class American women and to the women who are new city dwellers living in the slum environments.

Lorissa Lomnitz[1] has studied the various levels of favors which different persons in different socio-economic classes can ask from close relatives, friends, friends-of-friends and acquaintances. I would relate this idea to the help needed after childbirth. The amount and types of favors offered the mother in response to this need decreases as the relationship becomes less kin-related. For instance, the birth of a baby catalyzes response from people in each of these groups during the first few days. However, very soon, only family and close friends can be called upon to help the new mother. And, most of this source dries up in a week or so and leaves only those persons who have an actual investment in the child, like a grandmother or one who can expect reciprocal favors from the mother, like a sister. If these close relations are absent, breastfeeding is unlikely to go on for long.

Besides the support of the doula, there are the essential life-sustaining supports which each human being needs--namely food, clothing and shelter. These, too, must be carefully arranged so that the mother is free from the incessant pressures which these basic needs require.

I have differentiated a variety of types of breastfeeders based largely on differences in socio-economic status (Raphael, D. 1973)[2]. I suggest that if we are to do something about women and breastfeeding, we must consider these uniquely different patterns and tailor programs for change to their very different needs.

First there are the traditional cultures. Here the kinship group has an enormous investment in each child and will make every effort to support the mother. Raymond Firth,[3] the anthropologist, has written that when a child is born in Tikopia, the group heralds the event by crying throughout the village that, "A new aunt has been born." They single out the house of the new grandfather.

An uncle has reason to be concerned because he is almost certain this very child will be his daughter-in-law. A grandmother may rightly expect that this infant will care for her as she ages. So, in anticipation of an ongoing relationship with this neonate, each relative has a special investment in his/her survival and is therefore willing to play a special role vis-a-vis that newborn and his/her mother. All of them have a real concern that the mother breastfeeds so the child will live. And, the mother on her part, breastfeeds not only for her child's sake, but for the benefit of her kin group as well.

In political systems where the community is the focal point, such as in China or Cuba, it is my understanding that the social commitment for not having more than one's share of children, for keeping oneself healthy, and for supporting the mother/infant, is done by the community members for the good of all the people. Take China. In this case a woman's motivation for breastfeeding expands to benefit herself, her community, her nation.

In Western cultures and within the more affluent groups in Third World countries, where there is currently a resurgence of breastfeeding, we see a very different pattern. Interrelationships, dependencies and responsibilities have narrowed. The care of the child is moved from the extended family to the small nuclear family. Usually it is left to each set of parents to feed, clothe, and educate their children.

It is not surprising then that the "reasons" women give for breastfeeding are personal. They feel that breastfeeding makes them better women, better mothers. They argue that the contact between the mother and child is stronger as a result, and knowing the child will survive anyway, they have the space to think of breastfeeding as something which will enhance the baby's motor control, or his/her feelings of well-being.

Let's now see what is going on with the women who most concern us--those desperately poor people who make up at least 1/2 of the whole world's female population. Most of them still breastfeed, but their major preoccupation in life is to keep body and soul together to get some rice for the day's meal, to buy a pair of shoes so a son can be admitted to school, or to work long hours anywhere to replace their only tattered dress with a new one. They love their children as much as anyone else, but they do not have the extended family to share the upbringing of their offspring. In fact, they are often the major and only provider for themselves and their children. So, they must meter out their limited energy and resources in the most economical way. Whatever seems to work best to keep their baby alive and well is what they need and what they want.

William Butz of the Rand Corporation[4] diagnosed the cost-benefit factors for breast- and non-breastfeeders. He has concluded that given the circumstances of urban poverty, the costs far outweigh the benefits for many mothers, and, in general, most infants live. However, from the point of view of those who must "reconstitute" and repair the ravages of malnutrition and infection in the individual child, the costs are exorbitant.

So, to sum-up, women in traditional cultures breastfeed for themselves, their families, their kinship group. Everyone centers on the nursing pair and the group see that they get the necessary support.

Breastfeeding in socialist countries benefits the wider community, the non-kin group. Thus, the community assumes responsibility for the nursing pair and provides the support necessary so the mother can have the time and space to successfully breastfeed.

Women in affluent Western cultures breastfeed for themselves and for the benefit of the affectional bond between themselves and their infants.

Women in Less Developed Countries or in the new urban slums, the hutments of India, the world's shanty towns and ghettos, breastfeed if they can. The mother, with or with out a partner, is responsible. Even when she has the necessary personal support, her life sustaining feeds are unpredictable and it is very hard for her to maintain a long period of breastfeeding.

In the process, especially when planning future programs, it has become clear that the addition or integration of health and family planning is essential for long-range effects. Therefore, help to women, either as doulas who are supportive during the perinatal period and the early stages of matrescence, or as paraprofessional health workers from within the community, must be an essential part of any program geared to enhance breastfeeding.

It will take much creative work to make an impact on these disrupted social patterns. But, if China has been able to "invent" a new kind of natural support (and Cuba has invented still another variation), with some good will and deep understanding, we can help Third World women invent new ways so they too can breastfeed and improve their lives.

We have entered a new phase in the understanding of how breastfeeding fits into the lives of women and their families. This Conference has pointed out what we know and what we need to find out. We have exposed the weaknesses and the strengths in the information we have so far. We have a clearer picture about where we go from here. We have moved the realm of breastfeeding from a physical process with a sentimental twist, into a global scene where it belongs. We have seen that there is no one solution to the human right to eat and to feed. We have also seen, I believe, how valuable breastfeeding is and how crucial it is to make a great effort to keep it within the human experience.

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3 Firth, Raymond 1936. We the Tikopia: A Sociological Study of Kinship in Primitive Polynesia. London, George Allen and Unwin Ltd.

4 Butz, W. 1977. Economic Aspects of Breastfeeding. Paper Delivered at Conference on Nutrition and Reproduction, Washington, D.C., February 13-16.

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MOTHERS IN POVERTY- A SPECIAL ISSUE $5.

ABBOTT

Abbott Laboratories
North Chicago, Illinois 60064

June 16, 1978

The Honorable Edward M. Kennedy
United States Senate
Room 431 Russell Senate Office Building
Washington, D.C. 20510

Dear Senator Kennedy,

This letter is a followup on the hearings held on May 23, 1978, on the topic of "Marketing and Promotion of Infant Formula in the Developing Nations". We request that this letter and attachments become part of the hearing record.

1. Statement by Dr. Fernando Monckeberg, Director, Institute for Child Health and Development, University of Chile

In the question and answer portion of my testimony, I referred to a nutrition intervention program begun in Chile in 1952 by their National Health Service. The purpose of the program was to eliminate malnutrition by providing free food supplements for pregnant women, newborns, preschool and school age children. Dr. Monckeberg has kindly described that program in detail to us, and a paper containing his remarks is attached.

a) The program has virtually eliminated third degree malnutrition (now less than 0.4%) among children under six years of age throughout Chile.

b) The rationale of the Chilean program for eliminating malnutrition follows an entirely different logic than that described by many critics of infant formulas. This program includes the widespread use of powdered milk products among the poor as the key element in the intervention strategy, and has proven successful. Most critiques of this program suggest that the food supplement program had an initial negative impact on levels of breasfeeding. Now that malnutrition has been radically decreased, breastfeeding has begun to increase significantly in response to positive affirmative action programs also sponsored by the government.

The Chilean experience has evolved over many years, and warrants careful examination. A comprehensive review

/documenting

documenting its history, and focusing on its expansion during the Allende administration has been written by Hakim and Solimano*. Their paper is also submitted for the record

2. The Size of the Infant Feeding Market in Developing Nations

The hearing transcript reveals substantial confusion about how the question about market size was asked and answered, i.e. the world market vs the third world market. For the record, our best estimate of the size of the prepared infant formula market in the one hundred countries generally considered to be third world is about US $350,000,000. We question the market data submitted by WHO on Ethiopia, Nigeria and the Philippines, and withhold judgment until we are able to examine precisely what products were included in the WHO list of "infant formulas".

3. The Question of Potable Water and Infant Formulas in Developing Nations

In the hearings and elsewhere, the question has been frequently posed whether powdered milk could be safely used in developing nations, especially in areas where the water is not "clean". The strong implication is that such usage is not possible.

The water to mix infant formulas, powdered milk and all other infant or adult foods is rendered safe by boiling. The need to boil water is hardly a matter of introducing an unknown or inappropriate technology into less developed countries. Boiling water has been the heart of food preparation for hundreds of years. Non-potable water is general throughout many parts of the world. If an infant is to be spared gastrointestinal disturbance caused by consuming contaminated water, it has to be boiled in every case .. water to quench thirst, water for mixing foods or in preparation of any liquid beverage or formula. To suggest that possible contamination of infant formula is a special case, or that it alone should be prohibited in such environments, is to misunderstand third world conditions.

All milk products may become bacterially contaminated if left standing too long unrefrigerated. The problem of bacterial overgrowth is substantially reduced by preparing single feedings and then prompt consumption by the infant. By six months the child

*Hakim P. Solimano G: Supplemental feeding as a nutritional intervention: The Chilean experience in the distribution of milk. J Trop Pediatr, Monograph 46, Aug 1976, p 185-202

has been so exposed to the harmful bacteria in the environment, that the intake of unpotable water probably makes little difference.

We have enclosed a recent article by Dr. Roger Whitehead (Dunn Nutritional Laboratories, Cambridge, U.K.) working in the Gambia where no promotion for infant formulas is found. He describes serious contamination of weaning foods made with local indigenous products. Exactly the words used to caution against infant formulas would need to be used to caution against home preparation and contamination of any food for infants and children. The need for careful preparation and maternal education is universal.

Some mothers in all income levels will not breastfeed exclusively. Proper preparation instructions (including the hazards of improper preparation) are a necessary and rational public health measure, and should be made part of the mother's instruction. Education to aid in the safe delivery of food, no matter what the mother chooses to feed, is universally essential. We are in the process of making further label changes to assure clarity.

4. Infant Formulas and Low Socioeconomic Groups

Another implication of the hearings was that low socioeconomic groups should not have access to prepared infant formulas, for reasons of proper utilization of the products, as well as economics. Perhaps the question should be posed in a different way. While breastfeeding is the clear feeding of choice, some mothers will have no choice, and a substitute will be required. What substitute should then be provided; and by whom?

In recent years we have received bids for our products from the following governments and agencies: Nigeria, Iran, Saudi Arabia, Libya, Ghana, Algeria, Egypt, Zambia, Sri Lanka, Bangladesh, Venezuela and UNICEF. Many third world governments manufacture and distribute their own powdered infant formulas (e.g. Mexico, India, Chile). The EEC and the US provide millions of pounds of skimmed milk (which requires mixing with the same unpotable water as our products.) These food programs provided by voluntary agencies, church groups, local governments and as foreign aid are typically targeted precisely at lower socioeconomic groups, and probably constitute the largest consumption of infant formula products among the very poor. In view of these facts, it seems inappropriate that private industry should be singled out as having the unique responsibility for denying these products to members of low socioeconomic groups.

In terms of economics, considerably more research needs to be conducted on such factors as the actual cost of feeding the mother in order to produce an adequate supply of breast milk, the cost of health services to care for malnourished infants who are not properly fed, and other more subtle variables such as the demands on a mother's time for other family duties, including care of older children. Some investigators believe that a family may be better off if a poor breastfeeding mother can work during the day to provide more net income to the family (minus the cost of formula for midday feeding) than if she stays home. These and similar questions are usually ignored in generalized statements that poor mothers "can't afford" formula. Somehow, dictating to people how they should live or spend their money, no matter what their socioeconomic level, has been notoriously unsuccessful in this country, as well as in the Third World.

5. The Adequacy of Breast Milk among Malnourished Mothers

In my testimony, I referred to a recent literature review about the adequacy of breast milk to support growth among low birth weight infants born of multiparous, malnourished mothers. The enclosed paper, "The Volume of Breast Milk Produced by Malnourished Mothers" suggests that health care personnel are faced with a double task, that of vigorously encouraging breast feeding, but also providing alternatives for mothers who are not lactating sufficiently to maintain growth of their infants.

Breast milk supplements may prove to be a necessity for the proper nutrition of many third world infants, if those infants are not to suffer long term growth failure or illness. The paradox is obvious; a feasible solution may be to provide infants with the same infant formulas which are currently being condemned. Whitehead writes:

> "Intelligent use of local food resources may well produce a "multimix" supplement for the older infant and preschool child, but the problem for the young baby is more difficult to solve. Since most nutritionists believe that the optimum food for the young infant is milk, especially human milk, supplements should resemble breast milk as closely as possible. Whilst this is perhaps counsel of perfection, particularly in the third world, breast milk should nevertheless be the reference standard for any substitute food intended for the young infant." *

*Whitehead, R.G.: Rowland, M.G.M.: Barrell, R.A.E.: Bacterial Contamination in Traditional Gambian Weaning Foods, Lancet, Jan. 2, '78: p 136-138

6. Conclusion

While the hearings may have cleared the air a bit, and provided you with a personal look at the complexities of the issue, and how different companies seem to be responding to the bottle debate, my sense is that a "win-lose" atmosphere prevailed. At Abbott/Ross we have been searching for "win-win" strategies so that third world infants and their mothers can receive whatever resources and help can be mobilized from all sectors, including the private sector.

A wise man said, "Protect your critics". We respect our critics, and will work toward minimizing our differences through study of all the factors involved, and in presenting a balanced examination of the arguments. In time, I hope we will all reach a common understanding of this problem, and move on to the larger issues of education, sufficient food for mother and child, sanitation, and economic development confronting the families and governments of the developing world.

Sincerely,

David O. Cox
President
Ross Division of Abbott Laboratories

Attachments

ATTACHMENTS FOR THE HEARING RECORD

1. Abbott Laboratories' Statement on:

   INFANT MALNUTRITION, BREASTFEEDING AND INFANT FORMULAS IN DEVELOPING NATIONS: four authors
   (Previously submitted and unchanged.)

2. NUTRITION INTERVENTION PROGRAMS IN CHILE: 1951 - 1978,
   Dr. Fernando Monckeberg, 31 May 1978

3. SUPPLEMENTAL FEEDING AS A NUTRITIONAL INTERVENTION: THE CHILEAN EXPERIENCE IN THE DISTRIBUTION OF MILK,
   Peter Hakim and Giorgio Solimano, May 1975.

4. THE VOLUME OF BREAST MILK PRODUCED BY MALNOURISHED MOTHERS, Ross Laboratories, Division of Abbott Laboratories, June 8, 1978.

5. THE HOUSEHOLD CONTEXT OF INFANT FEEDING PRACTICES IN SOUTH TRINIDAD, Judith Johnston, Dec. 1, 1977

6. BACTERIAL CONTAMINATION IN TRADITIONAL GAMBIAN WEANING FOODS, R.G. Whitehead, January 21, 1978.

7. MOTHERS IN POVERTY: BREASTFEEDING AND THE MATERNAL STRUGGLE FOR INFANT SURVIVAL, Dana Raphael, Lactation Review, Vol. II, No. 3, 1977

TESTIMONY

SUBMITTED TO THE U.S. SENATE SUBCOMMITTEE ON HEALTH

AND SCIENTIFIC RESEARCH OF THE COMMITTEE

ON HUMAN RESOURCES

by

Mary Busch

Background

From 1970 to 1976, I was coordinator of the Dakota County, Minnesota program for handicapped infants and their families. From 1976 to 1977, I was employed as a social worker for the Ramsey County, Minnesota Mental Health Center.

From April 12th to May 5th, 1978, I travelled in Southeast Asia, learning about the culture and current conditions of life in Thailand and Malaysia. Because of my professional background, my conversations with people in these countries included the problems, programs and various modes of care for infants. In addition, during this trip I made informal observations of some health care facilities which served infants and mothers.

Malaysia

Observations in Kuala Lampur In the week of April 24-29th, I observed bent and damaged cans of Enfamil infant formula in an indoor shop (as opposed to an open street stand or kiosk) located one block from the South East Asia Hotel (69, Jalan Haji Hussein off Jalan Tuanku Abdul Rahwan, Kuala Lampur 03-18) These cans were displayed in the aisle perpendicular to the front of the store in a housewares and supplies section. The cans were badly dented with concave areas up to 1½ inches deep.

During the same week, I toured a large public hospital in Kuala Lampur and observed the "third class" ward for mothers and babies which had had difficult deliveries or Caesarian sections. This "third class" ward was the section of the hospital reserved for poverty patients, those who were largely unable to pay the hospitalization fees. On the wall at the end of this ward of about 20-30 newly delivered babies and their mothers, were displayed two large posters of Caucasian babies. On the lower right-hand corner of the posters, the name "Nestle" appeared. On each bedside stand was a green can of a Nestle product.

I observed mothers both bottle-feeding and breastfeeding on this ward. According to nurses on the ward, women were transported in from villages, stayed for one or two days and then returned home. The nurses also reported that babies are kept near their mothers - at the end of the bed - to encourage breastfeeding.

Distribution of Infant Formula During a bus trip from Kuala Lampur to Kuala Trengannu, we stopped at a restaurant. Nestle products, including infant formulas and other of their milk products, were displayed on two shelves near the cash register. Cola soft drinks were the only other packaged products available for purchase at this restaurant.

In a very small supermarket in Kota Baru with three walls completely stocked

with merchandise, I observed one entire wall - ceiling to floor - of Nestle's products, including infant formulas.

Across from the Trenganu Hotel in Kuala Trenganu, in a small indoor store, I saw old cans of Nestle's infant formulas that were labelled only in English. These cans were mixed in with other, newer stock.

In conclusion, it appears that in Malaysia, Nestle markets its infant formulas on a large scale, integrating the marketing of formula with the marketing of its other products.

Mothercraft Nursing On May 2, in Northern Kotae Baru, I met a vacationing Chinese Malaysian woman who had acquired a master's degree in nursing at a highly-regarded British university. Her current nursing job was with a large group of private physicians in Kuala Lampur. She worked in Ob/Gyn maternity care.

She told me that after returning to Malaysia from England, she had interviewed for a position as a market (or mothercraft) nurse with Nestle. She had been attracted to the job because Nestle offered higher pay than the civil service, including such benefits as transportation reimbursements, paid vacations and additional training. A nursing job with the civil service would most likely have involved being moved around the country according to the government's will, she said, and this was unacceptable to her as her husband was in Kuala Lampur.

She explained to me that the RN (registered nurse) degree was necessary for the mothercraft nurse position in case there arose any questions regarding baby care. She further explained that she had not been hired by Nestle because the company people felt she wouldn't convey a belief in the infant formula product: she was too convinced of the value of breastfeeding.

She also noted that the advertisements for mothercraft nurse jobs still run every week in the Malay newspapers.

She told me that the Chinese Malay women fear the loss of breast firmness and so are less inclined to nurse. The Islamic Malay population, on the other hand, continue to breastfeed successfully because religious mores dictate nursing for at least the first week of the baby's life.

Thailand

On May 18, 1978, in a drug store in a low-income area outside of Chiang Mai in Northern Thailand, I observed a large stock of Nestle infant formulas and other Nestle products displayed directly over the check-out counter.

Mary Busch

MEDICAL MISSION SISTERS
Philadelphia, Pa. 19111

July 12, 1978

Mr. Walter Sheriden
c/o Senator Edward Kennedy
4220 Dirksen Senate Office Building
Washington, D.C. 20510

Dear Mr. Sheriden,

In early May of this year I wrote to several of our sisters who are serving in the health ministry outside of the United States concerning the marketing and advertising of milk and infant formula.

I received a few responses most of which indicated that although infant formula was marketed in their areas, the blatant advertising techniques used in some countries were not found in their areas. I had asked each one to respond directly to your office but I am not sure how many actually did.

This past week I received the enclosed letter from Indonesia. In it Sister Corry mentions that Nestle has change its labeling. I felt that this piece of information would also be valuable to you, indicating that some progress is being made of the efforts of your committee and others like it which are trying to affect good health and nutrition as well as just practices throughout the world.

Hope that this enclosure is useful to you.

Sincerely yours,

Sister Sheila McGinnis

Sister Sheila McGinnis

Encl. (1)

cc: Michael Coursey
Office of Social Ministries
Jesuit Conference
1717 Massachusetts Ave. N.W.
Washington, D.C. 20036

The involvement of American companies in infant feeding problems in the Third World

Written testimony by Ted Greiner, June 12, 1978

This problem has been the major focus of my study and research since 1974. During this period I received an M.S. degree in international nutrition with a minor in communication arts, and passed the first exam toward the Ph.D. degree in the same subjects. The Ph.D. will be conferred upon completion of the dissertation.

My first publication on the subject was "The Promotion of Bottle Feeding by Multinational Corporations: How Advertising and the Health Professions Have Contributed", Cornell International Nutrition Monograph Number 2, 1975. During that year I carried out field research on the problem in the West Indian country of St. Vincent. Some preliminary analyses of the results were presented at the annual meeting of the American Anthropological Association in Washington, D.C. on November 19, 1976, and the complete analyses were included in the MS Thesis, "Infant Food Advertising and Malnutrition in St. Vincent," 1977, Cornell University. Also in 1977, Number 4 in the Cornell International Nutrition Monograph Series was published, "Regulation and Education: Strategies for Solving the Bottle Feeding Problem." The series is edited by Dr. Michael C. Latham, who contributed introductions to both monographs referred to. During the same year, my wife, Stina Almroth, and I, in collaboration with Dr. Latham, undertook a study for the Food and Agriculture Organization of the United Nations, funded by the Norwegian Aid Agency, NORAD, on the Economic Value of Human Milk in Ghana and the Ivory Coast. Some preliminary results were included in the paper, "Breastfeeding in Decline: Perspectives on the Causes," presented at the International Planned Parenthood Federation/ International Union of Nutritional Sciences convention on Lactation, Fertility and the Working Woman, Bellagio, Italy, 5-12 July, 1977 (in press). The final report was completed in May, 1978, and is also in press. I am now about to begin a project to study the causes of the decline in breast feeding in the Yemen Arab Republic and the effectiveness of possible methods of intervention, a three year undertaking funded by the Rockefeller Foundation.

By the late 1960's and early 1970's, a few companies had secured almost entire control of the infant food market in the US. Ross, Mead Johnson, and Wyeth controlled infant formula, Carnation and Pet, evaporated milk, and Gerber, Heinz, and Beech-Nut, beikost or solid foods. Articles in business journals as well as company annual reports reflected concern as market growth stagnated and birth rates declined. Three types of solutions were turned to. Infant formula companies helped promote the Women, Infants and Children (WIC) Supplemental Feeding Program, which allowed them largely to replace evaporated milk in the previously impenetrable markets among poorer Americans. Some companies such as Gerber turned to diversification. But all paid increasing attention to expansion overseas. Just as European infant food companies did not attempt to enter the American market, American companies turned mainly to markets that were still unestablished, namely the so-called Third World. Birth rates in these countries were very high and increasing numbers of consumers were entering the money economy. Because of poor sanitary conditions, inadequate medical care, and many problems which accompany poverty, infant morbidity and mortality were high, and parents were very willing to purchase anything that promised their babies the health that American babies enjoyed. Among the most receptive markets were areas with widespread migration--families where the fathers left home to get work and sent home money, as in the West Indies and Yemen, or where entire families moved to urban fringe areas, found around many large cities in Latin America and parts of Asia. All of the above-named companies, as well as Borden (dried milk) and Foremost-McKesson (various infant milk products) participated in this process in varying degrees.

Various promotional activities have played a crucial role in this market expansion. In competing for the attention of new consumers who were not familiar with brand names, various forms of consumer advertising played an early role. At later stages in the so-called new product cycle, less visible but more pervasive forms of promotion became much more important. In some markets merchandising efforts focused on local import agents, who in turn provided sales incentives to grocers or pharmacists. But it became clear that the most effective

channel for promotional activities was the health professions. Trained in modern Western concepts of curative medicine, these personnel tended to be apathetic at best to the value of breast feeding. They were often overworked and understaffed and welcolmed free samples of infant foods and the aid of nurses hired by the companies, not to mention free gifts and trips to conferences. The infant formula companies relied especially heavily on such fertile promotional tactics, since they are basically drug companies.

No artificial infant food can imitate breast milk. An infant fed even the most expensive "humanized" infant formula is more susceptible to a number of diseases and allergies than a breast-fed infant. In the Third World these problems are vastly compounded. The majority of new consumers are relatively poor. They are already spending as much as they can afford for food (usually 60-80% of their income), and the purchase of anything new must replace some item in their budget, usually food, since costs such as rent and transportation are fixed. Protein and especially calories are the limiting nutrients in the vast majority of cases, and no commercial product can supply these as cheaply as local staple grains and legumes. Thus the purchase of infant foods (or other heavily promoted Western products such as soft drinks or tobacco) will inevitably lower the nutritional status of the family as a whole. In addition, infant foods are likely to have a directly detrimental effect on the health of the infant. If the mother is poor, she is likely to overdilute the baby's formula in order to make it stretch until she can afford another tin. If she lives in an environment with poor sanitary and hygienic facilities, it is nearly impossible to bottle feed safely without spending an inordinate amount of time and fuel in sterilizing bottles. It should be stressed that poverty is characterized not only by lack of money, but by shortage of time, energy and patience on the part of the mother on whom enormous burdens of work tend to fall.

Cause and effect is extremely difficult to establish in a field setting. The relationship between breast feeding and infant nutritional status is a case in point. Some studies seem to show that the longer an infant is breast fed, the lower is his/her nutritional status. This is a spurious correlation, due

not to any harmful effect of breast feeding, but to other factors which tend to correlate with length of breast feeding. A mother who breast feeds longer is likely to be poorer, older (and thus her baby of a higher birth order), and is more likely to delay too long the addition of supplemental foods. These are the real reasons for the lower nutritional status of her baby. Such spurious correlations can be overcome to some extent by expensive and time-consuming longitudinal studies and to some extent by relatively complex multivariate statistical analyses.

The latter approach was used in the St. Vincent study referred to above. The mothers of nearly all infants between one and two years of age were interviewed in two relatively representative towns (N = 199). Their infants were generally of very low nutritional status, with the mean weight for age at 85% of the Boston standard. Infant formula had been widely available and heavily promoted for over 20 years, and although breast feeding was still nearly universal, the bottle was added in addition at a mean age of one month (median, two weeks). Numerous multiple regression analyses were used to check the relationships between 18 variables and the age of introduction of infant formula. Of five variables found to be significant (t 1.5), two were related to infant food advertising: the mother's selective purchasing of advertised rather than unadvertised infant foods (t= -2.14), and the mother's recall of brand names of infant foods she had heard advertised (t= -1.60). The same process was used to check the relationship between 16 variables and the age of weaning (cessation of breast feeding). Of seven significant variables, the most important was the birth of another sibling after a shorter time interval (t= -4.04), second was earlier addition of infant formula to the breast milk (t= 2.17), and third was the number of brand names of infant foods the mother recalled hearing (t= -2.16). The relationship between 27 variables and the infant's nutritional status (weight for age) was checked. Of eight significant variables, by far the most important was the age of weaning (t= 3.38). The percent of variance (r^2) explained by each equation was, respectively, .11, .22, and .29.

The ideal infant feeding pattern is to breast feed exclusively for 4-6 months, then to gradually add increasing portions of foods relatively high in calorie and protein density. Under

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adverse environmental conditions, the greater the deviation from this pattern, the greater will be the likely nutritional insult to the child.

Poverty continues to be the greatest cause of infant malnutrition and death in the world. Increasingly it is due not so much to a lack of resources to meet the needs of the world's growing population, but to their inequitable distribution. There is little evidence that the malnutrition due to this situation will be relieved by anything short of radical social and political change in most places where it is endemic. However, this form of malnutrition is being compounded or replaced in more and more areas by "bottle baby disease," which tends to occur at a younger, more vulnerable age, often wiping out the gains in infant health that otherwise would accompany gradual economic improvements. Unless steps are taken to curtail the marketing and promotional practices of commercial infant food companies, as well as other steps to halt the spread of bottle feeding among innapropriate populations, bottle baby disease is likely to spread into enormous areas of relatively unaffected populations in rural Africa and Asia.

THE MOUNT SINAI MEDICAL CENTER
ONE GUSTAVE L. LEVY PLACE • NEW YORK, N.Y. 10029

Mount Sinai School of Medicine • The Mount Sinai Hospital

Department of Community Medicine

July 10, 1978

Mr. Walter Sheriden
Anti-Trust & Monopoly
Sub-Committee
Room # 4228
Dirksen Senate Office Building
Washington, D. C. 20510

Dear Mr. Sheriden :

I am writing to you to request that my statement be added to the testimony heard before the Senate Anti-Trust and Monopoly Sub-Committee. I am a physician trained in pediatrics and certified by the American Board of Pediatrics. Currently, I am a full time member of the academic faculty of the Mount Sinai School of Medicine, with joint appointments in the Departments of Pediatrics and Community Medicine. In addition to my medical degree from Columbia University, I hold a degree from the University of London School of Hygiene and Tropical Medicine and have a Master's degree in Public Health in epidemiology from the University of North Carolina School of Public Health.

Having spent nearly ten years overseas, working mostly in the developing countries of the Third World, I am very interested in the position of the United States in regard to the infant formula controversy. The developing countries in which I have worked, combining a role of teaching in various medical schools, with pediatric care, include Haiti, Peru, Colombia, Guyana, Uganda, Ethiopia, Malawi, Nigeria, Ivory Coast, India, Pakistan, Vietnam, and the Philippines.

Mr. Walter Sheriden Letter to : July 10, 1978

Upon returning to the United States, I worked for eighteen months with the office of Economic Opportunity's rural health center in Mound Bayou, Mississippi. For the past nine years I have been part of the medical faculty at the Mount Sinai School of Medicine, with a primary interest in the poverty area near the hospital known as East Harlem. At the present time we are collaborating on a nation-wide survey to evaluate the infant feeding practices of poor people in various parts of the United States, including interviews with representatives from poor white and black communities, both rural and urban, as well as with migrant workers and Native Americans.

Several years ago while serving as a consultant for Catholic Relief Services to advise them about the nutritional status of infants and children in refugee camps of northern India, I found that large amounts of powdered UNICEF milk were being reconstituted with contaminated water and actually causing gastroenteritis and dehydration. I recommended at that time, and found it both to be acceptable and completely feasible, the process of relactation whereby women could be induced to lactate after breastfeeding had been discontinued and infants who had been taken off the breast could again be fed with their mother's milk. At the time that field trials for this process were being undertaken, I went to Geneva and found the World Health Organization completely receptive to the idea. Unfortunately, although we were contemplating the mass application of relactation for hundreds of thousands of mothers and their infants, active fighting broke out between India and East Pakistan and the refugees were no longer of major concern. However, it is of note that both the World Health Organization and the Government of India were contemplating taking this recommendation and acting upon it for masses of mothers and infants.

Several years later, while I was on a short-term teaching assignment in Vietnam, we considered doing the same procedure to induce lactation in hired women to have them feed the young infants who were being cared for in a particular orphanage. This was designed as a controlled study, but again had to be abandoned because of the constraints of the last stages of the war young infants were no longer admitted to the orphanages.

Having worked in various developing countries and cared for infants who developed severe dehydration secondary to gastroenteritis directly associated with contaminated water and poorly cleansed nursing bottles, I have no question in my mind that there should be definite restrictions imposed on the advertising and promotional techniques of the formula companies in areas where water is contaminated, where poverty puts severe restrictions on provision of adequate formula, where illiteracy makes the directions either difficult or impossible to follow, and where the natural resource of mother's milk which is ideally suited for infants is not being utilized.

Mr. Walter Sheriden Letter to : July 10, 1978

In fact, as pointed out in my recently published book, "Starving Children, The Tyranny of Hunger" (Springer Publishing Company, 1977) there are places in the United States where the same conditions as described above for most developing countries actually represent a domestic reality in this country.

This is not only my concern, but the issue of the promotional practices of the formula companies and the decreasing prevalence of breast feeding has been taken up by the World Health Organization, by the United Nations Protein-Calorie Advisory Group, and recently in the National Academy of Science meetings in preparation for the U.N. Conference on Science and Technology for development, Panel on Health,Nutrition and Population. The issue is not one of undermining the value of advantages of the actual formula being manufactured both in the United States and in Europe, but of the major problems associated with the use of feeding bottles and contaminated water in the many areas throughout the world. The issue was thoroughly explored by Mr. Allan Berg in his book the "The Nutrition Factor" published in 1973 by the Brookings Institute and his conclusions were definitely on the side of promoting breastfeeding and putting certain definite restrictions on the promotional practices of bottle-feeding and the use of formulas in bottles. This is a concern both in the United States and overseas, wherever poverty, illiteracy, and a contaminated environment exist.

I look forward to the actions that will be taken by the United States Congress in this regard. Thank you very much for including my testimony and I shall enclose several references and my curriculum vitae for your information.

Yours sincerely,

Roy Brown

Roy E. Brown, M.D., M.P.H.
Associate Professor
Department of Community Medicine

REB/hr

Enc. (6) Curriculum Vitae of Roy Edward Brown, M.D.
"Breast feeding in modern times"
"Relactation with Reference to Application in Developing Countries"
"Some Nutritional Considerations in Times of Major Catastrophe. . ."
"Poverty and Health in the United States. . ."
"Starving Children, The Tyranny of Hunger" - Forward.

CURRICULUM VITAE

Roy Edward Brown, M.D.

Birthdate: 26 February 1931

Birthplace: New York, N. Y.

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EDUCATION

Columbia College New York, N.Y.	1948-52	A.B., June 1952
Columbia University School of Physicians & Surgeons	1952-56	M.D., June 1956
University of London School of Hygiene & Tropical Medicine	1963	D.T.M. & H., 1963
University of North Carolina - School of Public Health, Department of Epidemiology	1966-67	M.P.H., August 1967

PEDIATRIC POSITIONS

1956-57	Pediatric Intern - Bellevue Hospital, New York, N.Y. Hunterdon Medical Center, Flemington, N.J.
1957-59	Pediatric Resident and Instructor in Pediatrics The New York Hospital, New York, N.Y. Hôpital Albert Schweitzer, Deschapelles, Haiti
1959-62	Chief of Pediatrics 50th Tactical Hospital, U.S. Air Force, Germany

ACADEMIC POSITIONS

1962	Pediatrician and Public Health Physician Project Hope Universidad de Trujillo Trujillo, Peru
1963-66	Pediatric Lecturer Makerere Medical School, University of East Africa Kampala, Uganda - Department of Pediatrics & Child Health
	Ethio-Swedish Pediatric Clinic Addis Ababa, Ethiopia
	University of North Carolina Peace Corps Project Malawi

1967-69	Associate Professor Tufts University School of Medicine Department of Preventive Medicine and Pediatrics Boston, Massachusetts and Mound Bayou, Mississippi
1969-70	Assistant Professor Mount Sinai School of Medicine of the City University of New York Departments of Community Medicine and Pediatrics
1969 to present	Assistant Professor Mount Sinai School of Medicine Department of Pediatrics
1970 to present	Associate Professor Mount Sinai School of Medicine Department of Community Medicine
1970 to present	Assistant Attending Pediatrician Mount Sinai Hospital

CERTIFICATION

1957	National Board of Medical Examiners
1961	American Board of Pediatrics
	Licensed to practice medicine in the States of New York, California, Massachusetts and Mississippi

AWARDS AND RECOGNITION

Rockefeller Foundation Fellowship	Kampala 1963-64
United States Public Health Special Fellowship - National Institute of Allergy and Infectious Diseases	London, 1963 Kampala, 1964-66
African Representative, S.Z. Levine Foundation for International Child Health	1963-66
Consultant Editor, Clinical Pediatrics, J. B. Lippincott Co.	1965 to present
Editorial Advisory Board, the Journal of Tropical Pediatrics and African Child Health	1966-70
Member - American Public Health Association	1968 to present

Member - American Academy of Pediatrics	1968 to present
Member - Royal Society of Tropical Medicine and Hygiene	1968 to present
Member - Consultative Survey Team to Biafra	1969
Board of Directors - Americans for Biafran Relief	1969
Panel Member - White House Conference on Food, Nutrition and Health in the United States	1969
Executive Committee of the Board of Directors, Americans for Children's Relief	1970 to present
Medical Advisory Committee, Member Operations Crossroads-Africa	1970 to present
Consultant for American Academy of Pediatrics on Head Start health activities in New York City	1970 to present
Director, Field Nutrition Survey, Nigerian Refugee Camps, Ivory Coast	1970
Delegate - White House Conference on Children and Youth	1970
Associate, Columbia University Seminar on Social and Preventive Medicine	1970 to present
Consultant, Pan-American Health Organization (WHO) for the Guyana National Nutrition Survey for the Caribbean Food and Nutrition Institute	1971
Editorial Advisory Group, the Journal of Tropical Pediatrics and Environmental Child Health	1971 to present
Member of the Subcommittee for Long-Range Planning of the Mount Sinai Hospital Committee on Ambulatory Care	1971 to present
Nutritional Consultant, Catholic Relief Services and Americans for Children's Relief for Pakistani Children in Indian Refugee Camps	1971
Medical Advisory Board - The Carr Foundation	1972 TO present
Member of the Subcommittee of the Citywide Advisory Council on School Health Services of the Board of Education of the City of New York, Bureau for Health and Physical Education	1972 to present
Lecturer in Nutrition Program, Teachers College, Columbia University	1972 to present

Chairman of the Citywide Advisory Council on School Health Services of the Board of Education, The City of New York, Bureau for Health and Physical Education	1973 - present
Consultant, Protein Advisory Group of the United Nations System on: Possibilities for increasing nutritional impact in international food donation and emergency relief programs	1973
Member of the Health Committee of the United States-China Friendship Association	1973 - present
Chairman of the Medical Advisory Committee Operations Crossroads-Africa	1973 - present
Consultant for American Academy of Pediatrics as Regional Liaison to the Early and Periodic Screening, Diagnosis and Treatment Program under Title XIX for Region II including New YOrk, New Jersey, Puerto Rico and the Virgin Islands	1973 - 1975
Member of the Advisory Committee on Prevention Activities of The American Foundation for Overseas Blind, Inc.	1973 - 1977
Lecturer in Nutrition in Black Africa, School of International Affairs, Columbia University Institute of Human Nutrition and Institute of African Studies	1973
Lecturer in Health Services Planning and Design, Graduate School of Architecture, Columbia University	1973 - 1975
Editorial Advisory Board, Medikon, International Edition European Press, Ghent	1974 - present
Chairman of the Advisory Council for Medicaid Early and Periodic Screening, Diagnosis and Treatment Program for the American Academy of Pediatrics, Department of Community Services, Project Head Start.	1974 - 1975
Visiting Professor of Community Pediatrics in the Faculty of Medicine of the University of Saigon, Republic of South Viet Nam, as part of the American Medical Association's Vietnam Medical School project	1974
Member of the Xerophthalmia Club, Royal Commonwealth Society for the Blind, London	1974 - present
Certificate of Appreciation, awarded by the American Academy of Pediatrics for Service to Head Start children	1974
Charter Member, Nutrition Today Society	1974
Member of Nutrition Survey Team for United States Department of Agriculture to Assess Feeding Programs in the Philippines	1975
Regional Medical Coordinator for the American Academy of Pediatrics for the Head Start Program and EPSDT Projects for Region II, including New York, New Jersey, Puerto Rico and the Virgin Islands	1975 - 1976

Chairman of the Planning Committee for the 1976 Nutrition Symposium, sponsored by the Institute on Man and Science and the Mount Sinai School of Medicine	1975 - 1976
Service Recognition, American Medical Association, for serving as Consultant to the Faculty of Medicine of the University of Saigon under the Sponsorship of the Viet Nam Medical School Project	1975
Participant in the Joseph Goldberger Visiting Professor in Clinical Nutrition Program of the American Medical Association	1975 - present
Honorary Patron of The Eastern Clinic in Mobai, Sierra Leone, West Africa	1976 - present
Scientific Advisory Board, The American Health Foundation's 'Know Your Body' Program	1976 - present
Nutrition Consultant, Universidad Javeriana, Bogota, Colombia, on Project for the Promotion of Breastfeeding	1975 - present
Nutrition Evaluation Team for CARE - Pakistan preschool child feeding programs	1976
Member of Ad Hoc Committee on Home Eye Test for Preschoolers, National Society for the Prevention of Blindness	1976
Member of the East Harlem Adult Consumer and Homemaking Education Advisory Council, Board of Education, City of New York	1976
Member of the Academic Council, Mount Sinai School of Medicine	1976 - present
Project Advisory Committee - Joint Study on Populations, Diet and Health, American Institutes for Research	1976 - 1977
Editorial Reviewer: Pediatrics, Preventive Medicine, The American Journal of Public Health and American J. of Clinical Nutrition	1976 - present
Lecturer in Public Health, Columbia University School of Public Health, Institute of Population and Family Health	1976- present
Invited Member, Special Committee on Child Welfare, The Medical Society of the County of New York	1977
Member of the Advisory Committee on Prevention Activities of Helen Keller International, Inc.	1977 - present
Staff Assistant, Protein-Calorie Advisory Group of the United Nations Systems	1977
Co-Chairperson, Health Committee, United States-China Peoples Friendship Association	1977

Member of the Task Force on Eye Health of Children, National Society for the Prevention of Blindness, Inc.	1977
Regional Medical Coordinator for Westinghouse Health Systems Head Start Program for Region II, including New York, New Jersey, Puerto Rico and the Virgin Islands	1976 - present
Member of the Task Force on Operational Research, National Society for the Prevention of Blindness, Inc.	1977
Member of the MEDICO Advisory Board	1977 - present
Member of the Panel on Population, Health, and Nutrition, National Academy of Sciences Study for the United Nations Conference on Science and Technology for Development	1977-78
Member of the Executive Committee, Coalition on Critical Health Issues of New York State	1977 - present
Member of the Working Group on Nutrition Education in Medical Schools, Committee on Public Health, The New York Academy of Medicine	1978
Member of Health and Nutrition Advisory Committee, Madison Taft Headstart Center	1978
Chairman of Sub-committee on Health, Nutrition and Population for the Non-Governmental Organization Committee on Science and Technology for Development	1978

Languages: German, Spanish

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Publications

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Christakis, G., Frankle, R., BROWN, R.E., Jeffers, R., Walter, J. and Deuschle, K. Nutrition Teaching at the Mount Sinai School of Medicine: a three-year experience, Am. J. of Clin. Nutr.25:10, 997-1009, October 1972. (also reprinted in the Hearings Before the Select Committee on Nutrition and Human Needs of the United States Senate, Ninety-Second Congress, Part 1A - Appendix, Washington,D.C., December 1972, U.S. Government Printing Office, Series '72/Nutrition Education - 1972)

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Contributor and participant in Nutritional Assessment in Health Programs. Ed. G. Christakis; Am. J. of Pub. Health; Supplement, vol. 63, November 1973.

GENERAL ARTICLES

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BOOKS

BROWN, R.E. Starving Children: The Tyranny of Hunger, Springer Publishing Company, Inc., New York, 1977.

GENERAL ARTICLES

BROWN, R.E. Young Child Clinics in Diseases of Children in the Subtropics and Tropics. Third Edition, Eds. D.B. Jelliffe and J.P. Stanfield, Edward Arnold, Ltd., London 1978.

BROWN, R.E. Mental Development in Diseases of Children in the Subtropics and Tropics. Third Edition, Eds. D. B. Jelliffe and J.P. Stanfield, Edward Arnold, Ltd., London 1978.

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BROWN, R.E. Weaning Foods in Developing Countries, in Effective Interventions To Reduce Infections in Malnourished Populations, Food and Nutrition Board, National Academy of Sciences.

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Relactation with Reference to Application in Developing Countries

Roy E. Brown, M.D., M.P.H.

RELACTATION refers to the physiologic process whereby, after the usual postpartum production of milk has stopped, human lactation is again initiated by suckling or other stimulation. This induced lactation has been employed to provide human milk for ill or allergic infants, to allow mothers who had been forced to wean their infants early to resume breastfeeding, and even to enable women who wish to nurse an adopted or foster baby to do so.

There are numerous reported instances of nulliparous women successfully breastfeeding an adopted infant[1-5] and of grandmothers relactating after intervals of over ten years since their last pregnancy.[6,7]

The term "relactation" may also be applied to the process of promoting an increased milk supply for a lactating woman thus far unable to provide an adequate amount of milk.

This communication is not designed to outline the various reasons for the consideration of breastfeeding, whether induced by relactation or as natural lactation after a normal delivery. It should be apparent that for provision of high-quality protein ideally suited for the growing human infant, mother's milk has not yet been improved upon. Nor is it our present concern to provide instruction for the woman considering adoption and breastfeeding. We are primarily concerned here with the utility and promotion of relactation in developing, technologically deprived countries.

Why bring up the subject of relactation for those countries when it is usual, customary, and in most parts, expected that all women breastfeed?

Mothers in the developing countries are aware that without breast milk their newborn infants are not likely to survive. No microbiologist has informed these women of the protective value of human immune globulins which provide a defense against bacterial and viral attacks; no nutritionist has extolled the composition of breast milk over that of proprietary formulas; no economist has carefully detailed the cost-benefit advantages of mother's milk over the expenditure of between 25 to 50 per cent of the family budget on prepared baby milks; and no sanitarian or hygienist or ecologist has passed through the village and explained why it is not possible to prevent contamination of bottles, nipples, and formula prepared in the village, let alone describe the difficulties in following the directions, or the problems related to sterilizing and refrigerating the bottles.

Support for the promotion of breastfeeding comes from demographers who have vali-

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dated the traditional knowledge that there is a direct correlation between breastfeeding and prolongation of birth intervals. Women who breastfeed have a post-partum delay in the re-establishment of ovulatory cycles. Consequently, breastfeeding can be a natural method of family spacing which is highly advantageous for both the woman and the infant.[8–10]

In addition to reduced mortality and morbidity rates and improved nutritional status among breastfed infants, there is an increased maternal commitment and better mother-infant bonding when a mother breastfeeds. Since "unconscious infanticide" does exist in many parts of the world, the above relationship must be given serious consideration.[11]

How is relactation or induced lactation established? In general, lactation normally follows delivery. The requirements for successful lactation are threefold: 1) a healthy woman who is interested in nursing her infant, 2) a healthy baby, and 3) a support system of some sort. The third part of the triad may include the father, a grandmother, the midwife or nurse, a doctor, a neighbor, relative or friend, or any combination of these.[12] Particularly with her firstborn infant, a mother, although healthy and desirous of breastfeeding, may have some difficulty at the onset and may have to look to the supportive network in her immediate environment for the encouragement, instructions, assistance, and advice for the nursing triad to be complete and for the nursing process to be a positive experience. Often, one special individual will assume the responsibility for helping the new mother initiate the nursing, or there may be a group comprised of women who have had previous experience with successful lactation.

To be achieved, relactation requires the same three components. In addition to a hungry infant and a woman who is desirous to breastfeed, a support person or network is usually essential for the success of induced lactation. There are reports from many parts of the world of lactation initiated in a non-lactating, non-postpartum woman by merely putting the baby to the breast and allowing it to suckle sufficiently.[13] It is presumed that the baby's sucking stimulates the anterior pituitary gland which causes an increased production of prolactin. This hormone acts directly on the woman's breasts to stimulate the secretion of milk.[14] The sucking of the infant also stimulates indirectly the posterior pituitary, causing the release of pituitrin which passes through the bloodstream to the breast and acts on the small muscle cells surrounding the milk-producing ducts. This action, known as the "let-down reflex" or the milk ejection reflex, forces milk down into the terminal ducts. There is a psychologic component in this physiologic let-down reflex, since anxiety in the nursing mother may actually inhibit the reflex and interfere with breastfeeding.

In many societies, when a mother dies during childbirth, the surviving infant is immediately given to a female relative to feed and rear. If the relative is nonlactating, the infant is put to breast at frequent intervals, and a variety of herbal medicines are simultaneously given. These herbs may have combined physiologic and psychologic or placebo effects. In most of these instances, after a few days of sucking, induced lactation commences. Although the quantity of milk may not be sufficient at first, the baby, given additional foods such as gruel, will suckle strongly enough to produce a normal milk flow within a short period of time. Lactation, whether induced or natural, is the end result of the prolactin reflex in conjunction with the let-down reflex.

A variety of pharmacologic agents have been used to promote relactation, both in the non-postpartum woman and in the lactating woman whose milk supply is not sufficient. Either estrogen or progesterone, the main components of contraceptive pills, stimulate the proliferation of breast alveoli and ducts.[15,16] There are, however, contraindications for using these hormones for relactation purposes. They may be excreted into the milk supply with unknown consequences to the infant; they may also inhibit lactation.[17,18]

Oxytocin as a nasal spray or in oral tablets has been given to induce lactation, with variable success. Oxytocin stimulates the milk ejection reflex and thereby aids in the complete emptying of the ducts during breastfeeding; in addition, it may assist in the release of pituitary prolactin and thereby stimulate milk pro-

duction. High dosages of oxytocin, or prolonged use, however, have been reported to exert an inhibitory effect.[15,19,20]

Reproducible data indicate that institutionalized mental patients, whether male or female, may begin to lactate spontaneously after receiving large doses (1,000 mgm or more) of Thorazine, a major tranquilizer. Thorazine seems to have a dual chemical action, being both a tranquilizer and a galactagogue. Thorazine, in conjunction with strong positive reinforcement, a sound maternal diet, and a hungry suckling infant has been successful in the induction of lactation.[21] In the Bengali refugee camps in India, low doses of Thorazine, 25 to 100 mgm 3 times daily for periods of 7 to 10 days, initiated milk production in nonlactating women and increased the milk supply in already lactating women.[22] It is possible that Thorazine and other chemicals, as well as certain herbal agents,[3,23] work both physiologically and psychologically to promote the let-down reflex and lactation.

In recent reports, several authors describe their experience with the use of Metoclopramide, a drug known as a potent stimulator of prolactin release when given intramuscularly, intravenously or orally in a dose of 10 mgm.[24–26] The effect lasts approximately 60 minutes if administered orally, raising the level of prolactin from 3 to 8 times that of normal within 5 minutes and continuing for up to 8 hours. When used with healthy primigravidae to stimulate milk secretion, Metoclopramide should be given every 8 hours for 7 to 10 days. This agent has been employed when a spontaneous decrease in milk volume could not be reversed by merely putting the infant to the breast more frequently. The use of Metoclopramide in low dosage is deemed safe, with no side effects noted in either mothers or infants, though the amount secreted in breast milk has not been measured. These observations are as yet preliminary and unsubstantiated.

When considering the beneficial effects of any of the medications employed to induce lactation, there still must be an enthusiastic physician, nurse, midwife, or a team of such persons positively encouraging the mother, and offering additional support. In this circumstance it may be their combined efforts that promotes relactation, rather than any medication being taken. This possibility must always be taken into account when evaluating a medication trial. Such a trial could only be scientifically acceptable when conducted under double-blind conditions.

In the camps in India for refugees from Bangladesh, gastroenteritis was extremely prevalent among the young infants. As immediate therapy, the infant was kept hydrated while all feedings were discontinued. Often, after the diarrhea and vomiting had stopped and the infant was ready to resume regular feedings, the mother's milk had dried up. The infant would then be fed reconstituted formula provided by international relief agencies. But the water used to reconstitute the powdered milk was contaminated, thus causing a recurrence of gastroenteritis and keeping up a vicious cycle. Mothers who had temporarily stopped breastfeeding because of an intercurrent illness in their infants could usually and easily start lactating again within a few days by merely putting their infants back on the breast. This process of relactation among mother-infant pairs was one means of avoiding the use of contaminated water, for it is customary among Bengali women to breastfeed for a long time. Furthermore, in the traditional extended family, relatives or even friends of the family would serve as substitute wet nurses when necessary.

Families living under the difficult conditions in refugee camps become very pragmatic. Once convinced that a certain approach actually works and will benefit them and their children they will rapidly accept it. It is essential that every nursing woman be adequately fed and healthy. The Indian Government recognized that it is far simpler and less expensive to provide adequate nourishment for lactating women than to provide artificial formulas for infants. Wherever a feeding program now is implemented for infants and children, special additional supplements are made for women who are pregnant or lactating.

It was proposed to the World Health Organization that a study of relactation be considered for large numbers of Bengali women in the camps in order to avoid the use of local

water. This recommendation was under consideration in 1971 when war broke out. A field trial was not feasible at that time but, on an individual basis, relactation was successful among many Bengali refugees, with or without the addition of drugs, through instructions provided to health personnel in the refugee camps, in field stations, hospitals and rehabilitation centers.

During the final months of the Vietnam war there were an estimated 100,000 orphaned children in South Vietnam. Contact was established with several orphanages in Saigon where small numbers of newborn infants were being accepted. Many of these "orphans" were actually children of women too poor to feed and clothe them, who gave them over to the orphanages for adequate care. A plan to hire women as wetnurses for such young infants was presented. Once a woman was found to be healthy and interested in providing breast milk, she would be induced to lactate. In addition to minimal cash wages she would receive three meals daily, would stay in the orphanage to assist with the care of infants, and once her milk supply was reestablished would provide milk for two young orphans. Jobs were scarce in Saigon, and there were women who were interested.

The requirements for successful lactation are threefold: 1) a healthy woman who is interested in nursing her infant, 2) a healthy baby, and 3) a support system of some sort.

Arrangements were made to keep complete medical records of the infants' weekly lengths and weights, and also of such intercurrent medical problems as respiratory, gastrointestinal, and skin infections. These records were to be compared with those of similar small infants matched for age and sex, but fed with bottled formula. A small controlled study was developed with 10 infants in each group.

Thorazine was given for its galactagenic properties and its placebo effect. The initial dosage of 100 mgm 3 times daily caused the small Vietnamese women to become drowsy, so the dosage was first lowered to 50 mgm and finally to 25 mgm 3 times daily for the first 7 to 10 days. This project should have enabled us to evaluate not only the relactation process, but also the possible effects on the growth and health of Vietnamese breastfed infants with a matched group for comparison. However, due to pressures in the final stages of the war, the orphanages found it impossible to maintain this program and the controlled trial was discontinued.

Although these two situations described in Asia did not permit a convincingly documented demonstration of relactation, the potential remains, particularly during similar massive catastrophic situations. But on an individual and special basis, there is no question that relactation is proving practical every day in many parts of the developing world. With maternal death or illness following childbirth, interested relatives put the infant to the breast and his sucking stimulates milk flow. When a mother has recently discontinued her breastfeeding due to her own or the infant's illness, reestablishment of full nursing requires only several days, given the basic nursing triad. When the baby's mother is not available, a substitute woman can be induced to relactate, though the process takes somewhat longer to initiate.

Knowledge about relactation is not as widespread as it ought to be, even in developed countries. Instruction should be given to all medical practitioners, midwives, nurses, and others in these parts of the world with respect to the simplicity and ease with which breast milk can be made available when needed for small infants, whether sick or well.

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Breast feeding in modern times

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Picture a short, dark-skinned woman sitting on the edge of a low hospital bed on which there are two wizened-looking, premature infants, each weighing approximately 2 lb. The Indian nursing sister stands by the bedside describing the fact that the premature twins being examined are no longer having seven loose and watery stools daily and are taking their prepared formula extremely well without regurgitation. Although the Bengali-speaking mother does not understand our words, she reaches underneath the bed and takes out a rather dirty appearing, old-fashioned, 4-oz feeding bottle with what appears to be a contaminated rubber nipple and proceeds to feed one of the infants.

The nurse is very proud of having helped resolve the gastroenteritis problem of the twins, but unfortunately, is unaware that she, in fact, is very likely to be the indirect cause of the infants' dying of either recurrent gastroenteritis, malnutrition, or another infection.

Upon being admitted to the field hospital, the infants had been taken off breast feeding and once the diarrhea subsided, would be discharged in the care of an illiterate mother who would be unable to follow carefully given instructions as to the preparation of an artificial formula. The mother may have been keenly interested in breast feeding her infant twins, but had dry breasts as a result of discontinuation of natural feeding during her 10 days of hospitalization. Unfortunately, the mother would be unable to obtain anything but contaminated well-water for preparation of the formula. In addition, no amount of instruction in the world could alter the difficult if not impossible, task of keeping feeding bottles and nipples in sterile condition.

Yes, we have the methodology to cure infant gastroenteritis, but by substitution of an artificial formula for natural breast feeding in that Bangladesh refugee camp, it must be clearly understood that the infants will invariably receive an inaccurately prepared, diluted solution of bacteria-containing formula. In this instance, the beneficial results of medical intervention may seriously be questioned. Artificial feeding for a village baby in India has been described as a virtual death sentence (1).

Through an interpreter, it is learned that the mother is interested in breast feeding her twins. When it is mentioned that we have a very powerful and special medicine that would assist her milk in returning, she expresses definite interest and eagerly accepts the medication. What was prescribed for this woman was a capsule of Thorazine, 25 mg, to be administered three times daily for a total of 3 days. This tranquilizer has a minimal pharmacological action on the let-down reflex, but primarily, the effects are considered to be psychological. The medication is given with a pep talk, indicating that the medicine will definitely have a positive effect in causing the milk to return in increased quantity. Attention must be paid to the maternal nutrition and hydration and the infant must have a good sucking reflex and be put to each breast frequently during each 24-hr period.

Two days after Thorazine, a return to the refugee camp showed that the mother's milk had returned and she was very pleased with the results. A week after the induced lactation, the infants were

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well on their way to recovery from their previously undernourished state. It was strongly advised that even if the loose stool recurred, the mother was to continue with her breast feeding. The nurse in the ward was impressed with the demonstration and another woman, caring for her own infant in a nearby bed, requested that she be given similar "strong medicine" so that she, too, would be able to feed her infant. Generally, people in developing countries are very pragmatic and require positive demonstrations before they are convinced of certain effects.

The above events occurred in November 1971 during a visit to the Bangladesh refugee camps in the vicinity of Calcutta. Among the 10 million refugees who had left their homes in East Pakistan, there were estimated to be approximately two million children under the age of 6 years, and an estimated 600,000 infants who were being breast fed.

In Bengal, not only is breast feeding culturally acceptable up to the age of 3 years, but under the system of "joint families," it is not unusual for a maternal sister or sister-in-law to assume the role of wet nurse if the mother is either ill, has died, or is unable to breast feed due to pregnancy. Thus, induction of lactation and encouragement of lactation is completely within the acceptable culture of Bengal. Induced lactation has been reported in other parts of the world, namely Africa and Asia, as well as parts of Latin America (2–5).

In view of the enormous logistical difficulties involved in the distribution of milk powder or liquid for infants, the problems of reconstitution into formula by illiterate mothers, and the possibility of contaminated water being used, it was strongly recommended that breast feeding be encouraged and, if necessary, induced in the Bangladesh refugee camps.[2] Children in new urban families often have unsatisfactory nutritional status. In part, this is associated with the fact that fewer mothers are breast feeding their infants in the urban situation and, in many instances, breast feeding, if started, is not continued for as long a period of time as in the rural situation.

There are many problems associated with early weaning including inadequate or poorly designed, supplementary weanling diets that cause a significant incidence of poor nutrition during the first 2 years of life. A recent pediatric workshop strongly recommended that "maintenance of breast feeding is a major public health measure" and that every approach be undertaken to counteract the decline of breast feeding and the shortening of the period of breast feeding (6).

It is necessary to take a rather broad approach to involve the commercial companies preparing infant formula and foods and to give increased emphasis to the education of mothers and families, as well as pediatricians and nursing personnel working in the field of infant and child care. All opportunities should be utilized for nutrition education and the pediatrician should assume the responsibility as a specialist in child health to become actively engaged in the wide-scale communication of sound infant feeding (6).

A massive urbanization movement is occurring throughout the world with large numbers of families moving from a rural environment in which much support is provided by an "extended family" to the "nuclear family" situation in growing urban areas. People are often not prepared to compete educationally or occupationally in the already crowded cities. There are many adjustments that become necessary when the new urban families are forced to live in unsanitary and crowded conditions. Invariably, mothers are forced to take jobs to assist with the support of the family, and this may cause difficulties in family stability, as well as in the psychological adjustment when females are more likely to be employed than males. A change from a subsistence economy to one dependent on cash can lead to many problems.

Problems develop in urban centers that

[2] The steps for this procedure are to be found as an Appendix with a commentary about the difficulty in adequately sterilizing feeding bottles and nipples with the suggestion that it would be much more suitable to have a readily available, physiologically prepared, naturally constituted breast milk supply in the refugee camps, than to face the overwhelming task associated with provision of commercial formulas.

never occur in the rural areas, such as abandoned and illegitimate children, the need for day care centers or baby sitting facilities, the lack of availability of other family members to care for children while the mother is forced into the labor market, and the absence of available home-grown crops to supplement the family table. Crowded slum conditions often develop on the outskirts of large cities and create urban ghettoes familiar to both developed and developing countries. The lack of sufficient educational institutions for both the children and parents, and the absence of a clean water supply and sanitary facilities, often combine to extend and perpetuate the extant public health problems.

Sociological problems related to urbanization have overburdened the already extended facilities for housing, education, employment, and social services. This has been called "disurbanization" as slums in and around the urban centers are increasing at a rate of two to three times the original size during each 10-year interval (7).

Expectations entertained prior to the move to the city are often destroyed after a brief period of urban living. The enormous changes in culture and socialization and a worsening of the life situation have been subjects for sociological and anthropological discussion (8). One of the major problems is that of food supply and it is predictable and inevitable that there will be a decrease in the number of women able to breast feed, a shortening of duration of breast feeding, along with what must be termed a completely inadequate concern about weanling foods. The large number of infant deaths in the first year of life can be directly or indirectly attributed in great measure to nutritional problems faced by the newly urbanized families in conjunction with an increased susceptibility to infectious disease, particularly gastroenteritis and respiratory infections (9, 10). There are many similarities between the present situation and what occurred in Europe during the late nineteenth century (10, 11). One of the major differences is the change in attitude relating to breast feeding and the alternatives that are currently available.

In the developed countries during the last century, when a mother was personally unable to breast feed her infant, provision was made to have human milk provided by a wet nurse or some other woman. With the development of infant formula, completely adequate nutrition can be achieved with artificial feeding. It must be kept clearly in mind that only in the twentieth century have advances in technology, particularly in methods of dairy farming, food processing, environmental hygiene, and pediatric nutrition been combined to make the artificial feeding of infants practical for most families in the industrialized countries of the world (5). The steady rise in artificial feeding has been associated with a progressive decline in breast feeding.

A wide variety of infant formulas is now being sold in the markets of the United States and Europe. Some formulas are in powder form, some liquid, some require reconstitution with water, whereas others do not, some are hypoallergenic and others have had various vitamins and minerals added. It is generally safe to assume that thorough testing has been made of the formula compositions and that adequate infant nutrition will result from their proper use. However, as with other so-called convenience foods, the general public must pay the commercial companies for that convenience. In a newly urbanized family, the financial pressures may be extreme, and it is not uncommon for a well-meaning mother to be forced to cut her food costs by over-diluting or "stretching" the infant's formula.

Many companies in the infant formula business spend large sums of money promoting and advertising their products. In addition, in many developing countries where the urbanization process is in full swing, companies often recruit some of the scarce professional resources with provision of large salaries to highly trained nursing sisters to become what has been designated as "milk nurses." Nurses are hired to travel around the country in order to "promote good infant feeding." The basic approach employed by these companies is to superficially express an interest in the promotion of breast feeding, while having to admit that "unfortunately, breast feeding is declining in popu-

larity as well as duration," and that "we must be realistic about the situation and assist women in the preparation of substitutes for breast milk."

Added to the natural tendency of the poor mother attempting to cut costs by stretching the formula are several other related problems in formula preparation. The uneducated mother may easily misread or misunderstand the directions and incorrectly reconstitute the formula. In many new urban centers, the contaminated water supply will contaminate the formula. There is an associated problem with the cleansing of feeding bottles and nipples, with fuel and facilities for the sterilization of the bottles and nipples, and with refrigeration of the prepared formulas.

In many instances, the theoretical product designed by the infant feeding company is not at all similar to what is actually being fed to the infant Unfortunately, in many places the mother is giving her infant an over-diluted artificial formula which, in addition to various nutrients contains solutions of pathogenic bacteria stored in contaminated feeding bottles. The end result is not only poor nutrition but also recurrent bouts of diarrhea that will cause further dietary restriction, modification, and dilution and which will increase the likelihood of malnutrition and possible death (1, 12).

Visitors to the mainland of China recently described that the infants are universally breast fed by their working mothers and that the time and place to breast feed the infants during working hours are provided by the mothers' employers

The psychological advantages of breast feeding have been emphasized by many people in the past (13). The economic advantages of breast feeding should also be clear and obvious. However, for children in a newly urbanized family in many developing parts of the world, not enough importance has been given to health benefits which would result from the widespread and more prolonged duration of breast feeding. In many developing countries, significant improvement in morbidity and mortality rates of infants would result from a continuation of the traditional practice of breast feeding.

There is no question as to the economic advantages of breast feeding over artificial formula (14). When multiplied by a factor of thousands of women who are managing households under difficult financial circumstances, the economic benefit to many families would definitely be significant (15). The technology involved in the promotion and dissemination of artificial infant feeding could possibly be adapted from the commercial companies, emulated by the public health authorities, and re-directed toward good infant nutrition. Among the poor families in many parts of the technologically developed world, there is a definite decrease in the number of mothers who breast feed their infants. In a recent study in the rural part of Mississippi, the majority of the mothers did not attempt breast feeding at all and only 16% breast fed their infants for longer than 6 months (16). All over the world, poor people attempt to follow the standards and patterns set by the middle and upper classes. For example, in the United States, the current emphasis on breast feeding comes from the educated, often wealthy and sophisticated women exemplified by organizations such as LaLeche League International (LLLI) (3). The poor and working women, having copied the more well-to-do, standard-setting women in past years, still are more committed to artificial feeding and generally consider breast feeding to be unacceptable.

It is never suggested for sound infant nutrition that breast milk alone will provide sufficient nourishment for the growing infant during the first year or two of life (17). After the age of 4 to 6 months, supplementation with various foods must be given because milk does not contain sufficient micronutrients, such as iron or ascorbic acid. However, in situations in which every gram of protein is vital for the development of the fast-growing brain and the body, the calories and protein sterilely provided by breast milk may prove to be an important, if not critical, additional factor in the process of normal growth and development. In instances when animal protein is costly and difficult to obtain, breast milk may well make a significant difference if it is provided over the first several years in addition to other dietary intake.

Children who are only provided breast milk and no other solid foods have been known to develop protein–calorie malnutrition. On the other hand, it must be emphasized that during the first 4 to 6 months of life, when infants are universally breast fed, height and weight growth curves in developing countries are as good, if not better, than growth curves from the industrialized countries (17). For the individual as well as for the group, breast feeding alone for the first 4 to 6 months and breast milk with additional food will unquestionably provide adequate nutrition. If breast feeding is continued for periods up to 1 to 3 years, it should be considered as another source of good quality animal protein. Decreasing the infant mortality may be a relatively simple matter by the health sector conducting a successful campaign on proper management and treatment of gastroenteritis. However, it is apparently extremely difficult to increase the number of women breast feeding their infants or to prolong the duration of such feeding practices. Physicians and nurses are not sufficiently adamant in their insistence that the mother breast feed her infant. In most instances, an alternative exists in that artificial feeding is available However, in some parts of the world, the use of artificial formula should be discouraged because of conditions of unclean water supplies, the lack of possibilities for adequately cleaning feeding bottles and nipples, and because it is economically unfeasible.

In the government teaching hospital in Kampala, Uganda, no artificial feeding was permitted. It was the official policy of the Department of Pediatrics and Child Health that all women who were able would be strenuously encouraged to breast feed their infants and young children. When a mother died at childbirth, or was no longer available due to other reasons, and when another relative could not be encouraged to provide her milk for the infant, milk was provided with a cup and spoon It was felt that such utensils could be sufficiently cleaned to provide a noncontaminated supply of milk. Lactation was induced in some women, and the practice of encouragement of breast feeding and the discouragement of bottle feeding was stressed with success in Africa as in other parts of the world.

Leaders in the commercial field of infant nutrition have definitely reaped their success with mass communication and have served to influence large numbers of young mothers. It is a matter for the health professional and paraprofessional to demonstrate not by words alone, but by action, the positive effects of good breast feeding in conjunction with adequate supplementation for the growing infant. Little, if anything, is to be found in the pediatric and nursing textbooks in favor of breast feeding. Specific instructions as to how the medical and nursing staffs could be trained to encourage natural breast feeding are rarely found (18). In fact, it is not unusual to have the newborn infants separated from their mothers during the hospital stay as a specific discouragement for breast feeding on demand (19).

Perhaps the modern mother is too involved with other matters to be concerned with breast feeding or the claims that breast feeding may result in unattractive cosmetic results have influenced some women. However, there appear to be no countermeasures on the part of the medical or nursing professions. In parts of the world where breast milk can make the difference between normal growth and development from both a nutrition and sanitary point of view, mothers are influenced by the commercial companies whose success in the technologically advanced parts of the world have given them the resources to undertake broad promotional projects for artificial feeding elsewhere.

There is a need for legislation in favor of lactating mothers, whereby time is provided for the mother to nurse her child while at work or additional milk is provided free, not only for growing schoolchildren, but for nursing mothers. On a national scale, this may have some influence in favor of breast feeding. Nevertheless, the onus for starting and continuing breast feeding must fall on the health professionals.

It is a fact that commercial firms distribute supplies of free formula to various hospitals to encourage the use of their products. This represents a not too subtle influence on both

the hospital staff and new mothers and can only occur with the direct permission of the hospital administrators and the professional staff. These handouts and other advertisements reap the benefit of constant influence in the promotion and use of artificial formula and serve to undermine the diminishing numbers in favor of breast feeding.

Many medical conferences are supported by the commercial firms, free cocktail parties are provided at all the major medical conventions, and in some instances, research is underwritten by the food companies. These activities may not have a major negative effect in the developed parts of the world. However, in many places with unsatisfactory sanitary conditions where promotional schemes have been advanced, gastroenteritis and infant deaths have been an indirect result (20).

Before the time of the development of the first infant formula, nearly every infant was breast fed either by his mother or a wet nurse. Even low birth weight infants were put on the breast or somehow provided with breast milk. Times have changed and it is important to recognize the success of the food companies in the field of infant feeding. Professionals interested in pediatric nutrition should meet with the commercial people and establish a vital rapprochement (21). It may be necessary for the government to become involved and join in the promotion of breast feeding along with other health programs such as family planning. There is a need for additional hard data so that the economic advisors of national policymakers become aware of the absolute costs to each country in terms of infant mortality and morbidity, as well as in terms of medications and hospital days which, directly or indirectly, result from the substitution of breast milk with unsatisfactorily prepared artificial formula (20).

As a final consideration, it has been demonstrated in many parts of Asia and Africa that lactation can be encouraged and induced. In times of major nutritional catastrophe, increased attention to the encouragement of lactation to provide adequate nutrition for infants is strongly recommended (22, 23).

Appendix

Encouragement of lactation

Children over the age of 4 to 6 months require supplementation plus breast feeding, and it should be understood that breast milk can provide additional protein to a child's diet up to the age of 3 years.

The following are simple steps which have been found to be successful when lactation is to be encouraged on an individual basis.

1. Establish whether the mother is definitely interested in breast feeding the infant.
2. Provide adequate food and liquid for the mother's dietary needs so that she will be able to produce breast milk.
3. Indicate that there is a "powerful and special medication" which will stimulate the production of large quantities of breast milk (Thorazine or Largactyl, 50- to 100-mg tablets).
4. Mention that the special medication will be provided three times daily for a period of 10 days, during which time the adequate flow of breast milk will be established.
5. Make certain that the infant has a good sucking reflex and that the mother knows that she should nurse for 5 to 10 min on each breast at the time of the feeding. The more times the infant is put to the breast at the onset of this process, the faster and more adequate will be the lactation; two to three hourly feedings are advised.
6. Return to the mother during the first 3 days to encourage her feeding, reinforce the fact that the infant will be getting excellent food. Do not interrupt lactation in the presence of loose stools or any other complication.
7. Breast milk provides a certain number of calories, a definite amount of high level protein, and will be an uncontaminated feeding.

Breast feeding avoids the problems of distribution of milk powder and its reconstitution into formula with possibly contaminated water. Breast feeding eliminates the difficulty of explaining how to measure the correct amount of powder and water for accurate reconstitution. The use of feeding bottles in

a refugee camp or even a rural village situation is not to be encouraged because of the associated problems involved with inadequate sterilization of bottles and nipples.

Breast feeding can be successfully accomplished by any woman who has previously had a child, as long as she wants to feed the child and can be encouraged to do so. For the benefit of the medical personnel involved in the above Nutrition Education Program, it should be mentioned that Thorazine (Largactyl) has a definite, but minimal effect on the establishment of lactation. The major process involved in the above steps is one of psychological encouragement, desire on the part of the woman to lactate, her being adequately nourished to provide milk, and the infant being well enough to have a good sucking reflex (24).

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PUBLIC HEALTH PERSPECTIVE

Some Nutritional Considerations in Times of Major Catastrophe

Observations Following a Recent Visit to the Bangladesh Refugee Camps in Northeastern India

ROY E. BROWN, M.D., M.P.H.*

On a trip jointly sponsored by the Catholic Relief Services, the Americans for Children's Relief and The Mt. Sinai School of Medicine of The City University of New York, Dr. Roy E. Brown spent 2-1/2 weeks in November 1971, in the Bangladesh Refugee Camps in India, observing the nutritional and general health status of children and infants in the camps. Dr. Brown has unique qualifications for this responsibility as an American-trained pediatrician who has worked for 8 years in many overseas countries including Haiti, Germany, Peru, Ethiopia, Uganda and the Ivory Coast. He has also made briefer trips serving as a pediatric nutrition consultant in Malawi, Biafra and Guyana.

THE children from East Bengal whom we recently studied in the Bangladesh Refugee Camps in India exemplified a great many of the problems which are inherent in a community coping with mass malnutrition. For example, most of these children, even when residing in East Pakistan, were far from being in the best general health and nutrition prior to the political and military turmoil of 1971. Their diets were barely adequate; intestinal parasites were ubiquitous; diarrhea and respiratory infections were endemic.[1] Superimposed on this had been a sudden uprooting, a traumatic flight across the border into India and camp surroundings with other families in the same plight.[2]

The Indian government and its field representatives deserve unreserved credit for their very substantial efforts to take care of these refugees by providing shelter, water, sanitary facilities, clothing and food. Some assistance was also received from the United Nations, the United States Agency for International Development, the International Union for Child Welfare, The League of Red Cross Societies, and numerous other governmental and voluntary sources.

The number of persons looked upon as refugees or displaced persons in camps in Northern and Central India by November, 1971 was estimated at approximately 10 million, a figure larger than the whole population of most of the countries of this world. To quote Scrimshaw: "The magnitude of the refugee problem and the human suffering associated with it can only be appreciated when seen at first hand, and even then is so overwhelming as to be almost beyond comprehension." [3]

In addition to West Bengal's enormous problems of logistics, finances and management of these refugees from East Pakistan, were the already existing concerns associated with the thousands of previous refugees from Tibet, and the victims of the preceding year's cyclone and floods in the neighboring state of Orissa.

In any major catastrophe, the most vulnerable groups are the infants and pre-school children, the lactating and pregnant women, and all who are elderly or ill.[4] Among the estimated 10 million individuals under consideration were approximately 2 million infants and younger children, and another 2 million older children aged 6 to 15 years.

The factors which influence nutritional status go far beyond dietary intake. With young children, infectious diseases often have a negative effect on the nitrogen balance and therefore on their nutrition. Contributory is the anorexia which is associated with any infectious process.[5] Also, when the nutritional status is borderline, with any contagious disease the nutritional imbalance becomes more severe and significant complications arise of synergistic origin.[6,7] Intestinal parasitic infestations of roundworms and hookworms and even such relatively minor skin problems as impetigo or scabies can negatively alter nitrogen balance.

Already evident in East Pakistan prior to the mass exodus, as Chen

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and Rohde noted, were specific nutritional problems that included vitamin A deficiency, deficiencies of riboflavin and vitamin C, and anemia.[8] Other major medical problems were epidemic outbreaks of cholera, tuberculosis, diphtheria and smallpox, along with the chronic diarrhea associated with malnutrition and poor sanitation. Among the ones most seriously affected in a refugee situation are the weanling infant and the very young child because of their refusal to accept an adult diet.

Specific Recommendations

Based on general impressions developed during visits to these refugee camps, the recommendations which follow deal with the health and nutritional considerations of the infants and young children. These could be conducted by supervised paramedical personnel, would be easy to administer, and would be both inexpensive and implementable. Many of the paramedical assistants may be recruited from within the camp itself.

Feeding. Mass campaigns should be organized for feeding the very large numbers of young children, with specific orientation towards correcting the specific conditions which were highly prevalent among them.

The distribution should include either vitamin A or multivitamin capsules because keratomalacia and blindness were prevalent among the Pakistani refugees.

Correction of Anemia. Although anemia in developing countries may have multiple causes, we may presume that iron deficiency anemia will be widespread among the refugee children.[9] Therefore, some form of iron medication, either as tablet or liquid, should be distributed once a week or once a fortnight. This is to supplement whatever iron is present in the diet.

Treatment of Parasites. There should be similar wholesale treatment for intestinal parasites. *Ascaris lumbricoides*, during the two months between ingestion of a microscopic egg and the development of the mature adult worm, diverts large amounts of ingested protein into the anabolism of the worm muscle. Under ordinary circumstances such a worm burden may not be a major problem, but in refugee children such as these the nutritional status may be impaired further by such parasites.

FIG. 1. Dr. Brown listening to the chest of a young child (photo by Ernst Herb, KNA Pressebild).

For *roundworms*, piperazine in either liquid or tablet form can be safely given by paramedical personnel to the large numbers of children in the feeding programs in standardized 5, 10 or 15 milliliter doses. Piperazine treatment could be kept up routinely once or twice a month, on the assumption that reinfestation is continuous within the camps. No purgatives are needed.

Through continually draining away whole blood, adult *hookworms* in the small intestine add to the child's problem of anemia. The mass treatment for hookworm is somewhat more complicated, since the dose of trichloroethylene, though inexpensive, must be carefully adjusted to the child's body weight. This is not a major obstacle, however, and can also be easily managed by conscientious and trained para-medical personnel.

Trichlorethylene treatment should be given to all the children once or twice a month but not until *after* the course of piperazine. Trichlorethylene is highly irritative to roundworms so that a child with a heavy infestation of both parasites must be first treated for roundworms to avoid the mass migration of roundworms following a dose of trichlorethylene. Intestinal obstruction is a possible consequence of such therapy.

FIG. 2. Refugee child with severe protein-calorie malnutrition (kwashiorkor) with signs of edema and gluteal muscle wasting (photo by Brown).

Malaria. This is a serious infection, particularly in young children. Passive immunity is transmitted to infants in regions of endemic malaria and generally lasts for the first 6 months of life. Older persons living in endemic areas of malaria develop a protective immunity, but children from age 6 months to 3 years are susceptible to the parasite and can develop weakness, anemia and attacks of fever, convulsions and unconsciousness.

It is not known how prevalent malaria is among the refugee population, but according to the physicians working in the camps it is not a major problem. Until a prevalence study is carried out, based on spleen findings in the young children, specific therapy with chloroquine should be withheld. If malaria is identified as a significant problem for the refugees, mass prophylaxis with chloroquine could be introduced.

Infectious Diseases. With a jet injection apparatus in the field, 1,000 children per hour can be given mass vaccinations.[10]

We strongly recommend that all the children be given triple vaccine (DPT) for protection against diphtheria, pertussis and tetanus.

We strongly recommend also that all be vaccinated with BCG against tuberculosis.[11, 12] Discussions with a noted Indian authority on tuberculosis have brought out that 1.8 to 2 per cent of the Indian population have active tuberculosis and that one-third to one-half of these individuals have actively contagious disease processes.[13] Given the crowded living conditions, the psychologic problems and the duress associated with the flight from their homes, and the fact that malnutrition is extremely common, it can be assumed that there must be large numbers of individuals with active and highly contagious tuberculosis in the camps.

Vaccination against smallpox can easily be administered on a mass scale with the pedojet apparatus. There have been no reported cases of smallpox as yet, however, and the possibility was not indicated as a major concern of the physicians in the camps.[8]

Skin Conditions. Mass treatment for scabies and other skin infections is advisable during the times that the children wait in line for food distribution.

Comments. It is easier to conduct mass programs such as these with large numbers of children in refugee camps who are in feeding programs than to conduct similar programs among children in an ordinary community. The programs here recommended can be administered easily to the young children if planned in terms of the logistics of the camp, the availability of para-medical personnel, and the availability of the medications. In fact, the medications are available, are not very expensive and are extremely easy to administer. Other mass campaigns which may be indicated can be undertaken in parallel fashion.

Discussion

It was made clear by the health authorities in the Refugee Camps that no long range programs could be undertaken in view of the unstable political circumstances. Nevertheless, as is well known to workers in nutritional programs of this nature, starting prophylactic measures early helps to forestall the complications and later mortality from severe malnutrition.

One can apply a crude sort of cost accounting to the health circumstances in such camps. For instance, within the intestinal tracts of the tens of thousands of children under consideration, the roundworms are cumulatively stealing tons of protein from ingested food sources. Similarly, uncountable liters of children's red blood cells are passing from the capillaries of their intestines into the bodies of millions of hookworms.

It is not suggested that the proposed remedial approaches will cure either the individual children or the large groups of children. It must be pointed out that such prophylactic medicinal campaigns, when carried out in conjunction with the mass feeding programs for the children and the others in the high risk categories, can help keep the balance of borderline nutritional status from tipping over into frankly overt deficiency diseases.

If the Indian government were not in position to undertake the campaigns as recommended above, possibly the Voluntary Agencies, with governmental approval, could institute these programs for the children in the Refugee Camps and for those in the neighboring communities as well. We must keep in mind that the natives residing near the Refugee Camps tend to be afflicted with similar conditions of borderline nutritional intake, anemia, parasites and vitamin deficiencies. The Indian government must carefully apportion its re-

TABLE 1. *Suggested Program for Mass Campaigns to be Repeated Every Other Week*

	Monday	Tuesday	Wednesday	Thursday	Friday
Medication to be given	Iron	Piperazine	Vitamin A or multi-vitamins	Trichlorethylene	Other treatments, determined by local medical indications*
Condition	Anemia	Roundworm	Avitaminosis	Hookworm	Miscellaneous

* The three monthly DPT and the single BCG immunizations can be administered with the use of two jet injectors simultaneously.

sources between the indigenous populations and the refugees from other countries. The Indian government deserves high praise for the major efforts it has been making on behalf of the large numbers of refugees.

Providing Breast Milk. In developing countries, where breast feeding is almost universal, the infant who cannot be provided with mother's milk is in serious jeopardy of succumbing early in life to either malnutrition or recurrent and fatal gastroenteritis.[14] In these countries, when a mother has died or become seriously ill or run away, female relatives undertake to breast feed the infant until he is able to accept another diet. This process is relatively simple if the woman serving as a wet nurse has had a recent birth and is lactating adequately. However, as has been described in both Asia and Africa, women who are not lactating, such as young grandmothers and/or aunts of the infant, can be induced to lactate if they have the interest and desire to do so.[15–17] Induced lactation has been reported in nulliparous women as well as in nulliparous experimental animals.[18–21]

The Bengali woman under ordinary circumstances can successfully continue to breast feed her child up to the age of 2–3 years. The traditional circumstances of living in a joint family provide the opportunity for relatives or even friends to serve as substitute wet nurses when necessary.

On an early visit to one of the Refugee Camps, two prematurely born infant twins, aged 1 month, were examined. Each infant had an estimated weight of approximately 2 pounds. Upon inquiry via an interpreter, the mother said that the infants were being treated for gastroenteritis, and that since she did not have an adequate milk supply they were being fed a proprietary formula from a feeding bottle. When asked directly, the mother indicated that she would be agreeable to trying some "very strong medicine" which would bring her milk in large quantities so that she would be able to feed her infants. She was given an oral dose of Thorazine (Largactyl 25 mg), to be repeated three times daily for a maximum of ten days. A return visit on the second day of this program showed that the breast milk had indeed returned in adequate quantity. Another follow-up visit a week after starting this "psychological" therapy showed that both infants were very much improved. Accurate documentation of weight gain by use of scales was not feasible.

Another mother caring for her infants in the vicinity of these premature twins expressed a desire for similar therapy. This was started immediately and with equal success. The ward personnel, including physicians and nursing sisters, were impressed with this demonstration.

Individuals living in circumstances as difficult as in a Refugee Camp become very pragmatic. If they can be convinced that a certain process works to their benefit, they will fully accept it.

Obviously, every nursing woman must be adequately fed. It is simpler and cheaper to provide an adult-type ration which will satisfactorily nourish a lactating mother than it is to provide either a formula or a weanling diet to an infant. The Indian government has recognized this fact, so that wherever it supports a feeding program for young children it also provides for the feeding of lactating and pregnant women.

An essential aspect of induced lactation requires a positive desire on the part of the mother or other women to be a breast feeder. Both the physician and nurse must express an absolute belief that the particular "medicine" being given will actually stimulate and increase the flow of breast milk. Because women are individuals, the manner of instituting such a program must also be individualized.

Adequate quantities of breast milk for the infant up to the age of 4–6 months, and for the older infant as supplemental protein, present a distinct improvement over artificial formulas in the circumstances of the Refugee Camps.[14] Refrigeration is absent there and the water supply, not always pure, can contaminate artificial formulas. Providing adequate supplies of milk powder or liquid for infant feedings is always difficult, and in addition there is the major problem of properly preparing formulas within a population described as having an illiteracy rate of over 90 per cent (see accompanying "Procedure for Encouragement of Lactation").[14, 15, 17]

From the point of view of logistics, in the current situation there may be as many as 1 million bene-

FIG. 3. Child with severe nutritional marasmus eating his ration of rice (photo by Brown).

ficiaries of such a mass program of encouraging lactation. Giving to the mothers in the camps a more adequate nutritional intake can obviate the need of sending in milk for artificial feedings in enormous quantities, importing countless feeding bottles which cannot be adequately sterilized, and helping thousands of women with almost no facilities prepare the formulas after the milk powder or liquid has been distributed.

In contrast, a mass educational program could reasonably be undertaken which will convince women individually that a "special and powerful medication" (to be provided) will stimulate an adequate flow of breast milk. If successful, the Refugee Camps would be provided with innumerable liters of breast milk, high in protein, free of contamination, and readily available to nourish the large numbers of infants under the age of 3 years. This sort of program has never been attempted in the past, but never before in the world's history has such a large nutritional catastrophe offered a similar challenge to be dealt with in this way.

Training Programs. It is absolutely essential to train medical, nursing and para-medical personnel, and camp volunteers, in the providing of health care and health services. For the management of nearly 10 million refugees, some 700 medical units and 50 referral hospitals have been established, and several thousand paramedical personnel have already been designated. *Training courses* for these workers should be of several days' duration, conducted in the camps themselves where clinical material is readily accessible, and taught in conjunction with a simply written training manual.

To adequately cover medical facilities in so many widely separated places and to provide adequate assistance for such large numbers of people, a step-wise progression should be planned, so arranged that a more experienced level of medical personnel is made responsible for training the next level of individuals, and so on down the line. For example, the physician might train the nurses and paramedical personnel and these, in turn, would assist with the training of the volunteer personnel.

At every level there must be provision for *continuing supervision*. This would represent an in-service surveillance system, a responsibility of the supervisory physicians. Personnel working in the feeding programs, including cooks and food handlers, should receive some minimal instruction on sanitation and in the recognition of obvious signs of clinical malnutrition.

Additional Personnel. Despite the difficulties involved with medical management of large numbers of refugees, Refugee Camps afford a unique opportunity for medical students, physicians in training, and nursing and other medical personnel to gain first-hand knowledge in the management of catastrophic medical problems. Rotation of students, physicians and nurses could be organized and systematized so that various regional medical and nursing schools could provide adequate coverage at the same time as field training is developed.

Curriculum. The training manuals and courses should concentrate on a limited number of severe medical conditions—those which are not only common but can be readily diagnosed clinically without aid

of laboratory or x-ray facilities. These conditions include:

1. Severe clinical malnutrition, particularly kwashiorkor, marasmus, and marasmic-kwashiorkor.
2. Lesser signs of malnutrition such as hair and skin changes, edema, wasting, gum bleeding.
3. Severe anemia, as shown by pallor of tongue, mucous membranes, conjunctiva, palms and nail beds.
4. Severe dehydration associated with gastroenteritis.
5. Respiratory infections. Recognition of
   (a) bronchopneumonia with fever, shortness of breath and retractions.
   (b) chronic cough, productive of sputum.
   (c) cyanosis and extreme distress.
6. Common skin conditions.
   (a) Scabies.
   (b) Infections such as impetigo or pyoderma.
   (c) Skin changes of malnutrition.
   (d) Common rashes of infectious diseases such as measles, chicken pox and certainly smallpox.

FIG. 4. Child with bilateral blindness attributable in part to vitamin A deficiency (photo by Brown).

Triage. A triage approach to the medical problems found in the Refugee Camps should be developed. This must be directed to the identification of those conditions which can be easily remedied, as distinguished from those which need more intensive care and possible referrals.

Record-Keeping and Health Evaluations

There is a definite need for periodic and repeated evaluations of the medical and nutritional status of the residents of the Refugee Camps. This could be done with sub-samples of the population. Because young children are the most sensitive to deficiencies, the nutritional sub-sampling is best directed toward the under-five age group. Periodic evaluations of a reasonable number of refugees would make it feasible to detect changes with time, and also permit comparisons among the various camps. In the absence of such objective measurements there are no means by which those furnishing relief can determine how the overall programs are benefiting the nutritional status of the residents of the Camps. Table 2 presents a simplified form, to be used by a team of evaluators with minimal training who would move from camp to camp, evaluating sample groups of children under 5 years of age.

There would have to be provision for rapid processing of such data and for overall summarizing or scoring of the individual evaluations and for compiling group evaluations. Such nutritional and health scoring appraisals, carried out at periodic intervals of perhaps 4–8 weeks, would be extremely useful in conjunction with the vital statistics which are available.

We found the official and non-official gross estimates of camp populations markedly different. Without accurate census data, it is impossible to prepare either morbidity or mortality rates. Nevertheless, records should be collated which cite and compare the actual numbers of various diseases being identified, and of the numbers of deaths according to age and sex.

Although not of high priority, the developing of a census for each of the camps should be considered. This could be undertaken by groups of individuals recruited from the camps themselves.

In addition, simple maps are needed which indicate the locations of living quarters, the feeding centers of the Indian Red Cross and of the Voluntary Agencies, the centers for medical treatment of both outpatient and inpatient types, and the locations of schools, markets, ration and bread distribution centers, and other points of health and nutrition interest.

TABLE 2. *Proposed Form for Evaluation of the Nutritional Status of Children Under 5 Years of Age*

1. *DEMOGRAPHIC INFORMATION* such as name, camp identification number, age, and sex.
2. *MINIMAL ANTHROPOMETRIC MEASUREMENTS* It is recommended that height, weight and mid-left-arm circumference be recorded. With the possibility that there can be noted only the approximate age, with the measurements indicated it will be feasible to calculate weight for height and arm circumference for height, in lieu of an exact age.
3. *OBVIOUS SEVERE CLINICAL MALNUTRITION* should be noted and the child should be designated as suffering from:
   (a) Kwashiorkor
   (b) Marasmus
   (c) Marasmic-kwashiorkor
4. Five *NUTRITIONAL SIGNS* which are easily discernible and should be checked off as being present and to what degree:
   (a) Hair Changes for color, texture and sparseness;
   (b) Skin Changes including "crazy pavement," "flaky paint" and scabies;
   (c) Eye Signs including corneal opacity, Bitot's spots and other findings;
   (d) Clinical Pallor according to the severity;
   (e) Description of the Extremities for the presence and severity of edema and wasting.

FIG. 5. Children with nutritional marasmus being held by their well nourished mothers (photo by Brown).

Treatment Guidelines

A set of simplified guidelines for the management of common medical conditions in the population of the Refugee Camps is being developed.[23] Among such a large number of individuals, a standard and uniform approach to the management and therapy of different illnesses is essential. The guidelines emphasize simplicity rather than medical sophistication.

As part of a standardized approach to therapy should be a limited number of medications. It must be kept in mind that many of the Bengali refugees are not familiar with Western medications. Furthermore, individuals suffering from malnutrition often have altered metabolic pathways and abnormal levels of the enzymes which participate in the utilization and detoxification of various drugs.

A separate set of guidelines and listing of drugs should be developed for pediatric problems.

Coordination

For successful management of any of the conditions found in the Refugee Camps it is of paramount importance that the efforts by the various involved groups be coordinated. The importance of close communication and contact in the overall supervision of the health and nutrition problems cannot be overstressed. Even if sufficient medical and food supplies to care for the refugees were on hand, and even if the personnel to provide for the feeding programs and medical management were sufficient, there would still remain the need for providing responsible and well-trained administrators. It was suggested at a recent symposium that a "Relief Dictator" be designated to be the overall supervisor in charge of massive programs in times of catastrophe.[24]

Along with a group of central administrators, on the site there must be dependable field administrators who will carry out the programs as stipulated. None of the efforts in careful planning will come to fruition without the means and supervisory staff to take the programs into the field. Emphasis must always be placed on simplicity and innovation in order to facilitate the program management and to restrict the impediments of bureaucratic difficulties. Finally, where not all of the above recommendations can be implemented, it is preferable to undertake those which can be capably performed, rather than to flounder or be overwhelmed in the attempt to do everything.

Procedures for Encouragement of Lactation

The following are simple steps which have been found to be successful when lactation is to be encouraged on an individual basis. Children over the age of 4–6 months require supplementation with breast feeding, and it should be understood that breast milk will provide additional protein to a child's diet up to the age of 3 years.

1. Establish whether the mother or woman is definitely INTERESTED IN BREAST FEEDING the infant.
2. PROVIDE ADEQUATE FOOD AND LIQUID for the mother's dietary needs so that she will be able to produce breast milk.
3. Indicate that there is a very "POWERFUL AND SPECIAL MEDICATION" which will stimulate the production of large quantities of breast milk. This is Thorazine (Largactyl) 50–100 mg tablet.
4. Mention that the "special medication" will be provided three

times daily for a period of 10 days, during which time the adequate FLOW OF BREAST MILK WILL BE ESTABLISHED.

5. Make certain that the infant has a good sucking reflex and that the mother knows to nurse for 5 TO 10 MINUTES ON EACH BREAST at the time of each feeding. The more times the infant is put to the breast at the onset of this process, the faster and more adequate will be the lactation. Advise doing this every 2 to 3 hours.
6. Return to the mother during the first 3 days TO ENCOURAGE HER FEEDING, reinforce the fact that the infant will be getting excellent food. DO NOT INTERRUPT LACTATION because of loose stools or other complications.
7. Breast milk provides a certain number of CALORIES, a definite amount of HIGH LEVEL PROTEIN, and will be an uncontaminated feeding.

FIG. 6. Obvious muscle wasting in the presence of rachitic rosary (photo by Brown).

Breast feeding avoids the problems of distribution of milk powder, its reconstitution into formulae with possibly contaminated water. Breast feeding eliminates the difficulty of explaining how to measure the correct amount of powder and water for accurate reconstitution. The use of feeding bottles in a Refugee Camp or even a rural village is not to be encouraged because of the associated problems involved with inadequate sterilization of bottles and nipples.

BREAST FEEDING CAN BE SUCCESSFULLY ACCOMPLISHED by any woman as long as she is determined to feed the child and CAN BE ENCOURAGED to do so. For the benefit of the medical personnel involved in the above Nutrition Education Program, it should be mentioned that Thorazine (Largactyl) has a definite, but minimal effect, on the establishment of lactation. The major process involved in the above steps is one of PSYCHOLOGICAL ENCOURAGEMENT, DESIRE ON THE PART of the woman to lactate, her being ADEQUATELY NOURISHED to provide milk, and THE INFANT BEING WELL enough to have a good sucking reflex.[14, 16-21]

Supplementary Comment

In the light of the recent termination of hostilities between India and Pakistan, it is difficult to foresee exactly what will be the outcome for the refugees who were in camps in India. Many are now returning to their homes in Bangladesh, but others many remain in camps in India, at least for a number of months. For the latter, the recommendations in this communication could have significant application.

FIG. 7. Child with severe muscle wasting and possible tuberculosis waiting to be examined (photo by Brown).

When developing programs for refugees in situations of this sort one must always realize that fundamentally these are political situations which require political solutions. Yet, while the politicians discuss the various plans and programs and seek out a satisfactory compromise with realities, the refugees remain with certain biologic needs which must be met each day. These needs cannot be postponed until all parties have agreed to the political solution, and it often falls on the World Community to come forward with immediate assistance.

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STARVING CHILDREN

The Tyranny of Hunger

Roy E. Brown

Foreword by Florence Halpern

From the Introduction:
Severe clinical starvation is obvious and visible, but the more subtle effect of long-term malnutrition exercises a quiet tyranny over children in many countries, including our own. We have all heard the saying, "Children should be seen and not heard." The "well-behaved" child in a refugee camp or in an American ghetto is often too hungry to be noisy; too culturally and intellectually unstimulated to be lively, curious, or emotionally demanding; and has been rendered powerless to wend his way toward a world that might offer him fulfillment. This book attempts to document this tyranny in the realm of medical fact, with the hope that through such description some of the external circumstances that permit it to exist will be changed by the concerted efforts of committed groups and individuals.

International pediatrician and nutritionist Roy E. Brown documents the effects of nutritional, environmental, and psychological deprivation on children in three different regions of the world: Biafra, Bangladesh, and our own Mississippi Delta. Combining first hand experience with informed interpretation of the biostatistical data from field research, the volume goes beyond the remedial measures to the root causes that produce hunger.

ROY EDWARD BROWN has international experience as a clinician, researcher, professor, and adviser in pediatrics and nutrition. In addition to working in the three different areas discussed in STARVING CHILDREN, Dr. Brown has served with Project Hope in Peru, the Ethio-Swedish Pediatric Clinic, the Medical School of the University of East Africa, the Peace Corps in Malawi, the Pan American Health Organization (WHO), the Protein Advisory Group of the United Nations, and others. His activities in the United States include teaching at several universities, participating in White House conferences dealing with children and nutrition, and chairing New York's City-wide Advisory Council on School Health. A graduate of the College of Physicians and Surgeons of Columbia University, Dr. Brown also holds degrees from the School of Public Health, University of North Carolina, and the School of Hygiene, University of London. He is currently a faculty member in pediatrics and community medicine at Mount Sinai School of Medicine. He is the author of many publications in the field of immunology, malnutrition, public health, and family planning.

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May 31, 1978

Senator Edward Kennedy, Chairman
U. S. Senate Committee on Health
U. S. Senate
Washington, D. C. 20510
(Attention of Mr. Sheridan)

Dear Senator Kennedy:

I was very pleased that through your initiative and drive Senate hearings were recently held on the issue of bottle feeding of infants, and the role of promotion of infant formulas in the decline in breast feeding. I believe that these hearings were addressing a problem of very great importance especially to the poor and underprivileged in the developing nations of the world.

This is not a new issue but is one that only recently has attracted major attention in the United States. For over 15 years I have been very concerned about the dangers of the decline in breast feeding, and have written extensively about this.

I am a physician and nutritionist. For the past nine years I have been Professor of International Nutrition at Cornell University where I serve as Director of the Program on International Nutrition. I have served on many occasions as a consultant to the World Health Organization, to FAO of the United Nations, to UNICEF, to the World Bank, to USAID, and on one occasion for the White House in connection with the Nigerian civil war famine. You may recall that I also travelled on behalf of your Senate Committee on Refugees to several countries in Africa in 1974. I am the author of 4 books and over 120 scientific publications.

Prior to taking up my appointment at Cornell I worked in Tanzania for 8 years where I served as director of the Nutrition Unit of the Ministry of Health. I have a medical degree from Ireland, a postgraduate degree in tropical medicine from London University and a Master of Public Health degree from Harvard University, where I also was a member of the faculty for 3 years. I continue to work very frequently in developing countries.

The spread of bottle feeding to poor countries is having disastrous effects in terms of the health of young infants, it is also contributing to the population problem, and is having serious economic consequences.

Breast feeding has many advantages over bottle feeding for poor families in third world countries. It is safe, cheap, and usually provides all the nutrients necessary for the first 4 to 5 months of an infant's life. In contrast bottle feeding in these poor environments contributes very heavily to disease and to infant mortality. This has been clearly documented. Because of the high cost of the formula it is often overdiluted therefore leading to malnutrition.

Contamination of the bottle or the use of unclean water often leads to gastro-enteritis and diarrhea which are major causes of infant deaths in developing countries.

Bottle feeding is relatively expensive, and the purchase of formula distorts the very limited food budgets of poor families. The formula almost always is imported so leads to a serious drain on scarce foreign exchange for these countries. Breast feeding also is a natural contraceptive, resulting in a delay in the return of ovulation, and therefore helps mothers attain a wider spacing between children.

The spread of inappropriate bottle feeding has resulted from many different causes. The practice is often seen to be "modern", physicians until recently have not been adequately aware of the disadvantages of bottle feeding, western influence has been all pervasive, and the manufacturers of the products have been aggressive in their promotion of these products.

It is my view that the "hard sell" of the formula companies, and that many of their promotional practices have been unethical and immoral. They have contributed very heavily to a great deal of illness and to many deaths. I myself have treated and seen many infants extremely ill or dieing of gastro-enteritis caused by bottle feeding. I strongly believe that advertising of infant formulas needs stringent control. I think that a total ban on advertising to the public and to physicians is desirable. I feel that other promotional practices such as the use of "milk nurses" and the practice of giving away free samples to families and physicians needs to be stopped.

Certain formula companies are beginning to respond to the efforts that the public, and that concerned nutritionists and physicians, are making. But none have agreed to the restrictions suggested above which I believe are necessary.

I would be pleased to provide your committee with further information. I believe that legislation may be necessary to control the activities of U.S. corporations involved in the promotion of infant formulas. I hope that this letter, and the enclosed paper, can be entered into the record of your hearings.

Yours sincerely,

Michael C Latham

Dr. Michael C. Latham
Professor of International Nutrition

MCL:dd

Enc.

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INFANT FEEDING IN NATIONAL AND INTERNATIONAL PERSPECTIVE: AN EXAMINATION OF THE DECLINE IN HUMAN LACTATION, AND THE MODERN CRISIS IN INFANT AND YOUNG CHILD FEEDING PRACTICES

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Indications are that world yields of cereal grains, and that of many other major food crops, will be gratifyingly high in 1976. However, this has been a disastrously bad year in the world as far as human breast milk production is concerned. Our estimates indicate that total world production of human breast milk may be 12 billion liters short of production potential. This "loss" in monetary terms is in the order of $6 billion. Whereas total grain production has steadily increased over the last four decades, total production of breast milk has declined quite dramatically.

At this moment in 1976 there are probably over 120 million infants alive in the world. If all their mothers were in full lactation, providing appropriate quantities of milk for them, they would during the year produce over 30 billion liters of milk. This would provide 22,500 billion kilocalories and 400 billion grams of protein. The value of this milk at U.S. supermarket prices for whole fluid cow's milk would be about $15 billion, and yet the cow's milk would provide less energy than the human milk.

Since W.W. II a network of some 10 excellent international research centers has been established around the world with the objective of conducting research designed to improve food production, and to increase yields of specific food crops. IRRI in the Philippines and CIMMYT in Mexico are perhaps the best known. These 10 centers together are working on rice, maize, wheat, millet, sorghum, legumes, potatoes, vegetables, and animal production. The total budget of these centers in 1975 was about $50 million.[1] Where is there a comparable institute conducting research to help ensure an adequate supply of breast milk? There is no such institute, yet breast milk is the only natural food product that is complete in its content of nutrients, that can serve as the only food of a human during his period of most rapid growth, and that is produced on every continent.

We have on our hands a crisis in infant feeding practices and yet one that has neither caught the headllines nor interested the economists, despite its huge economic implications, and it is an issue that most nutritionists have ignored.

The Present World Situation

What is the present global situation with regard to breast milk production? We can only make educated guesses because food production figures, be they Food Balance Sheets or other reports, seldom include breast milk.

The world can be divided into three perhaps unequal groups. There are those areas first where the majority now bottle-feed their infants, second those where breast-feeding remains the principal means of infant feeding, and a third intermediate group that are mainly in transition from breast to bottle.

It is clear that almost all of North America, Western Europe, and Australasia have become arid zones and fall into the first group. Their yield of breast milk in relation to their populations is extremely low. Only a few oases remain in these continents. In several Caribbean nations, in certain parts of Latin America, in some Asian countries such as Hong Kong and Singapore, and in a number of urban centers elsewhere only a minority of mothers are still breast-feeding their 3-month-old infants. These nations and communities also fit into the first group.

The second group where breast-feeding still predominates includes a large part of Asia including China and India, the world's most populous nations, and nearly all of black and brown Africa.

The third group where bottle-feeding is to a greater or lesser extent replacing breast-feeding includes many urban populations in Asia and Africa, much of Central and South America, and some of Eastern Europe.

In very few countries are there any regular collection and publication of figures on rates and duration of breast-feeding. The World Health Organization is now sponsoring a study on breast-feeding in several countries. To illustrate the situation in a few countries figures are presented from studies undertaken by our group at Cornell. These are based often on small samples, and in all cases the data were collected as part of a nutrition study not related to the prevalence of breast-feeding (TABLE 1).

TABLE 1

LENGTH OF BREAST-FEEDING IN DIFFERENT COUNTRIES *

Country, Author, Year and Number	Age Breast-Feeding Stopped			
	Never Breast-Fed (%)	0–5 Months (%)	6–12 Months (%)	Over 12 Months
Colombia (Englberger) 1972 (N=135)	9	26	51	14
Hong Kong (Woo) 1974 (N=113)	50	32	18	0
N.E. Brazil (Drummond) 1974 (N=82)	—	13	79	8
India-Punjab (Levinson) 1971 (N=496)	—	near zero	8	92
Jamaica (Evans) 1972 (N=91)	—	24	64	12
Jamaica (Almroth) 1976 (N=138)	—	26	52	20
Philippines (Popkin) 1975 (N=314)	—	12	11	77

* Data are taken from unpublished studies (Masters degree or Ph.D. theses) done at Cornell.

TABLE 2

LENGTH OF BREAST-FEEDING IN ST. VINCENT *

	Age Breast-Feeding Stopped		
	0–4 Months (%)	5–12 Months (%)	Over 12 Months (%)
1967 (Beaudry) N=163	15	69	16
1974 (Greiner) N=193	31	54	15

* From T. Greiner, "Commercial infant foods and malnutrition in St. Vincent." Presented at Am. Anthropol. Assoc. Mtg. Washington, D.C., Nov. 18, 1976.

In St. Vincent, where we have had surveys in 1968 and 1974, an apparent decline in the duration of breast feeding is seen (TABLE 2).[4]

TRANSITION IN INDUSTRIALIZED COUNTRIES

The change from breast to bottle in the industrialized countries of North America and Western Europe was not without its serious problems, ones that are similar to those encountered now in the developing countries or poor communities where today the bottle has replaced the breast.

In Chicago in 1934 mortality per 1000 infants in the first 9 months of life was 10 times as high in artificially fed than in partially breast-fed infants, and 50 times higher than in totally breast-fed children.[2] In a study of feeding in relation to morbidity and mortality of infants from birth to 7 months in Liverpool from 1936 to 1942, morbidity per 1000 was twice as high and mortality more than five times as high in bottle fed as in breast-fed infants.[3]

TRANSITION IN DEVELOPING COUNTRIES

Among countries that have moved rapidly from breast- to bottle-feeding, the situation has been well documented in Chile. The very rapid decline in rates of breast-feeding there should prevent complacency in any nation where the prevalence of breast-feeding remains high. In Chile in 1960 over 90 percent of infants were breast-fed, and just 8 years later it is reported that fewer than 10 percent were breast-fed. Mortality rates at 3 months of age were 2.5 times higher for both bottle-fed and partially breast-fed, compared with children who were breast-fed only.

In Mexico over 95 percent of infants at 6 months of age were breast-fed in 1960, and this had dropped to about 40 percent in 1966. In Singapore some 80 percent of 3-month-old infants were breast-fed in 1951 and approximately 5 percent in 1971. There is evidence from many other countries of this very rapid transition.[5] It is often accompanied by greatly increased morbidity and mortality due to gastrointestinal infections, malnutrition, and other conditions.

Situation in Some Socialist Countries

A country that has undergone rapid industrialization and where this transition from breast to bottle has apparently not occurred is the People's Republic of China. Reports indicate that by far the majority of Chinese infants are breast-fed. The government has taken steps to allow the high number of working mothers to bring their babies to work, to have them well cared for, and to be breast-fed there.[6] Knowledgeable visitors returning from China are impressed by the health and growth of young children, and by reports of incredibly low infant mortality rates from certain cities from which figures are available. Infant and toddler mortality rates for the whole of the People's Republic of China do not seem to be available.

In the Soviet Union and some Eastern European countries, including Poland and Yugoslavia, similar encouragement is given to breast-feeding, but the breast-feeding rates are apparently lower than in China, though much higher than in the countries of Western Europe at comparable stages of industrialization.

Reasons for the Decline in Breast Feeding

It is often assumed that a decline in breast-feeding is almost inevitable where there is industrialization and urbanization, where many women are employed in the labor force, and where raised incomes and "modernizing" influences are improving the quality of life. There is a tendency to state that bottle-feeding is an inevitable accompaniment of development. I wish to dispute this dogma before it becomes entrenched.

It is worth examining the reasons commonly given by mothers for discontinuing breast feeding. A partial review of the literature by Almroth[7] is given in Table 3. This shows that mothers' employment was given as the reason for weaning the child from the breast in, at most, 6 percent of cases.

An examination of the present pattern of breast- and bottle-feeding in the world shows that there is a poor correlation between, for example, levels of industrialization or of female employment and rates of bottle-feeding. The first five nations in the world to develop nuclear bombs were the U.S., Russia, Great Britain, France, and China. Three of these countries feed most of their infants from the bottle and two from the breast. Peking is as industrialized as Paris; Moscow is as urbanized as Manchester; and Leningrad has a higher rate of working women than does Los Angeles. Yet the majority of infants in Peking, Moscow, and Leningrad are breast-fed, whereas in Paris, Manchester, and Los Angeles the huge majority are bottle-fed.

If factors such as industrialization, urbanization, and women in the labor force are not the major determinants of the shift from breast to bottle, what can we conclude from the different patterns of infant feeding in the world? Clearly in the examples given above the differences are in part at least ideological and political. In general, then, the industrialized countries where bottle-feeding is now the rule are capitalist and those where breast-feeding remains common are socialist. However, some socialist countries are among those in transition from breast to bottle, and in many capitalist countries, all of them developing, breast-feeding predominates. Surely we are not willing to capitulate and state that bottle-feeding with its attendant high rates of infant morbidity

and mortality is an inevitable component of a capitalist or non-socialist system. In Norway and Sweden—democratic countries with a free enterprise system—there has been a very significant shift from bottle- to breast-feeding in the period since 1970. In Israel, also, breast-feeding is widely practiced.

Four conditions that are important in the spread of bottle-feeding are:

1. An absence of legislation or government action to ensure optimum care for infants and children of mothers in the labor force.

2. A medical care system that concentrates on curative, not preventive, medicine, where doctors have a strong professional organization that sometimes acts against the public welfare, and where profits from private medical care are high.

TABLE 3

COMMONLY GIVEN REASONS FOR WEANING FROM BREAST *

	Baby Old Enough or Weaned Self (%)	Illness of Mother or Child (%)	Insuff. Breast Milk (%)	Pregnancy (%)	Work (%)	Other (%)
Philippines (Guthrie, 1964) N=245	26	6	7	37	6	18
Colombia (Meija, 1968) N=200	21	9	32	16	3	19
Nigeria (Ransome-Kuti, 1968) N=200	44	4	—	2	0	50
St. Vincent (Greiner, 1976) N=176	42	9	1	7	6	35
Jamaica (Almroth, 1976)	35	15	17	0	6	27

* From Almroth.[7]

3. A system that encourages private industry to act aggressively to change dietary practices in the interests of profits and with disregard for human health and welfare.

4. A government that is unduly influenced by large industrial corporations and is reluctant to control them or their promotion of infant foods even in the public interest.

Developing countries where breast-feeding predominates, and where there is real concern about infant and child health, could take steps to slow, or reverse, the trend towards the bottle, and this would not require a political revolution. A democratic capitalist country could:

1. Examine the system of mass communications and regulate these so that they serve the public good.
2. Take appropriate measures to ensure that the infants and children of working mothers get adequate care, including the right to be breast-fed.
3. Insist that the medical profession exert a positive, not a negative, influence on the practice of breast-feeding.
4. Consider appropriate legislation to control the promotion or even the availability of breast-milk substitutes (for example, newly independent Guinea-Bissau has taken the radical step of making these available only on prescription) and limit the influence and power of transnational corporations and of national food manufacturers.
5. Introduce an education campaign aimed at maintaining high rates of breast-feeding.

Adverse Results of Shift From Breast to Bottle

Many of the adverse consequences resulting from bottle-feeding by low-income mothers have been well documented elsewhere.[8,9] These include:

1. Development of protein-calorie malnutrition, especially nutritional marasmus, due mainly to overdilution of high-cost breast-milk substitutes.
2. A very high prevalence of diarrhea and gastrointestinal infections in bottle-fed infants due to contamination of the formula or bottle in households where facilities are poor and knowledge of hygiene is low.
3. A reduced immunity to disease because no formula provides the immune globulins and white cells of colostrum or early breast milk.
4. A lower level of mother-infant contact and interaction, with consequent effects on behavioral development.
5. An increased risk of obesity.
6. Earlier return of ovulation and therefore greater risk of early pregnancy.

These serious consequences due to inappropriate bottle-feeding, though well described, have not been adequately assimilated by physicians and by health policy makers. In many countries, bottle-feeding may be the major indirect cause of infant morbidity and mortality, yet steps to control it attract little attention, and few health dollars are used for its control. In a large part of the developing world, breast-feeding may be preventing more births than are all other family planning efforts combined, including the pill, IUD, condom, and abortions. Yet breast-feeding is hardly considered in population-control programs, and protection or promotion of breast-feeding figures not at all in the huge family-planning budgets of most countries.

Economics for the Family and the Nation

Among the most serious adverse consequences of the decline in breast-feeding are the economic ones for the family and the nation. These continue to be relatively ignored.

Over 10 years ago, while working in Tanzania, I published evidence to indicate that the cost of adequately bottle-feeding a 6-month-old infant was equivalent to half the minimum wage of that country.[10] The minimum wage

in Tanzania, like that in many countries, is higher than the mean family income. How can a family allow over half their income to be spent on the food for their youngest member? It was also estimated in that same year that the production of human milk on the mainland of Tanzania was 40 million gallons, worth perhaps U.S. $22 million, if it had to be replaced with powdered cow's milk, which would have needed to be imported.

The situation has not changed much in 1976. In Kenya this year we worked on a World Bank Study where adult road workers were paid 6 shillings (about 80 U.S. cents per day). The cost of a suitable manufactured milk formula fed in adequate amounts would cost over half this amount (TABLE 4).

Apparently the situation is much worse in India. Reutlinger and Selowsky [11] have undertaken an interesting study on nutrition and poverty. In an examination of data from Calcutta, they suggest that about 50 percent of an employed mother's earnings will be needed to replace breast milk not provided, assuming

TABLE 4

COST OF BOTTLE-FEEDING RELATIVE TO WAGES

	Approx. Monthly Wage	Cost of Formula or Milk	Required Marginal Propensity to Spend on Milk	Percent of Wage
Tanzania * (1964) (Latham)	132 Shs.	68 Shs.	0.51	51%
Kenya * (1976) (Latham)	150 Shs.	88 Shs.	0.58	58%
India * (1976) (Reutlinger and Selowsky)	120 Rs.	91.5 Rs.	0.76	76%

* Tanzania and Kenya data based on cost of manufactured powdered formula; India data on cow's milk.

that she continues to breast-feed while at home. My calculations from their data indicate that if she stopped breast-feeding altogether and used cow's milk, she would spend 75 percent of her income, and if she used a manufactured product, she would have to use her whole income. Why should any woman go to work, often at an unpleasant job, and spend her entire income on a replacement for breast milk? This is an example of all cost and no benefit.

Reutlinger and Selowsky [11] show from these Calcutta data that the marginal propensity to spend on infant foods from additional family income is extremely low and only about 5 percent. This means that for every additional 100 rupees earned, only 5 rupees would be spent on infant foods. They conclude that higher incomes of the kind described not only may fail to reduce malnutrition, but on the contrary may increase infant undernutrition.

It is worth citing another example where employment of mothers, although increasing income, had the result of reducing nutrient intakes of young children. In a vitamin A research project in the Philippines in which we have been

following 1700 children in 12 areas for 3 years, we too have found a negative nutritional impact resulting from employment of women in the labor force. Our interest was in consumption of vitamin A by study children. Our findings indicate that employment of mothers increased family income but reduced by almost half the vitamin A intake of young children.

Commerciogenic Nutritious Foods

In 1971 Jelliffe[12] first coined the term "commerciogenic malnutrition" and "commerciogenic nutritious foods." He was referring to the increased production and use of commercially produced foods often high in their protein content being marketed as weaning foods. They include milk products for infant use, semisolid manufactured weaning foods, high-protein snack foods and beverages, various commercial mixtures of cereal, legume, and oil-seed flours, and similar products.

Table 5

Cost of Purchasing 1000 KCal and 100 Grams Protein Using Selected Foods

	Rupees per 1000 Cal.	Rupees per 100 g Protein
Processed commercial products		
Uniprotein	2.9	8.0
Proteinex	7.9	9.8
Skim milk powder	1.7	1.7
Multimixes (non-commercial)		
Hyderabad mix	0.3	0.9
Family purchases		
Normal diet (Bottom 30% of incomes)	0.2	0.6

We have examined the limitations and dangers of the use of these commercially marketed products by poor families in low-income countries. Clearly, the disadvantages found are not applicable to situations such as famines where there may be a free distribution, or government programs where there is a marked subsidization of these products.

In a simulation study,[13] we investigated the likely nutritional effect of the purchase and use of certain commerciogenic nutritious foods available in India. In the 30 percent of poorest families a survey in Maharashtra showed that 80 percent of income was spent on food and 20 percent on essential nonfood items. It is assumed that if commercial infant or weaning foods are purchased, the money will come from the 80% used for food expenditures. These low-income families using traditional foods purchase 1000 cals. at a cost of 0.2 rupees and 100 grams of protein for 0.6 rupees. The cost of 1000 cals. and of 100 grams of protein from commerciogenic high-protein foods is shown to be 14 to 40 times higher and for 100 grams of protein to be 6 to 20 times higher than in traditionally purchased foods (Table 5). Therefore, the diver-

sion of any money spent on traditional foods will result in a reduction of not only calories but also of protein for the family. The purchase of these so-called low-cost/high-protein nutritious foods is apparently having a markedly negative nutritional effect in India. Examination of the situation in Kenya and the Philippines reveals a similar situation. It is likely to be so in nearly all low-income countries where poor families get most of their calories, protein, and other nutrients from locally produced foods.

Yet the rationale for the development of these low-cost nutritious foods has been the need to reduce malnutrition. International and bilateral assistance has been given to help in their development. There are serious dangers in the continuation of such efforts. Again, the commercial advertising and promotion of these products has often been aggressive, they have sometimes been untruthful, and they have influenced the poor to purchase them. It is often falsely suggested that the commercial product is nutritionally superior to cheaper products that are customarily consumed in the community.

Powerful messages are used to convince parents that product X will result in good health, improved stamina, and increased growth of children. No consideration is given to the fact that the purchasing of product X will result in the replacement of some traditional food. By buying a package of a commercial food the poor are perverting their overall food budget. The replacement as we have shown will all too often result in the availability of fewer calories and of less protein and other nutrients than in their original food purchases.

The beneficiaries, as in the case of infant formulas, are of course the commercial companies, including several of the transnational corporations [14] and sometimes also countries like the U.S. who are the main producers of soybeans, which are often included in these products.

Water Requirements of Infants

It is the practice at many clinics where infants are brought for weighing, for immunization, or for treatment, for mothers to be advised to give water or some other fluid between feeds from the breast or the bottle. In many countries women do fairly early in the infant's life give water, tea or bush teas, glucose water, or other fluids.

Persons concerned with the danger of diarrhea from bottle feeding are also concerned about the contamination of other fluids given to the infant. Clearly products like tea or bush tea, where the water is heated, are safer than plain water. Our interest is greater in breast-fed than bottle-fed infants because the latter are already at high risk from diarrhea.

Little research has been undertaken to determine whether breast-fed babies in tropical countries actually require extra water. Almroth,[7] working with us at Cornell, undertook calculations on water intake, evaporative and fecal water losses, and of water available for excretion of renal solutes. Her data are shown in Table 6.

Since the renal solute load was 77 mOSm, the urinary concentration would be 344 mOSm/1000 ml. A baby's kidneys can produce a urine with an osmolar concentration of 1300 to 1400 mOSm per 1000 ml. Therefore, a 4-month-old exclusively breast-fed infant could, in theory, manage without additional water. This has now been tested in the field in Jamaica (by Almroth) under conditions

of high temperature. Urine specimens collected for specific gravity in children who were breast-fed but did not receive other fluids were tested. Although the work is not complete, this indicates that breast-fed children do not need additional fluid. Breast milk alone is adequate. Apparently, a similar study in an arid area of Argentina is also underway.[15]

Milk in the Treatment of Protein-Calorie Malnutrition (PCM)

There has been considerable concern that because lactose intolerance is prevalent in nonwhite populations throughout the world, milk might be an inappropriate product either in the treatment or prevention of PCM in Africa, Asia, and Latin America. Our research at Cornell,[16] which has been corroborated elsewhere, suggests that most subjects that have flat lactose tolerance curves and evidence of lactose intolerance can in fact consume nutritionally useful quantities of milk without symptoms.

Of more concern has been the appropriateness of milk in the treatment

Table 6

Water Losses in 4-Month–Old Infant Receiving Breast Milk to Provide Total Nutrient Needs *

A. *Water intake*	980 ml.
B. *Water Losses*	
Evaporative losses	693 ml.†
Fecal losses	63 ml.
Water available for excretion of renal solutes	224 ml.

* From Almroth.[7]

† Maximum likely skin losses.

of children seriously ill with kwashiorkor and nutritional marasmus. These infants and children might have both primary and secondary lactose intolerance (primary due to their genetic inheritance and secondary due to protein-calorie malnutrition and to gastrointestinal infections). We conducted a metabolic study on 12 Ethiopian children to determine whether lactose present in milk tended to aggravate the diarrhea and to retard recovery in children suffering from kwashiorkor.[17]

The metabolic study of each of the 12 male children lasted 11 days and was undertaken in a special unit of the Ethio-Swedish Pediatric Unit in Addis Ababa. Each child was fed two different diets almost identical in their content of calories, fat, protein, and other nutrients. The one diet was milk-based containing lactose, and the second was lactose-free. In this study each child served as his own control, being kept on one diet regime for 3 days, then alternated to the second diet, and then returned to the original diet, with a one-day adjustment period between each change.

There were no significant differences in intestinal transit times nor in the amount of sugars in the stools between the two diets in any period. The mean stool pH did vary significantly, being lower in the lactose-containing diets in

the first and last periods. However, the mean pH was always above 5.5, indicating negligible or low fermentation of sugars even on the lactose-containing diet. Stool weights were significantly higher only in the first three days of treatment in those on the milk diet. No clinical evidence was found to suggest adverse effects resulting from the lactose-containing diet. These results suggest that milk products are not contraindicated in the treatment of kwashiorkor.

Improving Infant Nutrition

What steps can be taken to improve infant nutrition in developing countries? Clearly any steps to encourage breast-feeding are desirable in those countries and communities where bottle-feeding is a serious cause of increased morbidity or mortality, or is likely to be so. Some possible measures have been suggested. Educational campaigns certainly deserve consideration. Similarly, commercially available weaning foods should be prevented from distorting the food budgets of poor people. Often, locally available cereals, legumes, fruits, and vegetables as traditionally fed provide optimum diets for young children.

If a government accepts that bottle-feeding and processed infant and children's foods are the inevitable pattern in their country, then appropriate steps need to be taken. These products both for infants and young children should be made available free or at highly subsidized costs for poor families or even for all families. Britain took this step after W.W. II, providing free National Milk formula to all families with infants, irrespective of family income, and the Soviet Union takes similar steps. The difference was perhaps that Britain accepted the demise of breast-feeding while Russia does not. The United States, with its WIC Program, is taking rather similar steps to those in Britain but aimed sensibly at low-income families.

In the case of special baby foods, other than infant formulas, if these are to be subsidized rather than issued free, then the level of subsidization should be such that it ensures the availability of the product at a cost per 1000 calories no higher than that of the main staple food and at a protein cost comparable with foods like legumes available in the local market. If this is not done, the the purchase of these nutritious manufactured foods may have a negative effect on child nutrition.

Under-fives clinics and nutrition rehabilitation centers have been increasingly introduced in the last decade as a means of combating malnutrition in young children.[18] The regular weighing of children is useful both as a means of nutritional surveillance and also as a way of eliciting an interest of parents and the community in the growth of their children. The use of a growth chart, appropriately termed a "road to health chart" by Morley [19] working in Nigeria, is now being demonstrated to be effective in a huge nationwide program in the Philippines.

Protein-calorie malnutrition (PCM) is acknowledged to be the major nutritional problem of infants and young children in developing countries. But vitamin A deficiency, sometimes leading to blindness, and iron-deficiency anemias are also important problems. Both conditions should be much easier to control than PCM. Fortification, or nutrification, of appropriate foods offers one such possibility. In Guatemala the use of sugar as a vehicle for vitamin A is being evaluated in a national program. In collaboration with colleagues in the Philippines, we are assessing the effectiveness of adding vitamin A to

monosodium glutamate, which was the only consumed product that met accepted criteria for fortification. Sugar and MSG are two items that have not previously been nutrified. Both might also lend themselves to nutrification with iron as well. In this way, two important nutritional problems of infancy and early childhood can be attacked at low cost, and without changing existing food habits. In the control of xerophthalmia, another approach being used in the Philippines project and in some other countries is the provision of a large oral dose of vitamin A every 6 months to all children. This requires a well-organized delivery system. The third method being evaluated in the Philippines is a public health and horticulture intervention.

Conclusions

The control of malnutrition in infants should not be undertaken in isolation. The importance of the interaction between infections and nutrition is well established, although there is still much that is unknown concerning the role of certain parasitic diseases in nutritional status. Clearly the control of infectious and parasitic diseases deserves a high priority and will contribute to improved nutritional status. There seems to be clear logic in having coordinated programs that attempt to control infections, to improve nutritional status, and to make family planning services widely available. These three types of services may themselves be synergistic.

Acknowledgments

The author is grateful to many graduate students majoring in international nutrition at Cornell University whose research results have been used in this manuscript, and whose ideas are a continual source of stimulation. He wishes especially to thank Ted Greiner, Stina Almroth, Deborah Rothman, Barry Popkin, and Lani Stephenson, whose work has been extensively quoted from in this paper. The author wishes to acknowledge, with thanks to Dr. Joe Wray, the prepublication use of his paper "Breast Feeding and the Urban Poor of the Third World." Finally, gratitude is due to Ms. Doreen Doty for typing the manuscript.

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May 26, 1978

Mr. Walter Sheridan
c/o Senator Edward M. Kennedy
Antitrust and Monopoly Subcommittee
Senate Office Building
Washington, D. C. 20510

Dear Mr. Sheridan:

I was very impressed with the hearing on Tuesday. I believe that interested parties had a fair chance to present their views, notwithstanding the short time available and the large number of witnesses.

Since our brief talk last week, I have been thinking about action that could be taken which would be helpful. I prepared a brief statement of suggestions which I was planning to submit to you at the appropriate time, which did not develop on Tuesday. I am enclosing a copy. Although it is in the form of a formal statement, you may, of course, make any use of it that you think appropriate, including having it part of the record as an appendix or otherwise.

There are obviously many additional possible courses of action which could be taken by health organizations and others at the initiative of the Subcommittee. I tried to limit myself to matters directly within my personal involvement in the lawsuit against Bristol-Myers. This related primarily to collecting evidence about the activities of one company to demonstrate its responsibility. By coincidence, this seemed to ~~be~~ one of the primary concerns of Senator Kennedy, and I feel may be the most effective pressure that can be brought to bear in the United States on United States drug companies.

Let me express my appreciation again for the help.

Sincerely yours,

STATEMENT BY JONATHAN CHURCHILL

I would like to submit the following statement to the Committee as an explanation of my suggestions for problems raised by the promotion and sale of infant formula in the Third World.

My law firm, Spengler Carlson Gubar Churchill & Brodsky, 280 Park Avenue, New York, New York, represented the plaintiff, The Sisters of the Precious Blood, Inc., in the litigation against Bristol-Myers Company in the United States District Court, Southern District of New York, Index No. 76 Civ. 1734, involving Bristol-Myers' infant formula sales in the Third World.

That lawsuit was an effort to correct what my client believed to be misstatements by Bristol-Myers about its own promotion and sales of formula in the Third World. We hoped to convince the Bristol-Myers management and shareholders that there was a serious problem for which the Company should acknowledge responsibility and which should be corrected. We helped gather and submit to the Court affidavits covering the distribution of Bristol-Myers products in 18 Third World countries. Many of these affidavits covered eyewitness reports of the use and misuse of products of Bristol-Myers and other manufacturers in specific detail giving, for example, specific instances of mothers and infants who had used these products

and the addresses of stores handling the products in poor neighborhoods. Bristol-Myers has not seen fit, either in the litigation or, to my knowledge, elsewhere, to offer publicly any refutation, other than a general denial, to our documentation.

I do not foresee the U. S. based companies which sell infant formula acknowledging that their products are being widely misused and thereby contributing to some significant extent to Third World malnutrition and illness. Bristol-Myers denies that a significant amount of its products are being sold where they can be misused. Although I have the highest respect for the management of this Company and their dedication to responsible and moral conduct, I believe that institutionally it is very difficult for the corporation on its own to recognize and affirmatively deal with misuse of its infant formula products.

There are many reasons for this. Bristol-Myers and the other companies have been attacked in terms which naturally call for denial and counterattack. Most of the companies involved are so large that the governing groups, top management and the directors, in the United States can have no first-hand knowledge of the facts. Those with first-hand knowledge of the facts may have little clear personal incentive to advise headquarters accurately. Often, when the company does not operate through its own sales force in

a particular country, the products are sold through distributors and middlemen. In these instances, the companies may be unable or unwilling to control the locations of sale and manner of promotion (other than mass advertising) and distribution.

Many companies seek to place responsibility for use of the formula on the medical profession. One statement that Bristol-Myers has used more than once in defending its promotions is that it "permits promotion of its infant formula through physicians and hospitals who then determine whether or not to recommend it to mothers." "We don't know anyone more qualified than physicians to make that determination", Bristol-Myers says. This defense is questionable when applied to the Third World. For example, Bristol-Myers distributes in Indonesia, where, as of a few years ago, 6,221 physicians (including 250 pediatricians) were available for a population of 126,000,000, of which 56,000,000 were below the age of 15. In all countries the plaintiff's observers saw formula being sold openly in supermarkets and general stores with no advice, control or participation by doctors.

Suggestions

I am limiting my suggestions to the area of my involvement. In part because of the nature of the legal system, the lawsuit in which I participated required an effort to fix responsibility on one company for misuse of its products, since in a document subject to SEC rules and sent to

shareholders it had stated, among other things, that its products were not promoted for private purchase where chronic poverty and ignorance could lead to product misuse or harmful effects. I think that any successes in changes in practices were limited to areas which had limited significance to the Company. I believe that, if the documentation of the involvement of a particular company and brand name are made publicly available, it will be easier for those concerned, the medical profession, the health organizations of the foreign countries and other groups, to persuade the manufacturers of these products to assume accountability for the use and misuse of their products, since I believe the American companies would be at least fundamentally conscientious and responsible. I believe that changes will come when the manufacturers are faced with undeniable facts.

1. To the extent that education is involved, I believe that the Committee's hearings can be very helpful in focusing public awareness on the infant formula problem. However, it may be that the Committee's greatest contribution would be to urge the companies to disclose facts about the exact locations of the distribution of their products and the amounts sold. These facts, together with other available facts about poverty, water supplies, etc., could paint an accurate picture of use and misuse of products.

2. It should be made clear by health organizations and governments that companies based in the developed countries,

such as the United States, Great Britain and Switzerland, which sell infant formula in the Third World, are accountable for any widespread misuse of their products anywhere.

3. Although enough evidence has been gathered and published to convince most people of the serious dangers of bottle feeding generally in adverse circumstances, further statistical work may be necessary before the skeptical and those with vested interests admit the severity of the danger. The greatest need today in my view is information about specifics, that is, specific brand names, specific areas and specific misuse. Even a local maternity hospital may be unaware of the conditions of its former patients whose mothers used bottle feeding. U. S. based manufacturers should be advised of the particulars of misuse of their products, both in areas where they have a presence and some sort of control, and in areas where they sell through middlemen. Studies which are underway can be expanded to cover this type of information.

a. The brand name of the infant formula used in poor areas by mothers or infants or formerly used by infants who have become medical patients should be recorded. The brand names of formulas available in general stores, supermarkets and pharmacies should also be recorded, as should the addresses of these outlets. The living and economic conditions of the customers of such stores, and the amount or relative amount of sales of various products can be important.

b. The conditions of use should be recorded. Are the bottles washed? Is the water boiled? Are instructions understood and followed? Has the formula been stretched or is it too concentrated? Is the baby also fed on other fluids containing unsanitary water? If so, how much? Is it enough to cause a health problem? Is a bottle used? (Experts say that the amount of the intake of polluted water is important, that is, the dangers from continual large amounts of polluted water, such as mixed formula, are much greater than the dangers from a limited amount of the same water which might come from mixing native foods with water.).

c. Promotional practices by brand name and distribution should also be recorded. General media promotion is an obvious subject, and, if data is available as to the nature and extent of this promotion, it may be easier to persuade governments to limit or eliminate this kind of promotion. However, U. S. companies apparently believe that promotions (literature, free samples, donations, etc.) to hospitals and clinics and medical personnel is more effective in selling formula. Specifics of this type of promotion would be extremely useful. Further understanding of the effect of "inducements" to doctors and hospitals are important since "inducements" may fulfill real needs as well as tend to incude sales or corrupt the objectivity of the medical personnel, which was the effect reported to our observers. Top management of Bristol-Myers has insisted that donations and assistance to hospitals and doctors are entirely

proper and praiseworthy, but Bristol-Myers could be basing its views on speculation, not facts.

d. Mothers should be questioned about their reasons for breast feeding or bottle feeding. It is likely that motivations and attitudes vary from one country and location to another. This should be thought of as marketing research in reverse (we should learn how to unsell a product). A particular effort should be made to understand why a number of government programs advocating breast feeding may have failed.

e. Information should be gathered about the extent of the two groups who may have a legitimate claim to need or want to use formula. They are women whose lactation is inadequate or has stopped and so-called working mothers. The formula companies insist that much formula is needed by working mothers. Some studies indicate that working mothers are a small percentage of the population. It would be helpful if adequate information is gathered by location about the incidence of failure or inadequacy of lactation and of the number, economic status and living conditions of working mothers.

f. Information should be gathered on Third World infant feeding habits. The local alternatives to bottle feeding with prepared formula should be recorded. It is often not known whether the alternative is mother's milk or a local milk substitute fed by bottle, which is as dangerour as prepared formula.

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g. Information on specific sanitary conditions by location is essential. Convincing proof of the impossibility of safe and widespread use of bottle feeding in some areas should be documented, where this is the case. Conscientious infant formula manufacturers may wish to refrain from having their products available generally in these locations.

4. In the case of Bristol-Myers, plaintiffs have been unsuccessful in limiting free samples. I believe that the distribution of free samples to or through hospitals or medical personnel may be a more effective marketing tool than direct gifts to mothers, where at least the commercial intent is obvious. If samples cannot be prohibited, they should be limited to instances in which the distributor undertakes to supply free formula until the baby stops bottle feeding.

5. Labeling was a subject of controversy with Bristol-Myers. The tiny print and the complicated language of older labels appeared to reflect the reality that, in the best of circumstances, labels were ignored or generally incomprehensible. The listing of ingredients on labels should be reduced to statistics which are meaningful to the users, which means that they should be eliminated. Any legislation requiring such labeling should be modified. Such labeling implies that the formula, like a medicine, is an improvement over nature and is misleading and false. Detailed

information on the contents should be directed to doctors and others who can understand such information. Much is made of pictorographic labels for the illiterate. One can be dubious, however, whether most illiterates live in conditions where formula can be safely used.

In some markets a skull and crossbones or other symbol understood generally to mean danger should be required on all labels. This symbol would be a presumption that the misuse of the formula is dangerous, a presumption which may be totally justified in these markets.

May 23, 1978

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INFANT FEEDING FORMULA IN THE THIRD WORLD

TESTIMONY FOR THE RECORD

Background Information

My name is Naomi Baumslag. I am a physician - a medical graduate of the University of Witwatersrand, where I received my medical education and training. I have an M.P.H. in Epidemiology from Johns Hopkins School of Hygiene and Public Health. I speak as a mother, physician and professor of preventive medicine and wish to express my major concerns from the public health point of view. I practiced medicine in South Africa for over 10 years as a medical officer of health working in Soweto and at Barangwanath Hospital, providing medical care particularly for African mothers and babies. I also directed a Nutritional Anemia Clinic for mothers and babies. I have considerable experience as a practicing public health physician.

Concerns

Wyeth Laboratories, an American firm, has a plant in Isando, South Africa, where large quantities of baby foods are produced (no figures could be obtained from the company). In Soweto, a black township where a large number of residents live below the poverty line, SMA (A Wyeth product) and LACTOGEN (a Nestle product) can be bought in nearly every cafe and pharmacy. This holds true for rural areas of

South Africa as well as neighboring countries such as Lesotho, Swaziland, and Botswana. I have seen infant formula advertisements in Doctor's offices, outpatients and clinics, on calendars and posters, as well as on billboards, and have heard them advertised on South Africa's Bantu radio. Fifteen years ago, nearly all mothers breast-fed for prolonged periods - often up to two years. This is not now the case. In a recent survey in Soweto[1], 72% of those questioned breast-fed for only four months, and of mothers who were breast-feeding, 73% supplemented the breast with bottle-feeding. The argument is made by industry that bottle-feeding is not synonomous with formula feeding. However, it has been shown[2] that women who were bottle-feeding at least 50% were using formula in some form or other.

Since the majority of the Soweto population live below the poverty line and cannot afford to use formula, the formula has to be "stretched" so that a can lasts two weeks instead of 3-4 days. (See Appendix A for cost of formula.) The mothers often cannot read the instructions on the can, in their native language, let alone English. When asked about feeding their children, mothers reveal that formula is frequently overdiluted and, instead of using one teaspoon of formula to one ounce of water, mothers use one teaspoon to five ounces of water. They

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1 Shuenyane, E., et al. "A Socio-Economic, Health and Cultural Survey in Soweto". South African Medical Journal, Vol. 51, pp. 495-500, 1977.

2 Gueri, Miguel. "Evaluation of A Breast Feeding Campaign in Trinidad." Caribbena Food and Nutrition Institute Publication. 1975.

try to get the contents to have the "right color". Lastly, many mothers do not have adequate facilities for preparation and storage of formula in bottles. Poor hygiene adds to the problem. A recent study in Soweto[3], showed that 41.6% of mothers had no method for cleaning their feeding bottles. For the poor, therefore, the use of formula is harmful. This is evident from the types and numbers of admissions to Baragwanath Hospital (a 3,000-bed hospital) that provides medical care predominantly for the township of Soweto. From January 1977 through June 1977, the total of admissions to "Acute Wards" - excluding the "Drip Room" (a special ward for dehydrated infants) and short term serious admissions, was 2732.[4] Of all admissions, 967, or approximately one-third, were suffering from frank malnutrition. Most of the severely malnourished children were under two years of age. The malnourished infants and children admitted were classified as follows:

(1)	Marasmus (Undernutrition) or total calorie deficiency - (< 60% of expected weight)	23%
(2)	Kwashiorkor (protein deficiency)	22%
(3)	Marasmus and Kwashiorkor	11%
(4)	Nutritional Growth Retardation (60-80% of expected weight)	44%

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[3]Shuenyane, E., et al. "A Socio-Economic, Health and Cultural Survey in Soweto". South African Medical Journal, Vol. 51, pp. 495-500. 1977.

[4]Acute admissions information supplied by Dr. H. Stein, Prof. and Chairman, Dept. of Pediatrics, Baragwanath Hospital, May 12, 1978.

It can be seen from this information that frank malnutrition is a sizable medical problem in this setting. What is worse, it is preventable. Kwashiorkor occurs at an earlier age, 6-8 months now, and at this age is not seen in breast-feed infants. When Cicely Williams first described kwashiorkor before formula had become widespread, the child was weaned off the breast and given solids low in protein content, the average age of onset was greater than 1 1/2 years and often 2 or 2 1/2 years.

Breast milk contains 1.2 grams of protein per 100 ml., enough for growth and development until six months of age. Some formula preparations contain 1.5 grams of protein per 100 ml., which, when diluted, would be reduced considerably, especially if the dilution is one teaspoon to five ounces, instead of one teaspoon to one ounce. Infants fed diluted formula with a more "humanized" protein content are more likely to develop protein calorie malnutrition. Some preparations on the market contain 3.4 grams of protein/100 ml. The preparations vary in protein content as well as other constituents (Appendix B). Many African women believe that the "weaker" formula is better for the first six months and that the "stronger" formula should be used in the second six months. Without guidance they are unable to select and use formula correctly.

Another preventable problem is weaning diarrhea. Diarrhea does not occur frequently in breast-fed infants, but in

poor areas where bottle-feeding is used, it is a serious problem. The preparation of formula with contaminated water results in a high incidence of weaning diarrhea, so much so that in the summer time, dehydrated infants suffering from diarrhea are treated by intravenous infusions in a special hall-like room called the "drip room", referred to above.

Until recently, formula advertisements, free samples and literature were all available to patients in the obstetric hospital at Barangwanath. This has been stopped by the authorities over the last year because of the harm it causes. However, billboards advertising formula are still spread over black townships. Newspapers and magazines with a large African circulation such as "Bona" and "Post" carry misleading advertisements (Appendix C): -

NESTLES: "Breast feeding is always the best, but when you feel that the time has come then Nespray is best."

WYETH: "S26 is the infant food that is closest to mother's milk."

KLIM: This company has its brochures in Xhosa, Zulu, and Sotho and does not mention breast milk.

SMA: "...Many mothers find they do not have enough milk..."

Advertisements written in Xosa, Zulu and Sotho are aimed specifically at the Africans. They are also heard on Bantu radio.

Markets did not arise de novo, but, as Drucker aptly put it, "markets are created by businessmen for profit" and the customers learn to use the product. Large amounts of money are spent for advertising baby foods and formula. It should be noted that only rarely are advertising costs for formula available.

Industry expresses concern for providing working mothers with alternate methods of feeding. The issue is not whether working mothers need an alternative method of feeding or not, but how working mothers could be provided with lactation incentives to encourage and enable them to breast-feed their infants as this is the preferred method of feeding in the first six months of life.

Recommendations Concerning Infant Nutrition

(1) Infant formula advertisements in health professional journals, such as the American Journal of Public Health, should be screened. This Journal is distributed to public health professionals around the world. The types of advertisments to which I am referring are enclosed for the record (Appendix D). This is not responsible advertising and may be misleading. In addition, trained professional personnel, rather than manufacturers, should provide mothers with nutrition education materials.

(2) An international consultative group on infant and maternal nutrition to provide ongoing advice and information, should be formed. Its membership should be representative of the Third World where the most serious nutrition problems are to be found. To avoid a conflict of interest and biased judgment, no representatives of the infant food industry should be included. Instead, it should be comprised of national and international scientific experts.

(3) The export of substandard formula or infant foods to the developing world should be monitored. A disclosure insert stating the reason why the product cannot be marketed in the United States should be mandatory.

(4) The infant foods industries' self-monitored ethical coce on marketing is biased in favor of the industries. A consumer group should monitor the ethical code. From a taxpayer's point of view, it is unnecessary for us to have to fund the treatment of preventable diseases.

APPENDIX A

COST OF FORMULA

Manufacturer	NESTLE	*BORDEN	WYETH*
QUANTITY	LACTOGEN & NESPRAY	KLIM	SMA
1 kg	R 2.69	R 2.69	R 2.95
500 g	R 1.55	R 1.55	R 1.79
250 g	89 c	89 c	95 c

*American companies
Note Wyeth products are more expensive.

For a 4 month infant 5 lbs. of formula are required per month. Cost would be equivalent to half of many families' monthly incomes.

1 Rand = $1.17

APPENDIX B

PROTEIN CONTENT OF FORMULAS

	Protein %	Protein g/kg body weight when fed at 500 kJ/kg
Human milk	1,25	2,1
Cow's milk	3,5	6,0
Allergilac	3,0	7,1
Bonimil	1,5	2,5
Carnation	3,5	6,0
Cow & Gate	3,4	6,7
Cow & Gate Separated	4,4	11,0
CHO Free	1,8	3,0
Edosol	3,4	6,0
Frailac	1,2	3,0
Galactomin 17	2,8	5,1
Galactomin 18	2,8	5,1
Galactomin 19	2,8	5,1
Ideal	3,5	6,0
Isomil	2,0	3,3
Klim	3,5	6,0
Lactogen	2,3	3,9
MCT 1	3,2	5,6
Mull-Soy	3,1	5,2
Nan	1,8	2,9
Neo-Mull-Soy	1,8	3,0
Nespray	3,5	6,0
Nutramigen	2,2	3,6
Pelargon	2,8	4,0
Semilko	4,4	8,5
Similac	1,7	2,8
Similac with Iron	1,7	2,8
SMA	1,5	2,5
S-26	1,5	2,5
Sobee	3,2	5,3

* Protein — amount of protein in g/100 ml formula

How to feed
your baby with
KLIM

Here's how easy it is to prepare your baby's feed when you use Klim.

Nayi indlela elula yokulungisela ingane yakho ukudla kwe Klim.

Nantsi indela elula yokulungiselela umntwana wakho xa usebenzisa i-klim.

Tsela e bonolo ya ho lokisa dijo tsa lesea la hao ha o sebedisa KLIM.

1. Wash bottle and teat in warm, soapy water. Then boil bottle and teat in a covered saucepan for ten minutes.

2. Read instructions on the next page for the correct amount of water for your baby's feed. Boil the water, allow it to cool, then pour half the water into the bottle.

3. Add one teaspoon of sugar.

4. Now add the required amount of KLIM (see table).

5. Shake well until all the KLIM has dissolved properly.

6. Now add the rest of the water and shake well.

ZULU

Iminyaka Yengane	Inani lokudla ngosuku	Inani lamanzi ekudleni	Inani leklim ekudleni
Ongaphansi Kwenyanga	7-8	½ yenkomishi	Izipuni ezimbili
1 Kuya Ku2 wezinyanga	6-7	¾ wenkomishi	Izipuni Ezinhlanu
3 Kuya km5 wezinyanga	5-6	1 wenkomishi	Izipuni eziyisithupha
Abadlula izinyanga eziyisithupa	5-6	1½ wezinkomishi	Izipuni eziyishumi

Indlela elula yokulungisa ubisi ohuningi. Xuba izinkezo eziyishigalombili zeklim. Amonkomishi amabili amanzi abilisiwe bese apholiswa nokhezo losukela. Njengoba kuveziwe ekucacisweni ngaphambili.

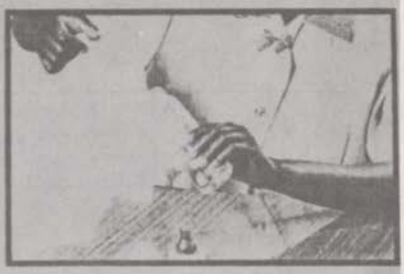
Amaphuzu ofanele uwakhumbule:

Qiniseka ukuthi izandla zakho zihlanzekile kanye nendishi nendwangu nesosiphani lezo ozozisebenzisa ekulungiseleni ukudla kwengane. Ziwashe phambi kokuba ugale. Dlisa ingane yakho ngesikhathi esifanele. Bheka ithebuli lakho maqondana nenani ngosuku, noma buza emtholampilo konesi. Qiniseka ukuthi ngaso sonke isikhathi ingane yakho ihleli kamnandi uma uyipha ukudla futhi uyigcine njalo yomile ngokuyishintshe iduku. Ume ingane yakho inginya umoya, yihlalise ize uwukhiphe umoya. Uma uyiphe amanzi emaphakathini okudla, khumbula ukuwabilisa kuqala, bese uyawapholisa.

Iklim isetshenziswa womame kuwo wonke umhlaba. Iklim Yakha amathambo aqinile amazinyo nomzimba onamandla kusukela ebunganeni kuze kuyofika ekukhuleni kwayo. Iklim wubis: olunokhilimu omningi, ligcwele amandla nobuhle obudingwa yizingane ezikhuthele nezinempilo.

Iklim iphephile futhi icwebile, yenzeka kalula kanti ihlala iyintsha ethinini Iklim yinhle kakhulu.

1. Washa ibhodlela netiti emanzini anensipho, bese uzibilisa esosipanini elivalekile imizuzu eyishumi.



2. Thatha amakomishi amabili amanzi, wabilise bese uyawapholisa, thela inxenye yawo ebhodleleni.

3. Thela isipuni esisodwa sikashukela.

4. Thela izipuni ezimbili zeklim.

5. Goqoza ukuze iklim incibilike kahle.

6. Thela wonke amanzi bese ugoqoza kahle futhi.

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XHOSA

Ubudala Bomntwana	Amanani Okutyisa Ngemini	Umlinganiselo Wamanzi Elinye	Umlinganiselo Ngexesha Lokutyisa
Ngaphantsi Kwenyanga	7-8	½ yekomityi	Amacetshana Amabini
Inyanga Enye Ukuya Kwezimbini	6-7	¾ yekomotyi	Amacetshana Amahlanu
Inyanga Ezintathu Ukuya	5-6	Ikomityi Enye	Amacetshana Amathandathu
Ngaphezulu Kwenyanga Ezintandathu	5-6	Ikomityi Nesiqingatha	Ishumi Lamacetshana

Indlela elula yokulungisa ukutya okuninzi, xuba amacephe asibhozo eklim, ikomityi ezimbini zamanzi abiliswe apholiswa, necephe leswekile. Kanye njengokuba kufanekisiwe.

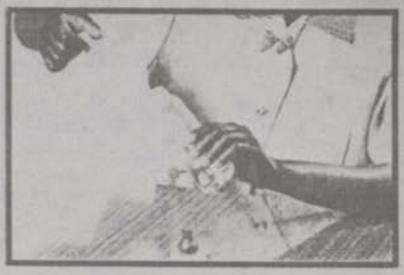
Amanqaku okukhunjulwa:

Qiniseka ukuba izandla zakho zicocekile, ilaphwu lezitya, nembiza oyisebenzisayo ekulungiseni ukutya komntwana wakho zihlanjiwe ngaphambi kokuba uqale. Tyisa umntwana wakho ngexesha elifanelekileyo. Khangela uluhlu lwemigaqo lwamaxesha okutyisa okanye ubuze umongikazi ekliniki. Qinisekisa roqo ukuba umntwana uzulile xa umtyisa, umgcine omile ngokufaka ilweyile elomileyo. Ukuba umntwana unomoya, mhlalise ade abhodle. Xa umpha amanzi phakathi kwamaxesha okutyisa, khumbula ukubilisa amanzi kuqala uze uwapholise.

Iklim isetyenziswa ngabazalikazi elizweni lonke. Iklim yakha amathambo aqinileyo, amazinyo nemizimba engqongqo ngexesha umntwana ase yimveku naxa ekhula. Iklim lubisi olungumgubo oluzele lucwambu – luzele sisondlo nokulunga okufunwa ngabantwana abanomdla nempilo.

Iklim ayinangozi yaye imsulwa, kulula ukuyilungisa yaye ihlala intsha enkonxeni. Iklim yeyona elungileyo.

1. Hlatswa lebotlolo le sekwahelo ka metsi a futhumetseng a sesepa o de bedise ka pitseng e kwahelwang metsotso e leshome.



2. Bala ditsebiso legepheng le latelang ho bona sekala sa metsi ao o tshwanetseng ho a sebedisetsa dijo tsa lesea la hao Bedisa metsi o a fodise o tshele sekoto sa ona ka lebotlolong.

3. Tshela teyelepole ya tswekere.

4. Tshela sekala se batlehang sa KLIM.

5. Fuduwisisa hore KLIM e seke ya etsa dikoto.

6. Tshela metsi a setseng.

SOTHO

Boholo ba lesea	Palo ya ho fepa ka letsati	Metsi a sebedisa ha o fepa	KLIM e batlehang ha o fepa
ka tlase ho kgwedi	7-8	sekoto sa kopi	diteyeloepole tse pedi
kgwedi kapa tse pedi	6-7	¾ ya kopi	diteyelepole tse hlano
tse thano ho ya ho tse hlano	5-6	kopi	diteyelopole tse tsheletseng
ho feta dik-gwedi tse tsheletseng	5-6	kopi le sekoto	diteyelepole tse leshome

Tukiso e bonoo ya patleho e ngata. Kopanya dikgaba tse 8 tsa KLIM, dikopi tse 2 tsa metsi a bidisitsweng a fodiswa le kgaba ya tswekire jwaleka ha ho bontswa ka tlase.

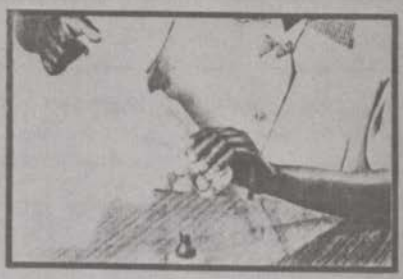
Dintlla tseo o tshwanelang ho di hopola.

Bona hone matsoho a hao a hlwekile, lesela le pitsa tseo o di sebedisang ho lokisa dijo tsa lesea la hao di hlwekisitswe pele o qala. Fepa lesea la hao ka nako e beilweng. Sheba pontshiso ho tseba makgetlo a ho fepa lesea kapa o botse ho ngakahadi kliniking. Etsa hone lesea le dule hantle le be le nutse moya ka hodimo. Ha o lefa metsi mahaneng a dijo, hopola ho a bedisa pele o a fodisa.

Klim e sebediswa ke bo-mme lefatsheng kaofela. KLIM e bopa masapo e tiileng, meno le mmele o tiileng ho tloha boseeng le nkong ya bongwana kaofela. KLIM ke lebeise le letle la phofo-le tletseng polokelo lo ho loka ho batiwang ke bana ba mafolofolo ba phetseng.

KLIM ya tshepeha, e hlwekile, e bonolo ho etswa, e dula e le ntsha ka bolekaneng. KLIM e ntle haholo.

1. Wash bottle and teat in warm, soapy water. Then boil bottle and teat in a covered saucepan for ten minutes.



2. Read instructions on the next page for the correct amount of water for your baby's feed. Boil the water, allow it to cool, then pour half the water into the bottle.

3. Add one teaspoon of sugar.

4. Now add the required amount of KLIM (see table).

5. Shake well until all the KLIM has dissolved properly.

6. Now add the rest of the water and shake well.

Your baby's age:	Number of feedings per day:	Amount of water per feeding:	Amount of Klim per feeding:
Younger than 1 month	7-8	½ cup	2 level teaspoons
1 to 2 months	6-7	¾ cup	5 level teaspoons
3 to 5 months	5-6	1 cup	6 level teaspoons
Older than 6 months	5-6	1½ cups	10 level teaspoons

For the easy preparation of large quantities, mix 4 dessert spoons of Klim, 1 cup of water that has been boiled, then covered and allowed to cool and ½ dessertspoon sugar. As shown in the illustrations opposite.

Points to Remember:

Make sure that your hands are clean and the dish cloths and saucepan which you use to prepare your baby's feed, are washed before you start. Feed your baby at the correct feeding times. See the table for the number of feedings per day, or ask your clinic sister. Always make sure your baby is comfortable when feeding and keep baby dry by frequent changing of the nappy. If your baby swallows wind, sit him up until he 'brings up' the wind. When you give water between feeds, remember to boil the water first, then allow to cool.

KLIM is used by mothers all over the world. KLIM builds strong bones, teeth and sturdy bodies from early infancy right through childhood. KLIM is full cream milk powder – full of the nourishment and goodness required by active, healthy children.

KLIM is safe and pure, easy to prepare, and is always fresh in the tin. KLIM is the best.

BONA

Babytalk with Nestlé

Look after yourself during pregnancy.

Your baby grows inside you. He eats what you eat. He feels what you feel. He uses your strength to grow strong himself.

We will deal with diet separately. Here we talk about your personal health and cleanliness.

1. Go for walks and get plenty of fresh air. But rest at least twice a day – particularly if it is hot.

2. Wash yourself all over every day. Clean your breasts with cotton wool soaked in warm, boiled water.

3. Brush your teeth after every meal.

4. Do not carry heavy loads.

5. Wear light, airy clothes in summer and warm, comfortable clothes in winter.

6. Do not visit the sick. Baby's health is more important.

Watch what you eat - for baby's sake.

Try to keep to three medium-size meals a day. Vary what you eat, by all means, but try to have at least some of:

Meat, fish and chicken; eggs, milk, cheese and butter; rice, mealies and wholewheat bread; any green vegetable, plenty of fresh fruit.

Drink plenty of water, milk and fruit juice – they'll keep you regular.

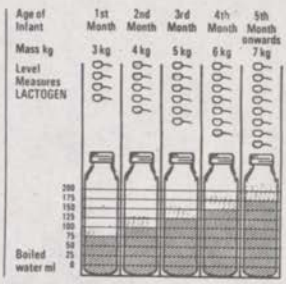
After the birth, keep to this diet. You have to stay healthy because baby will need your milk five or six times a day.

Follow instructions carefully.

Part of the reason why your breast milk is the best "first food" for baby is that it is always clean, always nourishing, always at the right temperature.

For a powdered milk formula to be good, it has to be mixed properly. (see Lactogen Table, right, for example)

On the labels of all Nestlé powdered milk formulas you will find careful instructions. Read them. You will also find a measure inside the tin. Use it.



Too little or too much of any formula could harm your baby. The right amount will make him grow up strong and healthy.

Some reassuring facts for the mother who has nagging doubts about feeding baby.

For mothers who for some reason cannot breast feed, or who need to supplement their breast feeding, there are milk formulas like Lactogen.

Lactogen has vitamins and other nutrients added to make it a complete milk food for your baby.

BUY THE BEST FOR BABY!

Doctors will tell you that the best food for young babies is mother's milk. A healthy mother, able to feed her baby herself, will have a contented baby who digests his food well, sleeps soundly, has a clear skin and grows strong bones and good teeth. That's because mother's milk has all the proper foods for a happy, healthy child.

Many mothers find that they do not have enough milk and have to give two or three bottle feeds as well each day. Sometimes mothers find that they can only breast-feed their babies for a few weeks. Then they have to bottle-feed the baby.

If you have to bottle-feed your baby make sure that you use a food which is just like mother's milk, so that he can grow up strong and healthy. The best food for your baby — because it is just like mother's milk — is S.M.A.

American scientists have worked for 50 years learning to prepare S.M.A. Now it is available here in our country, where it is made exactly as in the United States.

So you are able to give your baby the very best food — at a very low price. When you feed your baby with S.M.A. you do not have to add expensive vitamins or iron drops or sugar. S.M.A. has everything your baby needs and costs only 80c for a one pound tin.

Two important things to remember are **cleanliness in mixing the food** and **putting the correct amount of powder into the water.** If you do not put in enough powder, the baby will not get enough food and will become hungry and fretful.

AVAILABLE IN 1 LB. AND ½ LB. CANS

As your baby grows, he needs the growing milk: Nespray.

Full-strength cows' milk with added vitamins A & D and iron.

Breast feeding is always best for your baby. But when you feel the time has come to change him to full strength cows' milk, then Nespray is best. For four very good reasons:

1. Full strength Powdered Milk.
Nespray is full-strength powdered milk. Milk with only the water taken out. You just add water, for instant full-strength milk. The best there is.

2. Extra Vitamins and Iron.
Nespray is improved by the addition of iron and two cream-soluble vitamins: Vitamin A & D.

3. Easy Digestion.
In Nespray, the energy-giving cream has been homogenised and evenly distributed, thus improving the digestibility. This allows baby's system to use all the goodness and nourishment the milk contains. The result is strong bones and healthy bodies.

4. Stable Formula.
Nespray is a stable formula which never varies. Which means that baby's stomach can settle into a relaxing routine without being disturbed by constant changes.

Nespray is made by Nestlé. The most trusted name in infant feeding.

Nespray.
The growing milk.

Some babies start to crawl.

Like millions of others arou
the world, this baby's walki
into a healthy childhoc
thanks to S-26.

Healthy progress through each stage of development depends, more than anything, on correct feeding from birth. For the mother who bottle-feeds this means the automatic choice of S-26. S-26 is the infant food that's closest to mothers' milk. It's also the easiest to prepare. Mixes in seconds, right in the bottle – without lumps or clog ging of the teat.

S-26 FORMULA

the closest you can get to mothers' milk

Wyeth makers of scientifical improved infant food

Wyeth Laboratories (Pty) Ltd P.O. Box 42, Isando, Tvl.

Now Dad can give baby all the goodness of mother's milk.

Nan contains the vitamins and minerals found in breast milk.

Nothing can ever quite replace your own breast milk and mother's milk will always be the best thing for baby.

Don't be too upset if you cannot feed baby yourself, though. You can give him Nan, and be sure that he is getting all the nourishment, all the vitamins, all the minerals that he needs for happy, healthy growth.

And when the time comes to stop feeding baby yourself, you can trust your baby to Nan. Nan is so safe and easy to use. You can even let Dad do a little mothering too!

Nestlé The most trusted name in infant feeding. NESTLÉ

APPENDIX D
APH May, 1978

they are counting on YOU... for nutritional counsel and guidance

Journal APH.

Unfortunately, many mothers do not understand their babies' nutritional needs. They want their babies to be well fed, but often allow cultural customs and social pressure to interfere with sound feeding habits.

For example, many mothers don't understand why infant formula should be fed for the maximum time allowed in each WIC program . . . often a full 12 months. This is why your role as a nutrition counselor to new mothers in WIC clinics is vital. It's up to you to explain that an infant formula, such as ENFAMIL® With Iron, provides added iron to help prevent iron deficiency.

ENFAMIL With Iron also contains the other vitamins and minerals . . . at the levels recommended for infants. And, ENFAMIL With Iron contains the necessary balance of protein, carbohydrate and fat. This excellent nutrition is particularly important since infants enrolled in WIC are those determined to be "at nutritional risk."

Won't you help the new mothers and babies in your clinic? Insist that babies be kept on infant formula for the maximum time allowed by your WIC program . . . up to 12 full months.

Journal APHA

Are you sure she's getting all the iron she needs?

If she's fed SMA® she is!

Unlike other brands of infant formulas, all forms of SMA® contain iron—12 mg. per quart. Two other popular brands are available both with iron and without iron. Which will mother buy? That's the problem.

The American Academy of Pediatrics* recommends an iron-fortified formula for all bottle-fed babies throughout the first year of life.

No matter what form of SMA® mothers buy—concentrated liquid or powder—you can be sure that it contains iron as well as all the other nutrients known to be required for good growth and development in normal infants.

So during baby's first year, to be sure, recommend SMA.®

Supplied: Concentrated Liquid—cans of 13 fl. oz. Powder—cans of 1 lb. (with measuring scoop).

*Committee Statement, Committee on Nutrition, American Academy of Pediatrics: Iron-fortified formulas, Pediatrics, 47:786 (April) 1971.

SMA®
Infant Formula

Wyeth Laboratories
Philadelphia, Pa. 19101

ADDENDUM TO "A RESPONSE TO INDUSTRIES CODES"

Interfaith Center on Corporate Responsibility
May, 1978

There are three overriding and related criticisms to be made of the various codes of ethics promulgated by the infant formula industry.

I. The codes legitimize practices that should be terminated alltogether by presenting guidelines for the application of such practices. Two examples follow:

A. ICIFI Code. This code is largely devoted to guidelines for the behavior and dress of mothercraft personnel (milk nurses). It discusses company identification, relationship to medical personnel and the like. We believe milk nurses should be eliminated. Any personnel who have a role in educating mothers need to be organized and trained by recognized local institutions, by the health authorities, and to satisfy local needs. In our view, the dual function of the milknurse--marketing and medical--represents a clear conflict of interests. Nurses can perform their health care functions satisfactorily only is the element of sales promotion is removed.

B. Abbott's Code on Samples. The code assumes the continued existence of free samples. The critical question is--what good do samples provide? What are they for? Dr. Abraham, Chief of Pediatrics at Kuala Lumpur Children's Hospital says, "It is difficult to justify the continuation of the practice of handing out free samples, given their purpose. If a mother is poor enough to need a free sample, she is too poor to use it properly, and the promotional impact of that sample on her and her friends is unjustifiable. Many countries might find it beneficial in the long run to ban free samples."

The industry agrees, of course, with the experts that breast feeding is the healthiest and most desired form of infant feeding. However, the companies compete with each other for sample distribution areas. This creates promotion pressure on medical staffs and mothers, regardless of the companies' intentions. What speaks then for free samples? Why continue a practice which by its very nature and design promotes the less healthy infant feeding choice?

The Abbott Samples Code, given its assumption of continued free samples, reads well. However, there is no data which indicates explicitely, how it is being implemented, which leads to Point II.

III. Codes of practices regarding ethical behavior often come in direct conflict with the demands on a subsidiary or local marketer by the parent company to show a profit on the "bottom line". The local implementer of a code receives contradictory messages from top management. This was at the heart of the Jamaican situation--the local subsidiary for Bristol Myers continued with "business as usual" as much as possible regarding the activities of their milk nurses, despite the company code. (For details, see Statements of the Sisters of the Precious Blood and the Bristol-Myers Company on Infant Formula Marketing Practices Overseas, Bristol Myers Company, Winter 1978.)

A "code" is just that--not legally binding. Codes which look good on paper and do represent the best intentions of a company are rendered meaningless without the rigorous business accounting mechanizms such as those governing all other operations of a subsidiary.

III. Weak as they are, the codes attempt to respond to the criticism that the linking of medical "authorities" with the sales promotion is inappropriate at best and insidious at worst. The codes do not address the massive distribution and marketing of infant formula products through small stores and pharmacies throughout the barrios and slums of the Third World.

While companies claim that their products are only being distributed through qualified medical personnel, in reality every shop keeper or grocer who sells formula is, like the doctor, the "arbiter" of infant feeding practices in neighborhoods and towns. This person is neither "uniquely qualified" nor even trained to give nutrition and infant feeding information--yet they do all over the world. Most Third World people do not have regular and adequate accessibility to health services. In Caracas, Venezuela, at the "top" of the developing line, only 7% of the women had prenatal services at all. Most mothers learn about which formula to buy and how to prepare it from her local shopkeeper.

Regulation of the infant formula industry must address the widespread marketing to mothers without adequate moeny and facilities to use the products safely.

Public statement approved by the meeting held at Berne on 3-5 July 1976

A RESPONSE TO INDUSTRIE'S CODES

In the past year a number of infant milk companies have published "codes of ethics" in response to criticisms of their promotional practices.

These have been a welcome development if only because it is the most clearcut admission from the industry of the problem caused by the misuse of their products.

However, none of these codes has yet gone far enough to deal realistically and concretely with the problems caused by corporate activity.

Of particular concern is that the codes while appearing to keep the industry ethical actually legitimize unethical practices. Current codes simply describe the practices already engaged in by the companies.

The other major shortcoming of the codes is that all three fail to include any means of enforcement other than by the companies' own management. Codes can only work if they actually restrict unethical promotion and if there is a neutral agency which provides outside supervision and which has both the power and resources to enforce codes and prevent circumvention. One essential power is the right of inspection.

An examination of some of the codes demonstrates the problem.

ICIFI - Code

The International Council of the Infant Food Industry first released their code in November 1975. The publication of this code coincided closely with the first hearing of the Nestlé court case. It was announced a few days before and published two days after the hearing. It had in fact been promised to U S critics for many months.

The ICIFI Code's failings are as follows:

- It has no mention at all of advertising. Given that milk company advertising has always been a major cause of concern, this ommission renders the code useless.

- The code itself is vague, too vague to achieve the desired results. Its provisions as they stand now pose the danger that they will provide for interpretations of convenience.

- For instance, points 8,9,10,11,12 of the code refer to "mothercraft personnel". These points allow these personnel to distribute free samples, to wear nurses uniforms while promoting their companies' products. Any personnel who have a role in educating mothers need to be organised and trained by recognised local institutions, by the health authorities, and to satisfy local needs. Nurses can perform their health care function only if the element of sales promotion is removed from their job description.

The PAG (Protein Calorie Advisory Group of the UN) initiated the discussions which led to the publication of this code. Some companies are implying that the PAG has endorsed the ICIFI Code. But it should be clearly understood that this is not the case.

Bristol-Myers Code

Bristol Myers prepared their code for distribution at a meeting in early 1976 with the Rockefeller Foundation, the Ford Foundation and US Church related critics. The meeting discussed questionable promotional practices.

Bristol-Myers had previously declined membership of ICIFI because they claimed it would violate US anti-monopoly laws.

While this code accepts in principle that no advertising should go to the consumer through the mass media, it has a number of loopholes:

- The code deals at length with information directed to mothers. This implies continued direct contact between company and mother, for instance the use of direct mailings to new mothers, distribution of free samples etc.

- The code says that infant milk products will not be promoted to families without adequate facilities for its use or where it would be too expensive for the family to afford. There is no information on how this policy is enforced or even how the communities at risk can be identified.

- Moreover the company refuses to acknowledge the dangers in setting consumer trends by the upper classes that are then followed by the rest of the population.

- The code suggests that mothercraft nurses will not be paid a commission on sales of milk. This effectively admits that one role of the nurses is actually to sell the product.

Abbott Laboratories Code

Abbott was the first company to publish a code. It was one of the original members of ICIFI but withdrew from it, stating publicly that the ICIFI code did not go far enough.

Their original code rules out the use of mass media advertising. This has since been strengthened to include a committment which states that the company will "terminate a distributorship" which violates the constraints on advertising.

Although Abbott appears to have a more stringent code, apart from the one positive committment above, the rest of the code legitimizes

-the use of "mothercraft personnel"

-distribution of free samples.

Summary

As one company explicitly argues in an internal paper, the codes are to prevent legal restricions in the baby foods industry, such as already exist in some countries (e.g. Sweden, Papua New Guinea, Guinea-Bissao). Therefore one is well advised to see the codes as public relation exercises rather than as serious steps towards ethical practices.

The following material was submitted for the Senate Record by Mrs. Ruth Simoone Vermeer from the Regional Office for Asia and the Pacific of the International Organizations of Consumers Unions.

The material includes:

1. Working Mothers and Breastfeeding.

2. Memorandum Submitted by the Consumers Association of Penang to the Ministry of Health on the Baby Food Industry.

3. Newspaper repot of Dr. S.C.E. Abrahams address at the International Pediatrics Conference in New Delhi, October 1977.

   Dr. Abraham's address: Towards a New Role for the Infant Food Industry.

4. Nestle Lactogen ads from Malaysian newspapers.

5. Newspaper report of a Nestle baby show in Malaysia, June 1978.

6. Transcript from full color poster with healthy white baby advertising Wyeth (American Home Products) formulas SMA and S-26. The poster was on display at three hospitals and several doctors offices. The Code subscribed to by Wyeth since 1975 states: "Product information for the public will always recognize the milk of healthy, well nourished mothers as the feeding choice with the recommendation to seek professional advice when a supplement or alternative may be required."

7. Message printed on side of plastic promotional sac distributed with free samples. Malaysia, 1978. It contradicts Code to say "nourishes babies like mother's milk." S-26 is a Wyeth, American Home Products formula.

8. Front and back of plastic promotional sac for Lactogen with Honey, Nestle.

9. Compilation of articles from the Malaysian press regarding bottle feeding problems.

(1)

WORKING MOTHERS AND BREASTFEEDING

One of the most plausible sounding arguments used by the milk companies in defence of promotion of their products in the Third World is that this milk would fulfill the needs of the increasing number of working mothers. In PAG Bulletin, Vol. VII, Nos. 3-4 it is stated in an article on infant feeding in the less developed countries by the International Council of Infant Food Industries that "bottle feeding is not a luxury for them (=working mothers), because they must often choose between breastfeeding and work" and that "many reports have pointed to a mother's work as a major, if not the major reason for adopting bottle feeding" (pg. 64).

Yet, two factual questions can be raised:

1 Is not it the case that quite many of the poor and the rural women in developing countries were traditionally already 'working mothers', i.e. working outside of the house, and managed to combine work and breastfeeding?

This would indicate that not the working as such but the working in certain industrial surroundings would pose a problem, the problem which the companies quote as a sensible reason for choosing their products.

2 However, on this point does the situation of industrially employed mothers indeed force them to abstain from breastfeeding? This seems in view of the Labour Laws in many developing countries not to be the case. Let me elaborate this point with regard to Malaysia. In Malaysia the Labour Laws provide for two months maternity leave, during which the employee receives a fixed allowance of M$4,- a day. Among those, however, whose normal salary averages more than M$4,- a day the following is general practice: the employer gives 40 days leave plus full pay and the employee can either accept this or insist on her rights under the Labour Laws and have two months, one month before and one month after birth, leave and M$4,- a day during her leave. These Labour Laws applynto persons earning less than M$750,- a month, the vast majority of Malaysia's Labour force. Three categories are not covered by these Laws: government servants, domestic servants, and persons in a managerial position, but earning less than M$750,-. Government servants get a maternity leave of 40 days with full pay.

So it would be possible for a mother to breastfeed her baby for at least a full month.
I would like to suggest that if more and more mothers nowadays do not use this possibility it is a matter not of necessity but of choice.
In other words, that these factual considerations only become important if combined with choice for ease, convenience, and glamour as important values plus a somewhat exaggerated belief in science as an improvement on nature. The idea that formula milk might well be better than mother's milk is by now fairly common in the minds of the large group of peqle in the developing world whose lifes are subjected to the influences of modernisation. This idea has also been suggested by the milk companies in the promotion of their products, in the past years openly, in the last years more subtly.
So it is not a matter of factual necessity but a matter of changing attitudes.
Advertising plays a definite part in changing the outlook of people. The milk companies fully exploit this channel of influence.

Penang, May 1978
Ruth Simoons-Vermeer
Regional Office for Asia and the Pacific of the International Organisation of Consumers Unions.

Submitted by Dr. Jesus T. De La Paz, for inclusion in Senate Record.

Dr. Jesus De La Paz,
Davao Medical School Foundation,
Davao City, Philippines

Davao City urban area; more mothers bottle feed reasons usually given:

1. no or little breastmilk
2. mother has to work
3. breast milk does not agree with baby

Davao City is an endevice area for amoebic dysentery. Many houses do not have tap water. Rain is collected in tanks and used for drinking or else water is bought from big water trucks that get water from deep wells outside the city of the family has surface wells. So the contamination could be thro' handling or seepage. Locally, no documentation (include reprint).

2). Baby formula manufacturers have been around more than 30 years; mass media full of commercials newspapers, radio, TV, movie houses. Milk sold in drugstores, grocery stores. Milk companies promote the products to MD's; hospitals and clinics by giving free samples, many give away gimmicks from immunization records and mothers and baby's books to feeding bottles and free hospital and office equipment. Bottle feeding has become a status symbol - since the employer's or master's wife bottle feeds, so will the employee - the maid; the drivers wife or the farm hand.

3). I am not familiar with Code of marketing ethics. The milk company always say they are all for breast feeding. But if baby cannot breastfed, then their product should be used.

4). Government still allocates an enormous sum of money for the importation of milk. Recently few reasons of economic development allows importation of milk that is repacked and reconstituted in the country. No national policy to promote breast feeding that I know of.

Here in Davao City up to very recently, all hospitals required that the mother have 3 stool exam negative for amoeba, before she was allowed to breastfeed. By that time the baby had been placed on a formula.

Gerber's Infant Feeds is produced in our country. Before it was set up, pediatricians were polled. No one is party to the result of the survey - the fact of the matter is that Gerber's is manufactured locally even a family where the daily income is ₱10 - ₱15 a day will try to set aside ₱2.80 for a bottle of Gerber's.

Developing countries have a tendency to "ape" Western Countries - in the Philippines, they look to the US for leadership in everything from fashions to sports to feed fads.

We have enough nutritions indigenous feeds, the trouble is ignorance, poverty, and cultural tabees. Leadership in medical profession is also lacking. Too few MD's encourage mothers to breastfeed. It is presumed more often than not that the mother will bottle feed.

Because of inflation the milk companies could price themselves out of the market. Unfortunately, very often, the remedy to inflation is the giving of a more dilute formula.

There are still nurses "promoting milk, Nestle and Wyeth. They are not really nurses though.

Hoping this will be of help in your struggle for breast fedding in developing countries.

Sincerely,

JESUS T. DE LA PAZ, M.D.

JUN 16 19

The Prevalence of Breast and Bottle Feeding in Pasig

Wilhelmina C. Paredes, B.S.P.H.[1]; Lucila B. Rabuco, B.S.H., Dip. Nut.[2]; Ann P. Burgess, MPH[3]

INTRODUCTION

It is generally agreed that bottle feeding is growing in popularity among low income families in Manila and a few studies have quantified these impression (1, 2, 3).

However in order to discover true trends in infant feeding patterns or real differences between communities the prevalence of breast and bottle feeding at selected ages must be known. Apart from the unpublished prospective study by Osteria (4), there is no available data of this type for urban low income Filipino children.

To supplement Osteria's findings this paper presents the data on the prevalence of breast and bottle feeding at each month of age, from 0-24 months, for a homogeneous, low income community in Pasig as well as some details of the types of milk used for bottle feeding.

METHOD

All the women living in Riles, Barrio de la Paz, Pasig who had children aged between 0-24 months were personally interviewed in their homes during November and December 1975 using a structured questionnaire. The date, or age of the child at which the mother said she changed her method of feeding was recorded together with details of type of artificial milk used, dilution of the formula and reason for bottle feeding.

RESULTS

Of the 126 families in Riles 72 had children aged under 2 years. All 72 of the mothers were alive and five had two children within the specified age groups so that data were obtained on 77 children.

Eighty-eight per cent of the mothers were less than 36 years old. Thirty-six per cent worked outside the homes usually at the nearby shoe and bag factories, 67% had received some elementary education while the remainder had attended high school or college.

Table 1 summarizes the type of milk feeding the children were receiving at the time of the study. Even though the sample size was small the coverage was complete and so the data accurately reflects the true prevalence of different kinds of infant feeding in this barrio.

The table shows that in all but the 6-11 month age group more children were exclusively bottle fed than were exclusively breastfed, that few mothers give both breast and bottle and that the majority of children, even in the 2nd year receive some kind of milk.

In order to know how each child had been fed since birth each mother was asked, when relevant, at what age she had stopped breast feeding, and started and stopped bottle feeding. It was then possible to obtain the prevalence of each type of feeding at each month of age (although the numbers in each group got progressively less because the ages of the children at the time of the survey ranged over the whole 2-year period.)

The data, even though based on recall, was considered reliable enough to indicate the pattern of feeding at each month of age because 1) there had been no change in feeding method for 2/3 of the children and b) in only 13 cases had a change in type of feeding occurred more than 12 months previously.

This pattern is illustrated in Figure I and summarized in Table 2.

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[1] Student, College of Medicine, University of the Philippines

[2] Instructor, Dept. of Nutrition, Inst. of Public Health, University of the Philippines

[3] Senior Lecturer, Dept. of Nutrition, Inst. of Public Health, University of the Philippines

Table 1. Distribution of Children Aged 0-24 Months by Type of Feding at Time of Survey

Age Group-Months	Number of Children				
	Total	Breastfed	Bottlefed	Breast+Bottle fed	Neither
0-	28	10	16	2	0
6-	14	8	5	1	0
12-	18	8	9	0	1
18-	17	3	10	0	4
0-23	77	29	40	3	5

These results confirm the high prevalence of bottle feeding indicated in Table 1. A quarter of all the babies received no breast milk at all, only a half were still nursing in the 6th month and approximately a third at the end of the first year. Very few babies received mixed feeding (i.e. breast and bottle) and all the children received some kind of milk throughout their first year of life.

Forty-seven of the children had been bottle fed at some stage in their lives; among the reasons given for this were 'insufficient milk' (54%), illness of mother' (17%) and 'working' (17%).

Whether or not a mother was working outside her home did not appear in fact, to influence the way her baby was fed perhaps because in most cases her job was nearby. Twelve infants aged under 1 year had working mothers and 4 (33%) were breast fed while 28 infants had mothers who stayed at home and 13 (46%) were breast fed – these proportions were not significantly different.

The type and brand of milk used for bottle feeding during the child's life was recorded. Table 3 shows the type of milk that was fed to bottle fed babies of less than 3 months of age.

Every mother who was bottle feeding at the time of the study was asked how many measures of milk and water she used to prepare bottle feeds. The dilution factor was then compared to that recommended by the manufacturers.

Thirty-one of the 33 babies being fed evaporated or condensed milk were receiving formulas 2-3 times too dilute while 7 of the 10 babies on powdered milk were receiving less than full strength feeds.

DISCUSSION

The prevalence of breast feeding at 3, 6 and 12 months of age in Riles, Pasig is

Table 2. Distribution of Children by Method of Feeding During Selected Months of Age

Age	No.	Percent Children in each group Fed by:			
		Breast	Bottle	Breast+Bottle	Neither
1st month	77	69	27	4	0
3rd month	68	46	48	6	0
6th month	51	43	57	6	0
9th month	43	40	58	2	0
12th month	40	35	59	3	3
18th month	20	20	55	0	25
21st month	11	18	54	0	28

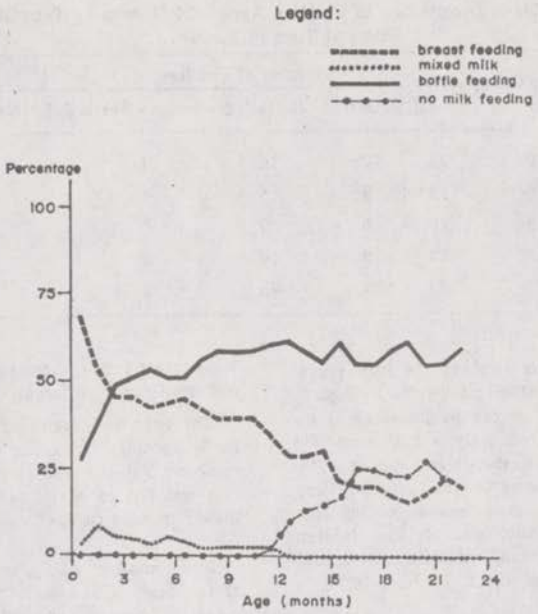

Figure 1. Percentage of Children receiving each type of feeding from birth to 23 months

Table 3. Distribution of Children by Type of Milk They Received When Less Than 3 Months of Age

Type of Milk	No.	Children %	Most common brand mentioned
Evaporated	8	20	)
Condensed	16	40	) Alaska
Powdered	16	40	Bonna, Pelargon

slightly lower than that reported by Osteria in her prospective study of 794 infants from low income homes in Manila. She found prevalence of 68%, 59% and 42% respectively while in this survey the values were 52%, 49% and 38%. Since the replacement for human milk is often condensed milk (with a Calorie/protein ratio highly unsuitable for infants) and since it has been shown that the majority of the bottle fed babies receive too dilute a formula the low prevalence of breast feeding, especially in the first six months of life is a cause for great concern.

As has been found in previous studies (1, 5) the reason often given for using a bottle is that the mother thinks she has "insufficient milk". Which factors affect this lack of milk, be it real or imagined, warrant further investigation if breast feeding is to be effectively promoted and managed.

(Continued on page 28)

Name: Christine Ansell

Profession: Nutritionist

Qualifications: B. S. S.R.D.

Experience:: One and one-half years as a nutritionist in the Mother and Child Health Clinic, Al Qaa, Sana'a, Y.A.R.

Instances of Promotion of formula feeds: (as seen in the Y.A.R.)

1. Pharmacies are all well stocked with these products. Abuse in this case is much the same as general drug abuse.

2. In the general shops, bottles and tins of milk are displayed. They are always very obviously and insidiously available.

3. Company advertising includes:
Morinaga(one type of baby milk) desk stands in Ministry of Health.

Morinaga posters of healthy (Japanese) baby.

Morinaga writing/ notepads.

4. The most important influence is the corruption of the doctor's practice to encourage him to promote the formulas either out of true ignorance or private gain. This is by far the most important way that formulas are promoted since what a doctor in Yemen says in Yemen doesn't just carry extra status; it is indisputably right.

To the best of my knowledge, all the above- stated is true.

C. J. Ansell.

C. J. Ansell

Subscribed and sworn to before me this 9th day of May 1978.

John Egan McAteer

John Egan McAteer
Consul of the United
States of America

MEMORANDUM SUBMITTED BY THE CONSUMERS' ASSOCIATION OF PENANG TO THE MINISTRY OF HEALTH ON THE BABY FOOD INDUSTRY

In Malaysia there has been very limited study into the problems caused by the Baby Food Industry. Subsequently, little is done to prevent such a change from breastfeeding to the bottle milk. There is also no controlling of the availability of these foods to the vulnerable population.

Therefore, it is necessary that the Ministry of Health take steps to curtail the activities of the industries engaged in the Baby Food Productionif necessary through legislative means.

The steps should aim at :

* Educating citizens on the importance of breastfeeding and the potential dangers and inadequacies of artificial feeding.

* A stop should be put to the widespread unethical promotion and sales of artificial baby foods.

* Improvising means to make breastfeeding feasible to working mothers.

Such measures will enable improvement of the health of our babies and save the families alot of finances which could be put to other urgent and essential needs.

In particular, the Ministry of Health should progressively aim at achieving the following objectives :

* that no artificial milk be put on sale unless it can label the difference between mother's milk and its own contents.

* that there should be control of all advertisements on Baby Foods. The adverts should not in any way create the impression that use of that particular brand will lead to certain advantages not present in human milk.

* that it should also prohibit the use of BABIES and other young people for advertising purposes because it creates an inferiority complex in mothers, fathers and children that if they do not use that particular product they would suffer some disadvantages.

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* that it should prohibit the entry of Mothercraft Nurses into government hospitals and other maternity centres. Sales literature advertising any form of Baby Food directly or indirectly also be prohibited from being put up in these places.

* that it should also prohibit hospital personnel from carrying out any activity that would in any way promote the milk products of these multinational companies.

The Present Situation

Ignorance of Mothers

From facts relating to surveys it is realised that more and more mothers are turning to artificial milk without understanding when, why and how it should be given.

They are doing so without knowing the potential inadequacies of these products, the proper use and without considering the cost factor which will handicap the entire family's consumption standard.

Most mothers did not know the difference between the compositions of human milk and artificial milk, the effects these differences will have on the infant.

It is therefore imperative that information and education be given to all sections of the population through the various mass medias to expediate awareness and reverse the changing habit from the breast to the bottle milk.

Maternity hospitals and clinics should also give guidance and assistance to mothers on breastfeeding. Any indifferent attitude here would only lead to exploitation by Mothercraft Nurses employed by the various Baby Food Industry who would be ready to give advice on the benefits of artificial milk.

Economic considerations - a price for breast milk?

It is estimated that breast milk supplied to an infant over two years at 375 litres is nutritionally equivalent to 437 litres of cow's milk. In Asia there are 60 million infants under one

..3/=

year and if cow's milk is utilised 16,000 million litres of milk a year and a herd of 144 million cows is required!

The indications are clear. To allow the decline in breastfeeding to occur is a great economic strain to countries which can least afford it. What happens at individual family levels is equally disastrous. A big amount of the income is eroded by artificial baby milk and little money is left for other basic needs. The entire family is entrapped into a vicious circle.

Role of Baby Food Industry

Specific allegations were made against the infant food industry as early as 1968 when Professor Jelliffe (one time Director to the Carribean Food and Nutritional Institute and now Head of the Division of the Population to the Family and International Health at the University of California) described the incidence of "commerciogenic malnutrition", the malnutrition caused by the ill-considered promotion of infant foods in developing countries.

Media

Surveys in Ibadan, Nigeria on this subject revealed that 38% of 400 mothers recalled at least one advert for baby milks. Inspite of literacy being very low in these regions the inicdence of this knowledge in the adverts is very startling.

In Malaysian homes, both in urban and rural areas, the prevalence of news on baby foods is much the same. Here too we have mothers who have changed from breast to bottle milk be merely being exposed to adverts. They are pounded with these adverts everyday from the time they get off the bed to the time the go to bed, through various medias on the TV, radio, cinemas, newspapers, magazines, pamphlets and announcements from company vans, etc.

Mothercraft Nurses and Sales girls in Nurses' Uniforms

The last two decades have seen competitive advertising campaigns, so that unavoidable high-status, processed milks have been thrust upon unprepared communities. Nurses and salesgirls make home visits to promote sales further. The companies which use nurses say that their function is 'educational'. They are supposed to give nutritional advice and instructions to mothers.

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They claim that they do not request mothers to use bottle milk if she is already breastfeeding. Yet ironically they are paid on a commission basis for the amount of sales they do on these baby foods.

It has also been brought to the notice of our Association that the multinational companies are going to land schemes to promote powdered milk.

Other Techniques

The Ibadan Survey revealed that 9% of mothers had received samples either at hospitals or through nurses. This can also be the case in this country. What is the rationale for this if the companies claim that they only render educational services. Sometimes even free feeding bottles are given away with the samples. Medical Authorities say that this is direct incitement to bottle feed.

In Papua, New Guinea, no milk company can afford to use promotional or educational material which shows anything about bottle feeding. Literature provided by them is in direct contradiction to the recommendations of local health workers in many countries.

The free gift gimmicks introduced into baby foods is potentially dangerous trend. Its drawing of mothers into bottle feeding is convincing and this must be stopped.

Dilemma of Doctors

The Medical profession in Africa, Asia and Latin America learn infant feeding according to Western school of thought. This meant, for the majority an emphasis on the scientific possibilities of artificial feeding.

A report entitled "The Baby Killer" (1974) by War On Want (the Baby Foods Action Group for third world countries based in Britain) states that the curriculum in the Medical Schools at Kuala Lumpur, showed that medical students received no instructions about breastfeeding. In addition bottles used as administrative convenience in hospitals by medical personnel served as an endorsement to the unwary mothers.

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The huge multinationals also employ shrewd practices like 'endorsement by association' and 'manipulation by assistance'. They sponsor conferences on Nutrition and allied fields and help to organise courses for pediatricians. As a result the doctors and organisations become increasingly dependent on the milk companies. Subtle endorsements are obtained by introducing educational posters into clinics, maternity homes, etc.

Sophisticated means of Preparation

The instructions in preparations of the milk formula to be followed whilst preparing is totally irrelevant to the living conditions of the majority of the people who use it. Sterility factor is completely ignored by the poor mothers, thereby giving rise to grave infections and disease. Therefore justifications given by milk companies that they are doing good social work is WRONG and VOID. In addition the terminologies used in the labels as instructions is not understandable to the average mother and the language more often than not, is completely out of text.

The lack of sufficient money to buy adequate milk powder, poor home hygiene (including water supply, fuel, feeding utensils, storage, etc.) and inadequate nutritional knowledge of the mother all point out to urgent need to change from breast milk to artificial milk.

The World Scene

In Zambia, for instance, where the milk company has been nationalised, care is given to the way in which the milk is introduced to the mothers, the economic status of the family, and the availability of competent conditions for the mixing of the food. In addition the labelling explains the inferiority of the artificial milk, and discourages feeding with the bottle but suggests feeding with a cup and spoon.

In Sweden, where infant mortality is the lowest in the world, an agreement has been reached between baby food industry and the government which states in part :
"Advertisements for breast milk substitutes should in no form be aimed directly towards the public or individual families ... Special discount offers directed to the consumer should not be made with regards to products of this type".

It is difficult to see how a company multinational can implement them in Sweden yet not in countries where the consequences of the abuse of artificial feeding are infinitely more serious.

In countries like Nigeria and Ghana, huge billboards take the original place of the cigarette adverts. This has been used quite positively in educating and making the public aware of breastfeeding.

Conclusion

The people should be educated. Education campaigns on the importance of breastfeeding and the potential dangers and the inadequacies of artificial food should be launched. Such measures will enable the improvement of the health of our babies and save the families alot of finance which can be put to other urgent needs.

Therefore something can definitely be accomplished by legislative intervention. We urge the Ministry of Health to formulate effective measures in ensuring the 're-inforcement' of breastfeeding and devising strigent steps to control the 'promiscous' adverts which are seeping into our houses.

Consumers' Association of Penang
306-F (Top Floor)
Burmah Road
Penang
Malaysia

18 November, 1976

'Step up breast-feeding campaigns' appeal

24/10/77 NST

KUALA LUMPUR, Sun. — A call was made today to step up campaigns to encourage breast-feeding.

Dr. S. C. E. Abraham, president of the Malaysian Paediatric Association, said this was necessary because advertising campaigns had succeeded in causing a major shift in mothers' habits of feeding their babies.

He made the call in a paper presented at the International Congress of Paediatric in New Delhi.

In his paper "Toward a new role for the infant food industry" released here, Dr. Abraham said the health hazards were particularly pronounced in rural areas and among the poorer income groups in urban areas.

Another unfortunate development he observed was the exploitative tendencies of some multinationals in adopting monopolistic practices in the production and sale of powdered and tinned milk for greater profits.

He urged the authorities to take steps to reduce the pressure of advertising and thus reduce the distortion in the value system regarding feeding habits.

Multinationals should also be persuaded to decrease the unfair price profits and unfair tactics in the promotion and sale of their products, he added. — Bernama.

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29 MAR 1978

TOWARDS A NEW ROLE FOR THE INFANT FOOD INDUSTRY

S.C.E. Abraham
Senior Consultant Paediatrician
Head, Dept. of Paediatrics
General Hospital, Kuala Lumpur.

A. Breast feeding is on the decline in developing countries(1.2). In Malaysia this decline is seen in Urban and Peri Urban areas. This concern has been voiced by national Governments and international agencies who have seen in this trend a growing threat to the nutritional status and health of the infant(3,4). In Malaysia a National Campaign to promote breast feeding among mothers and launched last year. In a paper published by the Paediatric Department, General Hospital, Kuala Lumpur(5) it was shown that the majority of cases of severe protein calorie malnutrition came from bottle fed babies. While Rural mothers continue to breast feed their infants(6), they face a constant threat of advertising by mass media and milk nurses to buy powdered milk and bottle feed their babies.

On August 11th, 1977 the Malay Mail carried headlines "A doctor speaks out on Milk Nurses". A local paediatrician, member of the Paediatric Society of Malaysian Medical Association said he objected strongly to what he called "bad practice" of mothercraft nurses from milk companies visiting mothers with newborn babies to promote their products.

Paediatricians in Malaysia are now seeing more cases of Marasmus and diarrhoea presenting as a thin, wasted, irritable babies with poor weight gain and failure to thrive. This is seen in young bottle fed infants from the lower socio economic groups in the first 6 months of life and after. Most of these marasmic babies present with chest infections, gastro-intestinal diseases and skin conditions masked with malnutritions, Jelliffe(7) called this COMMERCIOGENIC MALNUTRITION in 1971 and we continue to see this in developing countries.

The Advertising and Promotion by the Infant Food Industry

The advertising and promotion of bottle feeding in the Third World by the Infant Food Industry has been criticised by Paediatricians and Nutritionists in recent years. Paediatricians are aware that all major infant food industries have continually carried out unethical advertising and promotional campaigns in competition with each other in developing countries. This has been one of the major factors responsible for the present decline in breast feeding in areas where bottles feeding is neither economically nor hygienically feasible(8).

Paper read at the [illegible] Intern. Paed. Ass. Congress in India, 1977

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The methods employed in such promotional campaigns have included the use of mass media such as newspapers, radio and television. In addition the milk companies have gained access to the health services in Government and private sectors with advertising and promotional material (9,10). This is done by direct advertising, posters, pamphlets and free samples. These are difficult to resist because they are given free and to inexperienced health staff, and seem only to be offers much needed help, shortage of teaching material and supplementary foods. Often the walls of health centres and hospitals are covered with posters donated by infant food companies. In addition milk companies have become skilled at what is to them low-cost moulding of professional opinion of "manipulation by assistance" and "endorsement by association". This has been published by Dr. Cosme Cagas(11). Greiner(12) studied the distribution of infant formula advertisements in public and professional journals and magazines, and the multinational firms efforts to employ health professionals directly in their sales campaigns. Greiner's statistics controvert the claim by infant food comapnies that they direct advertising toward more affluent audiences. He writes(13) "There appears to be a tendency to advertise selectively in low income publications. This should come as no surprise since advertising funds are targeted toward maximum efficiency". One of the forms of advertising and promotion is the so called "Milk Nurses". These are often trained who have left Government nursing service to the private sector. They are often employed by milk comapnies to assist in infant care and hygiene inculding home visiting. One of the main functions is to promote their products and talk to mothers about bottle feeding. They often gain entrance to hospitals and give free samples to mothers and nursing staff and even doctors. In addition they collect the names and addressess of mothers who have given birth and visit them at home giving further samples and information.

C. Women's Employment:

The importance of the increasing employment of women as a factor causing breast feeding to decline is commonly exaggerated. Perhaps this is because of the high visibility of elite Third World women among whom this is a major problem. In any case, employment does not cause early weaning in many women in most Third World Countries. E.F.P. Jelliffe (1975)(14) cites several studies showing the low percentage of mothers employed in many Third World Countries. Almroth (1976)(15) in a review of 11 different infant studies, found that employment was given as the reason for weaning by an average of only 6% of mothers surveyed. Paediatricians in Asia have

.....3/-

been concerned about advertising by the infant food industry. Dr. B.D.Patel in 1974(16), in his Presidential Address at the National Conference of Indian Academy of Paediatrics, Kanpur said "It appears to me that the emphasis of the baby food industry has been on the wrong priorities"(17). Similarly the late Professor R. Sutedjo of the University of Indonesia in Jakarta noted at the First Asian Congress of Paediatrics in 1974 that "one thing is sure - the intensive proganda of milk factories associated with incentives to medical as well as paramedical personnel and the mothers themselves make the situation worse"(18). A study carried out in Ibadan, Nigeria in 1973 by Stanley Orwell and Joana Murray of the Social Policy Research Limited, London showed that if mothers feed their children exclusively on such powdered milk in recommended quantities they would spend up to 25% of their total food budget on these products alone. Surveys and observations of bottle fed babies in Children's Wards, Malaysia indicate mothers are spending between 25% - 40% of the family budget on powdered milk especially where there are 2-3 infants and toddlers from the same family. These authors recommend on the basis of their study the "banning of milk company representatives from hospitals, so the mothers are only taught what is in their own interest"(19).

D. Responses to Commercial Promotion:

In the past two decades, three stages have evolved in the response to Commercial Promotion. The first of these 1960-1970 which took the form of papers in professional journals suggesting "effects and noting the rise of commerciogenic malnutrition"(20) was without effect. The second phase 1970-1973 was initiated by the Ad Hoc working Committee on Feeding the Pre-school child of the United Nations Protein-Calorie Advisory Groupe, leading to four meetings between paediatricians, nutritionists, and representatives of the infant food industry in Bogota, New York, Paris and Singapore. The third and most recent stage has been journalistic and legal. This was initiated by the publication of the booklet "The Baby Killers" in Britain by the War and Want group. They showed the effects in developing countries of ill-advised advertising of formulas by named infant food companies from Continental Europe, Britain and the United States. Later this booklet was translated into German and published in Switzerland by the Arbeits gruppe Dritte Welt and the more provocative title "Nestle totet Babies!"(21) In response, Nestle brought changes against the Arbeit gruppe. Evidence was then collected by both sides, from many parts of the world, witnesses were called and much attention was given in the world press(22). In response Nestle brought charges against the Arbeits gruppe. The trial ended recently and in July 1976, the District Court Judge found the thirteen Arbeits gruppe defendants guilty because of the defamatory nature of the title of the booklet and find them 300 Swiss Francs each and at the same time the Court requested the Nestle "carry out a fundamental reconsideration of its sales techniques in less developed countries"(23). Controversy did continue

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subsequently(24). In the United States at the Moment members of a religious order, the Sisters of the Precious Blood are suing Bristol-Myers (Mead Johnson) on behalf of the Inter-faith Centre on Corporate Responsibility, New York, to obtain further details of this company's marketing practices with their infant formulas in "chronically impoverished Third World Countries"(25). Recent development indicate that the United States Security and Exchange Commission has filed a statement backing the Sisters.

B. The Impact of the Infant Food Industry

In the last few years it has become increasing evident that the massive advertising undertaken by the multinational companies in the food industries, has ironically brought about severe health hazards and malnutrition rather than contributed to higher health standards amongst little children.

These health hazards have been particularly pronounced in the rural areas and amongst the poorer income groups of the urban areas as well. The multinationals concerned have embarked on massive advertising campaigns which have unfortunately succeeded in causing a major shift in the feeding habits of mothers for their babies. There is now conclusive evidence to show that mothers have been mesmerised by the subtle advertising techniques employed by these multinationals. This switch to tinned and powdered milk, has had very serious effects on the health of babies and children:-

(i) The traditional method of breast feeding which has proven to be the best form of child feeding and nutrition has given way to the dangerous method of bottle feeding.

(ii) Because powdered milk is so expensive, dutiful mothers, have had to dilute this powdered milk, so as to be able to feed their babies adequately on their small incomes. This diluted milk has reduced nutritional value and babies have therefore suffered serious problems of commercicogenic malnutrition presenting as marasmic babies.

(iii) Sensitivity to cow's milk Protein can result in overt or occult nutritional deficiences relating to Protein, calories, mineral and vitamins.

(iv) The normal immunological development of the child is interfered with by artificial feeds.

Another very unfortunate recent development is the exploitative tendencies of some multinationals in adopting monopolistic practices in the production and sales of powdered and tinned milk. They have therefore been able to raise the prices of powdered milk well beyond the cost of production. Thus while these multinationals have made excessive profits from the sale of their products, this has been possible only because of

.....5/-

the abuses that have been imposed through excessive profits made and the subtle manipulation of advertising techniques through the use of the mass media to the detriment of the health of young children to achieve their own selfish objectives.

There is no denying that because infant feeding is such a sensitive matter of a mother's maternal instinct being exploited that other sacrifices are made in the family's budget in order to strive to feed the young children from hard earned incomes. Ironically again this situation could easily be alleviated if only mothers go back to the traditional way of breast feeding their young.

F. What of the Future Role:

There seem little doubt that industry has achieved on over-dominant role in moulding infant feeding practices. This is because the medical profession has shown little interest in nutrition and has accepted the infant food industry's leadership role in supplying information to the public and to health professionals. There should be some form of control of promotional activities and an informed medical profession(26). Emphasis in medical education should be more relevant to real-life problems such as interactions between society, the medical profession and the infant food industry. Paediatricians should seriously consider mechanism which are needed to monitor the promotion of processed infant foods. It is obvious that in this increasing industralised world, processed foods will continue to play a major role in the diet of all ages. Paediatricians feel strongly that these need to be geared to real nutrition priorities. In less developed countries the main emphasis for the infant food industry should be on low cost "multi-mix" weaning foods(27), supplements for lactating and pregnant women and [illegible] paediatricians, nutritionists and the infant food industry(28). In the meantime, it is necessary to educate Governments, medical and health personnel, as well as Consumer Associations opinion leaders, and the general public in developing countries on the advantage of breast feeding and the many precautions which are necessary to make artificial feeds safe if they are to be used correctly in disadvantaged environments. The La League and the Breast Feeding Associations of Malaysia and Singapore are already actively promoting an efficient and successful Breast Feeding campaign. This multiple effort will go a long way in helping many families and especially mothers to give their newborn babies and young children a better foundation for a healthier, longer and more productive life.

.....6/-

C. Suggested Future Measures to Control the Promotion of Infant Foods(29)

(1) Efforts should continue at all levels to influence the large multinationals to stop advertising infant foods in the Third World and reduce the distortion in the value system.

(2) Even if these efforts are successful, the result may be only a shift in the share of the market to regional firms and companies who sell to them, unless Third World countries themselves ban infant food advertising within their borders.

(3) a. Free samples. It is difficult to justify the continuation of the practice of handing out free samples, given their purpose. If a mother is poor enough to need a free sample, she is too poor to use it properly, and the promotional impact of that sample on her and her friends is unjustifiable. Many countries might find it beneficial in the long run to ban free samples.

b. Commercial milk nurses. Research should be done to see whether such personnel exert an overall positive or negative effect in a community. But, given their likely long term negative impact on infant feeding practices, many countries might consider banning them.

c. Infant care and feeding literature should be produced with the help of local or regional health professional according to local needs. Practices leading to an ideal infant feeding pattern should be promoted and the purchase of commercial infant foods should be discouraged. Infant care and feeding literature produced by infant food companies should not be disseminated.

d. Any attempt to control the availability of infant foods will run into a great number of problems. Governments have several means available, such as import restrictions, price controls, and placing items on a prescription-only basis. Any such moves should be taken only with careful consultation with appropriate parties concerned with the economic, social, legal, and nutritional implications.

e. Three Third World Countries have already taken steps in direction. Algeria has brought the import and sale of infant foods under state control. A limited number of types of commercial infant foods are available under state names rather than company brand names subject to promotion (Dehbal, 1976).(30) Guinea Bissau has ordered that powdered milk and feeding bottles be sold in pharmacies with a doctor's prescription (Pintcha, 1976)(31). Papua New Guinea has banned all infant food advertising and also made commercial infant foods and feeding bottle , prescription - only items.

f. Prices, in particular, bear close scrutiny. Low prices may tend to lead toward more widespread adaption of bottle feeding, but high prices will put pressure on those mothers who do use it, possibly causing them to further over-dilute it.

.....7/-

H. Conclusion:

In the end the question arises as to whether it is fair to the babies and their parents in Malaysia for multinationals and other infant food manufacturers to maximise their profits by exploiting the ignorance of the less sophisticated. What we need to agree upon and adopt is a Code of Ethics which would minimise the abuses that have been brought about by irresponsible advertising and pricing of infant products.

What is wrong with the present Code of Ethics:

The objectives of the Council and Code of Ethics represent a welcome step forward but contain a series of pledges not focussed sharply to obtain the desired results. The pledges do not go far enough and as they stand now pose a danger in that they provide for interpretation of convenience leading to violation of the spirit of the Code.

The Protein-Calorie Advisory Group of the United Nations System has commented (83/76 of January 1976)[32] on the objectives of I.C.I.P.I. (International Council of Infant Food Industries) and its proposed Code of Ethics.

a) Since educational material (including promotional literature) and the techniques used to disseminate are known to cause confusion even among literate people, it is important that detailed codes (taking into account all the above points) should be developed in the light of situations prevailing locally in developing countries with low levels of literacy.

b) There should be a built-in provision for monitoring the nature and quality of the educational/promotional effort and controlling the activities of the companies in and out of ICIFI. In this, the national council, recommended by PAG at the Singapore Seminar, can play a crucial role.

c) It will be useful for ICIFI to provide a six-monthly progress report to PAG, an independent body, quantifying to the extent possible the degree to which the objectives have been met, the resultant benefits, difficulties encountered in implementation of the Code, and how they are to be overcome.

d) ICIFI can consider inviting the PAG to undertake at periodic intervals a review of the activities of the Council at the Headquarters and the periphery, with clear terms of reference drawn up jointly by the PAG and ICIFI. (The suggestions made in c) and d) are in line with recommendations made in the PAG Seminar held in Singapore.

.....8/-

e) ICIFI may consider setting up national industry councils with participation of local health professionals, government representatives and consumer organizations in a few developing countries to begin with. The PAG will have a role in selectin non-industry representatives and in planning and implementing the activities as recommended at the PAG Seminar held in Singapore.

f) The ICIFI Council's work in this area will be effective and successful only if all or the great majority of the manufacturers/distributors of infant foods become signatories of the Code. Hence, urgent steps have to be taken by ICIFI to bring them all together.

In the longer term, we would have to intensify our campaign to encourage Breast Feeding and to counter our own T.V. programmes on breast feeding. It is well proven by medical research that "Mother's Milk is Best for Baby's Health". The recent evidence on Colostrum Milk shows that it has the biggest biological boost. No manufactured Milk can fully substitute God's Gift to Mothers and their Babies. Indeed it has become amply evident that "Manufactured Milk does lead to a multitude of Maladies".

I would urge all those who feel and care for our babies and indeed our future generations to join in this campaign to save our babies from the mounting hazards to their health and future well being. In this respect, this XV International Paediatric Association has very wisely chosen the theme "Breast feeding with love leads to better Child Health".

In most discussions the baby's views are not considered. I wonder what the baby will have to say for itself! In this context I thin that "every baby that is born into this world is born with the Right to i mothers breast milk"

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SEVENTY-FOUR babies took part in a Nestle baby show at Ying Sing School hall in Malim Nawar New Village, nine miles from Kampar recently.

Teoh Mei Seah was adjudged first in the section for babies below six months. Second was Low Chee Yoong and third was Soo Tho Hock.

In the six to under 12-month group, Chai Chuan Choy, Loh Kien Lang and Chang Wei Ling were the winners.

In the 12 to under 18-month group, the first, second and third places went to Shahul Nizam Zakaria, Salehudin (father's name not given) and Lee Por Yee.

The president to the Lions Club, Mr. Wong Thye Ping, gave away the prizes.

The Star (Malaysia), 5/6/1972

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Printed in U.S.A. December 1977 S26/SMA-L1-78 C

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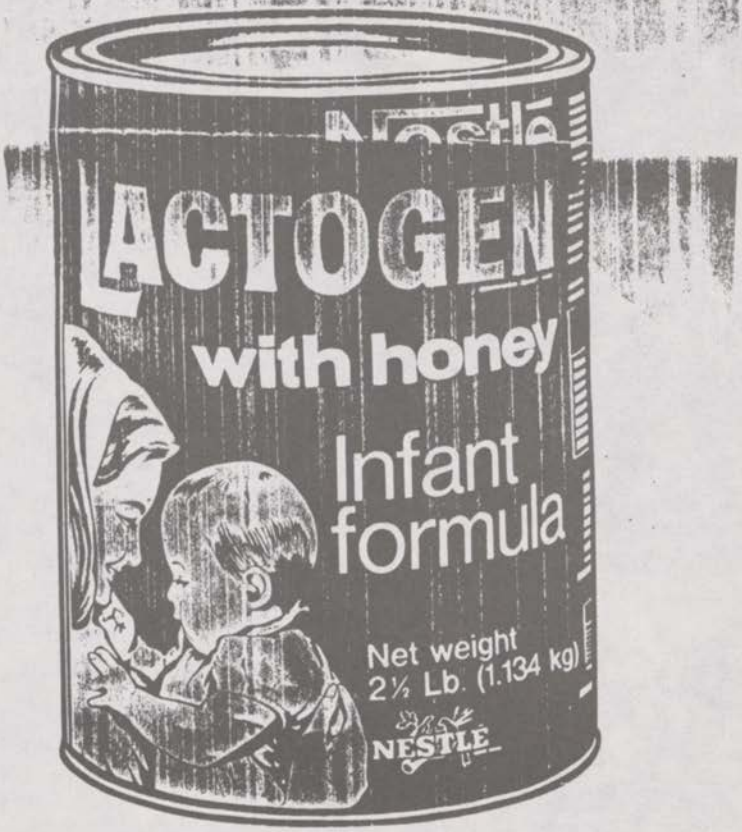

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BUDGET FORM

[illegible] YEARLY INCOME

THE STRAITS TIMES, TUESDAY, NOVEMBER 22, 1977

'Overfeeding a problem of the higher income group'

Bottle-fed babies: Prof's warning on risk of obesity

A CHILD expert has warned that bottle-fed babies run the risk of growing too fat and might remain obese throughout their lives.

Overfeeding, says Prof. Wong Hock Boon of the Singapore University's Paediatrics Department, is possible when babies are bottle-fed because there is no automatic regulation as in breast-feeding.

He sees this as a "real problem" among the higher socio-economic group in Singapore.

"More milk powder is given, and the parents, being used to artificial methods of feeding, now start to give the baby solids sometimes as early as the first or second month of life," said Prof. Wong.

Nutrition

"The baby puts on weight excessively, and it is seen that the fat cells of the baby begin to multiply in number.

"Such excess of fat cells may become permanent and the obesity so created may also become permanent in spite of rigorous dieting in later life."

He made this point when delivering a paper on The Child, His Family and the Outside World at a weekend seminar on Family Life Today at Shangri-La Hotel. It was jointly organised by the YWCA and the Singapore Association of Women Lawyers.

Malnutrition in the early years of a child's life could also have life-long consequences, he said.

"A child suffers from malnutrition in the first two years of life and is small and stunted. You then feed him up, correct all his dietary deficiencies and, in spite of this, he ends up smaller than his adult peers in later life."

He said there had been cases in Singapore of babies suffering severe malnutrition who after treatment put on weight but were never able to catch up with their peers on normal diet.

On the development of intelligence among children, Prof. Wong said: "The new-born baby inherits his genes (biological life units) from both parents and gets the possibility or potential of reaching a certain level of ability or intelligence.

"However, he must be provided with stimulus in the form of the environment, if he is to achieve this potential finally in childhood and adult life."

Environment

He said the environment itself could not push the ability of a child beyond what he is potentially capable of achieving, that is, the environment cannot improve the genes.

"The genes do not automatically endow the child with that ability just like that; the correct environment must be provided."

One aspect of environmental influence is adequate nutrition, he added.

Prof. Wong also warned that nothing disrupts a child's life during his first two years as much a separation from its parents.

He said at that stage of life, excess zeal on the part of the parent in forcing the child to conform to social mores such as showing off the child, toilet training, cleanliness at feeding times may jeopardise healthy psychological development with dire consequences later.

Parents who leave their child in the care of others and see their offspring only occasionally might also find problems on their hands when the child is finally brought home.

"If there is failure in establishing a bond with the biological parent ultimately, then problems may arise when the child finally returns to his biological parents' home after separation from his parental foster mother — whom he has come to regard as his only mother," Prof. Wong said.

Problems

"Immediate acute and long-term chronic psychological problems may then arise. Behaviour problems, juvenile delinquency, poor school performance, truancy, truculence or timidity, etc, have all been seen in such children when they grow up."

He said that when such abnormal conditions develops very early in the new-born, even therapeutic measures such as child guidance cannot improve the child's condition.

[illegible] Incidental expenditure .. ..

Total (2)

Straits Times 21/1/15

'Vital for low wage group to breast feed babies'

BREAST feeding is vital in the lower socio-economic group as a greater proportion of the 20 to 25 per cent malnourished children under two years old in Singapore come from the lower income population.

Prof. Wong Hock Boon, head of the Department of Paediatrics, University of Singapore who said this at the inaugural meeting of the Singapore Breast-Feeding Mothers' Group at the Singapore Conference Hall on Saturday, warned that such malnourishment was often fatal.

He said that although the causes were multifactional such as poverty, ignorance and having too many children, one of the main factors was lack of breast feeding.

Sizeable

"Poor mothers, over the years, get the idea from their more fortunate sisters that feeding from a tin is better than feeding from the breasts," said Prof. Wong.

"They may borrow money to buy artificial milk which often they cannot or would not measure in correct amounts, mix properly, or properly sterilise bottles and teats.

"They try to stint and make a tin last longer and, in this way, unknowingly starve their newborn babies.

"But, what is not often realised is that by spending hard-earned money or borrowed money on tinned milk, they do not have enough money left to buy adequate food for their older children."

Prof. Wong said it was no wonder that there was now a sizeable proportion of children under two years in Singapore who were malnourished.

He added: "They are the ones who are admitted to hospital with serious and often repeated pneumonia and diarrhoea, and often die.

"These are signed up as deaths due to infection but actually they die because of malnutrition traced to wrong use of scarce economic resources in the family.

"Breast feeding is vital for these families."

Babies fed on human milk allowed certain good germs to grow in the intestines and these prevent the growth of bad germs which caused disease.

'Disastrous'

"That is why a breast-fed baby gets less infection than cow's milk baby, and that is why when both get an infection, the cow's milk baby is more likely to die," said Prof. Wong.

"Breast milk is self-supplying in accordance with the needs of the baby in amount, sterility and quality.

"... so artificial milk, which needs to be mixed in amounts which cannot be constant and in situations which may not be sterile.

"Its temperature has to be regulated and all this in the hands of the lower socio-economic group may prove disastrous.

"You can thus underfeed a baby with artificial milk and, what is worse, you can overfeed. You cannot do this with human milk."

SOS and Mrs. Chen's 'mercy dash' saves the day for a baby boy

MRS. Rosemary Chen (above) chairman of the Singapore Breast-Feeding Mothers' Group recently responded to an emergency SOS for human milk—with a bottle of her own milk.

The recipient was a month-old baby boy who was sent to Outram Hospital on March for a check-up and found to be allergic to artificial milk.

The boy's mother, Cik Rafiah Aman, said that she was unable to breast-feed him and got in touch with Mrs. Chen through a doctor at the hospital.

Mrs. Chen immediately responded with a bottle of her own milk.

Since then, six other mothers have volunteered to provide milk for the boy till Cik Rafiah can do so herself.

Said Mrs. Chen yes-

Artificial milk and its high risk to babies

BABIES fed on artificial milk have twice the risk of infection and nine times as many died from infections as compared to babies fed on human milk.

Professor Wong Hock Boon, head of the Paediatrics Department, University of Singapore, made the point when he spoke to 200 delegates taking part in a seminar on The Importance of Breast-feeding for Singapore Mothers at Trade Union House yesterday.

Explaining the importance of breast-feeding, Prof. Wong cited American statistics which showed that out of 7,749 entirely breast-fed babies, a total of 38 suffered infection and seven died.

Anti-body

Whereas out of 1,707 babies fed on cow's milk, 94 were infected and 66 died.

Prof. Wong said the low percentage of breast-fed babies suffering from infection was due to a special form of protein, called lactoferrin, found in human milk, which protected the baby from infection.

The acidity in the stools of breast-fed infants encourages the growth of certain germs, in the baby's intestines.

The acid and the germs prevented the growth of certain germs responsible for diarrhoea among babies.

Prof. Wong said a particular type of anti-body, called secretory Ig A in the milk also protect the baby's intestines from infection.

He also warned mothers that cow's milk could lead to babies suffering from kidney failure, brain damage and in certain cases convulsions.

LOCAL NEWS

MOTHERS RUN UP A $5m BILL ON BABY FOODS

The unpopularity of breast-feeding is costing Singaporeans $5 million or more a decade to purchase substitute formulas for their babies.

This estimate was provided by the chairman of the Singapore Breast-Feeding Mothers' Group, Mrs. Rosemary Chen.

This expenditure figure covers the cost incurred by families and agencies to purchase these substitute formulas, and is based on a survey carried out between 1950 and 1960.

"The survey showed that Singaporeans spent $5½ million in that decade on baby food formulas. However, the prices of these have risen since, and the cost incurred now would be even more," she said.

Representing the group in a recent seminar on breast-feeding in Penang, Mrs. Chen elaborated further on this point.

"With infantile diarrhoea and marasmus so common in bottle-fed babies, there are even greater economic consequences. These conditions have a high mortality rate, and also a considerable risk of subsequent brain damage in those surviving.

"Treatment and hospitalisation are expensive and prolonged. Malnutrition of infants, largely due to inadequate lactation takes a huge toll on the medical resources of many developing countries."

Mrs. Chen pointed out that it is much cheaper to provide a lactating mother with an extra 20 gm. (0.7 oz) of protein and 500 calories daily than to provide formula for a three-month old baby.

Meanwhile, a total of 99 kg. (1600 oz.) of expressed breast milk has been donated to Singapore's Milk Bank since it began four months ago.

Response to the bank, situated at the Singapore General Hospital's Paediatrics Unit, has been described as "very encouraging," with greater participation by local housewives.

Mrs. Chen ... even more today

591

ADVICE TO WORKING MOTHERS

Brains or brawns? Baby's milk decides

A SENIOR paediatrician yesterday told working mothers that the type of milk given to their infants could decide whether they developed their brains or brawns.

He said that human milk could develop babies' brainpower — and cow's milk only their muscles.

By SHEILA CHEONG

Prof. Wong Hock Boon, head of the Paediatric Unit, University of Singapore, said that a baby on human milk would stand a greater chance of reaching his maximum IQ inheritance growth, given the necessary stimulation, while a baby fed on cow's milk would very likely, not.

He was commenting on points made at a recent international symposium on infant nutrition at the Royal College of Physicians in London.

Doctors attending the symposium were told that the chemical composition of human milk was ideal for a growing brain while cow's milk put on muscles and encouraged rapid body growth.

Prof. Wong said he noted that babies fed on cow's milk tended to be bigger in size — leaning towards obesity.

Advantages

This was because breast milk worked on a self regulating system where a baby stimulated the milk flow by the amount he needed whereas mothers who relied on the bottle gave the baby what they thought was required.

Besides the correct chemical make up, breast milk provided advantages for the baby against infections and improved the relationship between mother and child.

He added that it had been noticed that a bottle fed baby stood a higher risk of dying from diarrhoea or pneumonia infection than a breast-fed baby.

No excuse

When an outbreak of diarrhoea occurred in a nursery, it was the breast fed babies who escaped infection.

"Women should realise that work is no excuse for failing to give a baby the full genetic inheritance that is due.

"A mother must not absolve herself from responsibility if she fails to give her baby the best," Prof. Wong said.

He added that women these days do not know how to anticipate a baby's need — judging from the mothers he observed at the hospitals. They do not know how to cuddle or hold a baby when breast feeding.

This was probably the result of the mother herself not being breast-fed and added that the younger generation here did not have much attachment for their own "flesh and blood."

He questioned the rationale of having babies and then straddling them with problems.

"If mothers are not prepared to give time and sacrifice some of their leisure for the children's sake, why bring them into the world?" he questioned.

Seminar

The president of the Breast-feeding Mother's Group, Mrs. Junnie Tan, will speak on Problems of the Working Mother with regard to Breast-feeding at a seminar on the Problems of Bringing Up Children in the Context of the Professional Working Mother at the Goodwood Park Hotel on Oct 31.

The one day seminar is organised by the Singapore Professional Centre.

Straits Times 8.10.76

OBSERVATIONS AND IMPRESSIONS OF THE USE OF ARTIFICIAL FEEDS FOR INFANTS IN THE YEMEN ARAB REPUBLIC

SHARON BEATTY, REGISTERED NURSE

MAY 17, 1973

Observations and Impressions of the Use of Artificial Feeds for Infants in the Yemen Arab Republic

This short paper is the result of my own observations in the six months that I have spent in Sanaa, Yemen as anurse working in the pediatric ward of Republican Hospital. It is also a result of my conversations with nutritionists, shopkeepers, doctors, pharmacists and Yemani women.

Yemen , officially recognized as one of the poorest countries in the world, has seen a rapid rise in bottle feeding in the last ten years. This has occurred primarily in the major cities and towns, although some of the villages are also affected. As yet, the more isolated villages continue to breast feed (up to two years of age) as is traditional in Yemen, an Islam society.

One study done in 1977 in Rawdah Clinic (a town just outside of Sana'a) indicated that 63.3% of the children under two years of age that were seen in their clinic, were either totally or partially bottle-fed; the majority being totally bottle fed. This study included rural children as well those from the city. Enclosed, you will find a copy of this report. Estimates from nutritionists working within the major cities put this figure closer to 80%. From my observations at Republican Hospital, I also arrive at the figure of 80%.

Unfortunately, Yemen does not possess an environment compatible with safe use of the bottle. It shares the same hazards of insufficient and unclean drinking water and widespread poverty as do many under-developed countries. In Yemen's current Five Year Plan, it is estimated that only 10% of the population has easy access to water. The rest must carry water on their heads from sometimes very distant locations. Under these conditions, the boiling of water in which to mix the milk powder and careful washing and boiling of the bottle is not done.

Other factors also enter into the contamination of the bottle. Women commonly carry the bottle next to their breast inside their dresses, allowing for an ideal growing environment for bacteria. To multiply thisproblem, the smaller bottles commonly used for smaller infants do not have covers over the nipple, allowing easy access to microbes. In a country where a woman is extremely privelaged to have

six years of primary education, germ theory is not well-known and she, consequently, cannot be expected to grasp the need for scrupulous and continual cleaning of the articles needed to prepare formula.

The other common danger is improper dilution of the feed. There are many different types, and the number of spoonfuls of milk powder differ from one to another. Again, illiteracy prevents assurance to the proper dilution. It is most common to use one or two spoonfuls of powder per 150cc's of water, whereas the amount needed is from three to five. Because they cannot read, the necessary information is not available to them. Even where there are pictures as guides, onecannot know for certain the size of the glass and spoon used in the picture. Indeed, tablespoons are an uncommon household item in a society that is used to eating with their fingers. Also, the pictures don't pertain to the lesser dilutions necessary for the very young infant (in the use of full cream milk powders, the high protien content is detrimental).

As yet, the majority of women use full-cream milk powders rather than actual formula. The advantage is that the price is more affordable; the disadvantage that the protien concentration is too high, giving birth to intestinal complications.

Beyond the problems mentioned above, the way in which the mother gives the bottle constitutes another health hazard. Often, the baby will be left on his back with the bottle propped up to his mouth so as to allow the mother to do other things while the baby is feeding. One can see the danger of aspiration of the formula into the lungs with consequent choking and/or aspiration pneumonia. This method also allows for the bottle to remain long periods of time without being washed or a new formula substituted for the old, contaminated one.

There are three major methods of milk promotion in Sana'a. The first is the sheer abundance of these products in stores and pharmacies; even the smaller shops will carry one or two brands. Pharmacies usually carry the infant formulas whereas the stores and shops carry the full-cream milk powders, with a smaller amount of the formula alongside. In a sampling of five pharmacies and shops, I found twenty nine different brands of artificial feeds. Others, who have done more extensive surveys, report between forty and fifty.

(3)

All the shop and pharmacy clerks I approached were quite enthusiastic about the merits of the milk. None of them evidenced hesitation in recommending its use. I might add here, that very few of the pharmacists in Yemen are, as yet, adequately trained. Many of those who dispense drugs have no training at all, and therefore, cannot be expected to be aware of the adverse affects of the products they sell. Much of their information comes from the formula salesmen.

A second approach in the promotion of infant formulas is the regular visiting of Dr's offices to distribute free samples andtalk about their product. These samples are then displayed on a shelf in the office next to all the drug samples he has also recieved. These samples are later given out to the poorest of the Dr's clients.

As recognized in the Five Year HealthPlan, the Yemeni people are somewhat naive in their reliance on and use of drugs. There is now over five thousand drugs available on the Yemani market, and they are prescribed and bought in a quantity that Americans would consider excessive. The displaying of infant formula alongside the medicines, in pharmacies and Dr's offices, tends to give it the same credibility as is given medicine.

I questioned one Dr. on his opinion about whether or not Dr's are influenced by the milk salesmen's sales talks, and his answer was an astonished "Of course!" With this same Dr. , I discussed several different formulas and he proudly told which of them were "very good" and of their individual merits. It is not common for these Dr's to take a strong stance against bottle-feeding.

Among the formulas I found displayed in the Dr's office were Becelac (three types), Morinaga, Nestrogen (two types), Pelargon, Isomil, and Farm.

There is almost no mass advertising, either on the radio or in the newspapers. On television, there appears one Nido (Nestles) commercial, in which this milk is advocated for the entire family, including infants. It is proceeded by a short announcement that breast feeding is superior. No other formula companies advertise. Co-incidentally, Nido is the largest selling artificial feed for babies. I was unable to contact the Nestle's representative in Sana'a to ascertain whether or not he felt that Nido's popularity was due

(4)

to the commercial or to other factors.

There is no distribution of sales literature to the Yemeni women to encourage their use of certain formulas. It is restricted to pharmacists, nurses and drs.

At present there are a number of healthworkers (mostly foreigners) working to encourage mothers back to breast feeding, but despite this effort, bottle feeding continues to grow.

Infant Formula Use and Promotion in Liberia, West Africa
U.S. Senate Hearing
Written Testimony

May 17, 1978

My observations took place between September 1971 through November 1973 in the Republic of Liberia. I worked as a dietitian at the John F. Kennedy Medical Center in Monrovia under the auspices of the United States Peace Corps. The JFK Medical Center was a 250-bed hospital that was the hub of medical care for the country. Approximately fifty percent of my time was spent in the in-patient and out-patient pediatric areas.

The average daily census of pediatric in-patients was eighty. Thirty to forty of these patients were hospitalized for protein-calorie malnutrition, i.e. 25 to 30 diagnoses of Kwashiorkor, 5 to 15 diagnoses of nutritional marasmus. The hospital stay was from three to six weeks. Diet histories taken from the mother indicated that a majority and perhaps as high as 80 to 90 percent of the children had been fed only infant formula prior to hospitalization.

Mothers were asked to demonstrate how they prepared the infants' formula in the in-patient and out-patient areas. The prepared formula was usually diluted with too much water. The rule of thumb used by most of the mothers was, "If it's white, it's O.K." A majority of the mothers were not literate and consequently the instructions written in English, German, French, and/or Spanish were not of help. Instructions in pictorial form were difficult for most of them to understand.

Promotion of infant formula was very prevalent throughout the Republic. Posters about Lactogen and SMA infant formulas were hung on

the walls of the Maternity Center in Monrovia. Free samples of Lactogen were often given to mothers being dismissed from the Maternity Center. The radio station carried musical ads written to African "High Life" music singing that a "Lactogen Baby is a Healthy Baby." Transistor radios carried this message to the rural areas of Liberia. SMA infant formula was frequently advertised at the Cinema Theater on Tubman Boulevard in Sinkor, Monrovia.

The use of infant formula was more prevalent in the urban area than the rural area. Many of the mothers worked for employers who would not permit them to bring their babies with them. Liberian women usually tie their babies to their backs with a cloth. Acceptance of a program to allow mothers to work in the Medical Center's kitchen with their babies on their backs with time allowed to breast feed their babies was low.

It cost approximately $18.00 per month to feed an infant on formula. The average wage of a dietary employee was $1.00 per day. Consequently, most of the income would be used to feed the baby. In the event the mother could not afford to purchase a full container, a shopkeeper was most accommodating to sell a number of scoops of formula into a plastic bag.

Distribution of powdered milk and infant formula, as well as soap, occurred in rural clinics. The people preferred the soap, but took the milk and formula, fearing they wouldn't receive the soap if they refused it. The distribution of powdered milk and infant formula was often done with a Peace Corps volunteer supervising. USAID vehicles usually transported the milk or formula to the rural distribution site.

Pharmaceutical companies have not limited distribution of their products in Liberia to infant formula. Drugs removed from the market in the U.S. were available in the open markets and dispensed without prescription.

Respectfully submitted,

Dorothy Jean Wrase, R.D.

Dorothy Jean Wrase, R.D.
354 Elton Hills Drive #32
Rochester, Minnesota 55901

DJW:rf

ST. ANTHONY HOSPITAL

1601 S.E. COURT AVENUE PENDLETON, OREGON 97801 503/276-5121

Sister Anne L. McNamara
Administrator

Michael R. Fraser
Assistant Administrator

May 19, 1978

Newman Center
1701 University Avenue S.E.
Minneapolis, Minnesota 55414

Dear Sir:

I am writing this letter in response to our telephone conversation the other day in which we had discussed the problem of infant feeding formulas in third world countries. I understand that you would like me to give any observation or any kind of subjective information that I might be able to relate to you relative to my experiences in Egypt, India, and Nigeria.

I am presently a medical physician, trained in the United States with postgraduate training in general surgery. During the last year or year and a half I have been doing medical consultation for the Institute of Cultural Affairs in Chicago. In the course of these consultations, I have been travelling extensively to third world countries primarily in rural settings to set up preventive health programs. Although I have not been specifically looking for infant feeding formula problems during my travels, I have noticed a number of problems related to these infant formulas as they occur in village settings.

The country where I observed the most wide spread use of infant formulas was within Nigeria Africa. I was located in the month of January, 1978, in a small village (Ijede) approximately 25 miles from Logos Nigeria. This was a rural village of an estimated 3,000 population. Although during my stay there I was not specifically trying to compile statistics on infant feeding formulas, we did none-the-less conduct door-to-door surveys of households within the village trying to gather base line data relative to nutritional problems, major health problems and utilization of

existing health care facilities in the area.

From these interviews and contacts, I can say the following things:

1. Infant formula use in Ijede was very high. I did not talk to any mothers that used the formula exclusively for their children during early infancy, but almost all mothers said that they used the formulas to some degree during that time period.

2. The women in this village supplemented infant diets very little during the period from birth to two years of age. Children were given some rice and beans during this time period, but in very small quantities. Certainly not in sufficient quantities to provide adequate nutritional supplementation. Some mothers were asked the question, "What do you give the child after he is weaned", all of them stressed that they gave infant formulas as the main dietary staple during the period of weaning. Again, there were very few foods given in addition to the feeding formulas, and foods that were available were usually not in the form that were easily palatable bu a young child. That is to say there were no pureed or baby foods available for children to eat. As a result, these children really consumed very small quantities of such things available to them as raw fruits, beans, and what meat was available in the form of fish or poultry. In most of the houses I visited, it was either a can of instant formula sitting in the living area or kitchen or I would see a bottle filled with formula. It was not an uncommon sight at all to see infant bottles handled with very poor technique relative to contamination by bacteria and not at all uncommon to see a half full bottle of formula sitting in a window sill in the sun.

3. Relative to advertising approaches of formula companies, I can only say that the villagers, particularly the women, seemed to have the impression or attitude that the infant formula: 1) was all that was necessary for a child to have for good nutrition and 2) gave them a degree of sophistication or stylishness. I did not pay specific attention to advertising campaigns which may have been going on in Nigeria during the time I was there and thus I cannot speak to that specific issue.

As you are probably aware, Nigeria is the more developed of the three countries

that I mentioned earlier in my letter and the economy is sound enough, that most of the villagers in the village I was in had sufficient economic resources to finance infant feeding formula diets. Also, I would have to say that the nutritional problems in Nigeria were not nearly as severe as those which I witnessed in either Egypt or India. However, the nutritional practices in Nigeria were really only incidently better than those in India or Egypt. That is to say, the people seem to have no greater awareness of what constituted a good diet nor did they demonstrate any particular intentionality about dietary practices, but in Nigeria foods were simply more readily available particularly in the form of canned meats and beans, etc. which were available for adult diet. Of course, well fed adults are going to give larger quantities of higher quality breast milk than marginally nourished adults in poorer countries. I did, in Nigeria, witness many cases of malnutrition manifested with protein deficiency symptoms and many cases of rickets the etiology of which was not made clear to me at the time.

I do feel strongly, that there are nutritional deficiency problems in the country of Nigeria, particularly in the rural setting and that there is a significant contribution to this problem as a result of the widespread use of infant feeding formulas. I also feel strongly that because most villagers have poor understanding of germ theory and sterilization of bottles the spread, particularly of enteric diseases, is augmented because of the use of bottle feedings implemented with poor sanitary techniques.

While in Nigeria, I spent a couple of days visiting with Logos University Teaching Hospital in Logos (Luth) during this time I visited with several health ministry officials as well as the Chairman of Pediatrics at the Teaching Hospital and a doctor in charge of implementing a national health care delivery system, by the name of Ransom Tuti. This particular teaching institution felt considerable pressure not to make moves against infant feeding formula problems because their institutions were in some major degree economically dependent on monies which came from these corporations promoting infant feeding formulas in Nigeria. I do not specifically know if the University Teaching Hospital dispensed infant feeding formulas, or used such practices as milk nurses, etc.

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In concluding then, I feel strongly from my observations in Nigeria that the infant formulas contribute a significant component to nutritional problems in developing infants in the country of Nigeria.

In India and Egypt, I spent time primarily in rural settings and I witnessed very little infant feeding formulas in these settings. I am sure that a large part of this is because the countries are poorly developed and villagers do not have the economic resources to obtain infant feeding formulas in the quantities necessary. I saw formula for sale in India for an approximate cost of $2.00 a canister or approximately 15 Rupees. This would represent an astronomical sum of money to a villager in India and I am sure would be prohibited.

Please let me know if I can be of any help in contributing to your efforts in controlling the use of these products or the misrepresentation of these products as they are sold in third world countries.

Sincerely,

Richard Wampler MD

Richard Wampler, M.D.

St. Paul's Hospital
Imelda Avenue, Tacloban City
Tel. No. 2308-2309

THEMES FOR U.S. SENATE HEARINGS

1. The infant formula problem as I have observed it:

   a. The infant formula or bottle-feeding is widely used in urban Tacloban City, Philippines. About 90% of mothers in the city proper bottle-feed their babies. Almost all middle and upper class mothers particularly the working mothers are giving infant formula to their babies. Some give mixed feeding for the first 2 to 3 months. Poor mothers in the slum areas of Tacloban bottle-feed their infants because they look for work outside their homes. Some mothers claim not to produce enough milk due to their poor health. Others are misinformed regarding breastfeeding and are ignorant of its benefits.

   Only a few, about 2% in rural areas bottle-feed their babies. These are mainly the well to do and the teachers or professionals in the rural areas. The rest breastfeed their infants until 1 to 2 years of age.

   b. Problems associated with bottle-feeding as observed in Tacloban City:

   As a pediatrician I am painfully witnessing the many ill-effects of bottle-feeding in a good number of infants. Gastroenteritis is the second cause of infant mortality in Tacloban City. Over fifty per cent of our pediatric patients are brought to medical attention due to diarrhea and over 90% have intestinal parasites often resulting in malnutrition. The majority of infants suffering from the above conditions are bottlefed. The economic burdens of artificial feeding frequently results in malnutrition not only for the infant but also for the entire family who have hardly any money left for food.

   All odds are against the infant of a casual worker or unemployed in the squatters' areas of Tacloban. If the father is lucky, he may earn the minimum daily wage of ₱10.00 ($1.40) to feed a family of five or six. On other days he would not have any income. A 14 oz can of evaporated milk will cost him ₱2.20 ($0.35) almost one-fourth of his income for the day. Besides being expensive, evaporated milk spoils easily without refrigeration. As a result, the mother buys condensed milk which is preferred because it keeps longer even without refrigeration. The milk is sweet and is given very dilute. Consequently the baby becomes malnourished and suffers from frequent infections.

   An even greater danger of bottle-feeding is the unhygienic preparation of the milk formula. The busy mother from the slums has to rely on a common well for water supply. The way the water is transported and stored are both unsafe. Seldom is the water adequately boiled, neither are the bottles sterilized to be safe for use. Bottles are given to babies rolling on dirty mats and floors. Bottles which roll with the baby on the floor and at times are stepped on by young brothers and sisters are readily given to the baby to suck without prior cleaning. Left over milk is given again to the baby without knowing whether it is spoiled or not. Naturally, the infant suffers from frequent gastroenteritis, intestinal parasitism, intestinal amoebiasis, the latter being endemic in the area. Malnutrition

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and repeated intercurrent infections consequently follow.

Bottlefed infants of professional and ordinary employees also run the risks of bottle feeding. Not too infrequently do infants and even newborns suffer from amoebic dysentery due to improper preparation of milk formula usually left to housemaids. The medical expense that follows a bout of diarrhea is often beyond the means of an employee earning ₱300.00 ($45.00) a month. Permanent employees are given the benefits of MEDICARE.

The cost of milk for regular employees is forbidding, let alone for daily wage earners. For a public school teacher earning ₱316.00 ($47.40) per month, giving Lactogen powder milk to her baby at ₱12.75) ($1.90) per pound means a big drain in the family budget just for the baby's milk alone. Many times this also means going into debts.

Besides all these evils mentioned above, there is the emotional deprivation often resulting from the impersonal giving of the bottle propped on a pillow with the nipple stocked to the baby's mouth while lying in bed. Many children grow up very timid, not able to talk with the elders, feeling inferior and afraid.

2. Promotional practices in the country.

Milk representatives give attractive advertisements of their milk products. Doctors, nurses and other health professionals who otherwise know the benefits of breastfeeding often succumb to the gimmics of milk advertisements. Nurseries are supplied with a variety of artificial milk by different milk companies for the use of babies while in the nursery. Where rooming-in is not the practice, babies are given bottle-feeding while in the nursery so that most mothers either ask for suppressing their milk or babies no longer want to breast feed.

Milk companies sponsor scientific meetings, research awards and material support to health or nutrition projects. They also give generous samples to pediatricians particularly those with newborns. Because Filipinos have a strong trait of indebtedness for favors done, called "utang na loob", these health professionals feel that inner constraint to advertise or prescribe milk even against their better judgement.

3. I am not familiar with the Codes of Marketing Ethics introduced by baby formula.

4. I am not aware of big movements in our country regarding the discouragement of bottle-feeding. The government and many private sectors encourage breast feeding through better health education and nutrition projects. The problems of working mothers even among the poor is a frequent obstacle to breastfeeding.

5. Imported commercially prepared foods for weaning and/or supplementation program for our country is not needed. What we need is better utilization of our locally available foods and the improved methods of preserving them. Better still is the fresh preparation of indigenous foods for weaning and supplement. Commercially prepared foods even locally produced are prohibitive in price and perhaps not as nutritious as a well balanced freshly prepared foods.

6. The interest of the developing nations should be the primary aim of industrial nations rather than excessive monetary gains.

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What is needed by our country to promote breast-feeding is a strong local group that will study all the problems and obstacles to it within the context of our culture and attitudes. Rooming-in of newborns with their mothers even in government hospitals alone can increase the rate of breast-feeding. The provision of opportunities for working mothers to nursetheir babies while at work can solve a big obstacle to breast-feeding.

Submitted by:

Sister Leonor Barrion, OSB, MD
Pediatrician
St. Paul's Hospital
Tacloban City

PETER KRIEG

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May 21,1978

Senator Edward Kennedy
Senate Health Subcomittee
Capitol Hill
Washington D.C.
U.S.A.

re: Infant Formula Hearings

Dear Senator Kennedy,

Through the Infant Formula Action Coalition (IFACT) I was informed of the Nestlé Company's attempt to discredit my film "BOTTLE BABIES " , which , according to Nestlé's President David E. Guerrant has become the "cornerstone" of the baby food campaign in the U.S. I was also told that as "evidence" Nestlé has send a copy of a letter from Prof. Nimrod O. Bwibo to your committee. I am in possession of this letter of April 14,1978 to Ms. Noronah and am shocked and saddened about its content. To me it is an illustration of the amount of pressure that can be brought upon doctors in developing countries of high reputation to make them publish statements that , when confronted with the evidence, only can lead to their public humiliation.

I have prepared a statement with extensive quotes from all the important letters exchanged on the subject plus tape transcripts from Interviews with Dr. Hillman and Prof. Bwibo. The original tapes and letters are all in my possession and I send photocopies of the letters to Mr. Doug Clement of National Infact, Minneapolis.

A copy of the statement is enclosed. Should the question of the film's credibility arise in your hearings, I would like to bring my statement to the committee's attention as evidence. Of course I am willing to testify any time before your committee and submit the original documents in person.

Wishing your committee good success in its undertaking, I remain

Sincerely yours,

Peter Krieg

PETER KRIEG

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May 20, 1978

The Making of "Bottle Babies"

Recent charges made by David E. Guerrant, President of Nestlé (USA) and Prof. Nimrod O. Bwibo, Chairman of the Dept. of Paediatrics, Kenyatta National Hospital Nairobi/Kenya against the documentary film "Bottle Babies" make it necessary for me as the film's author, director and producer to give an account of the making of this film.

I first encountered the "Baby Food Scandal" at the World Food Conference in Rome 1974, where the Norwegian delegation and others brought it to the attention of the conference. I decided then that it would be very useful to do a film on this issue, since to me it showed clearly the problems of profit-oriented transfer of inappropriate technologies into Third World countries as one of the causes of hunger and malnutrition there.

I then approached TV stations, church and government agencies in West Germany for funding but received only negative responses. The usual reason given was, that they had never heard of the problem and just couldn't believe it existed. This reaction convinced me even more of the necessity of making the film. I then raised about 50 % of the total budget of US$ 30.000 by using funds of the West German Film Promotion Board, which I received as an award for a previous film. The rest of the budget was raised through loans from relatives, friends and a small group of Christians who give part of their income to development and development related projects.

In May 75 I went to Kenya and filmed there for about 4 weeks, mainly in the Kenyatta National Hospital , Nairobi. The paediatricians there, including Professor Bwibo and Dr. Elizabeth Hillmann, were quite aware of the problem since they had installed a special ward for Bottle Babies and they all were extremely helpful and cooperative. Professor Bwibo gave me a long statement, which provided the opening of the film and summed the situation up :

" The problems of malnutrition and diarreah disease are very commonly seen in this hospital and they stem from bottle feeding."

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In several conversations with doctors of the hospital I was told about cases where Nestlé exerted pressure against the hospital. One of this cases was remembered by Dr. Meme:

"We have premature infants and the mothers sometimes are not able to produce milk – so we had asked one of the milk companies to help us in giving some milk to feed these newborn, premature infants. And one day, we decided it wasn't right to have these milk companies' posters on the walls for advertisement. So when they were removed, then the drug company came and they said, because we had removed their posters, then they were going to cancel their supply of the milk that they were giving us free. Obviously, we didn't give in, we refused to put up the posters. Later on, they, however, did change their mind and continued to give us their milk free." (Tape transscript)

In another case I was told, the government had intervened in the making of a calender that the educational and visual aids unit of the hospital was preparing. One page was to show a mother breast feeding and a caption saying that breast feeding was best. The ministry of health vetoed the page with the argument, it was not proven that mother's milk was really better than powder milk.

My personal impression was, that the paediatricians in the hospital, including Prof. Bwibo, did everything they could to promote breast feeding there and in my film I devoted a long part to these efforts. For example, Sister Waruru's lecture to waiting mothers in the "drip-room" of the hospital, her visit in a slum or the efforts to use cup and spoon feeding where artificial feeding was unavoidable. I also stated in the commentary, referring to the milk companies' advertisements:

"In comparison the resources doctors and health services have to promote breast feeding are rather limited: a few black & white posters but especially the tireless efforts of nurses and doctors at the child clinics who explain, advice and educate. They are often the only lobby the babies have".

I was therefore all the more astonished to read Prof. Bwibo's letter to Ms. Noronah. To me it seems not so much a sign that Prof. Bwibo has now joined the Nestlé lobby, but rather an illustration of the

pressure, many doctors are subjected to not only by certain companies, but also from their own government. I got a first idea of this in a letter from another Kenyan doctor, whom I had asked for support before my visit and who wrote back:

" Thank you for your letter of 24 February about the film on baby foods. I am certainly very much involved in this problem as, in one way or another, they have direct bearing on the health of our children in Kenya.
You probably know many of the difficulties of filming on such a sensitive issue. The most important problem is that of obtaining consent and cooperation from the people in the Kenya Government. Some of these officers are not willing to give this as they are already under pressure from the milk companies themselves. All such ventures must be cleared through the Office of the President. ...
I would be unable to assist you directly in obtaining all these clearances. ... I am ... employed by the Government of Kenya, and while I am most disturbed by the activities of these milk companies, I am unable to involve myself in any activities regarding them which are not within the policy of the Government."
(I am witholding the name of this doctor for obvious reasons)

When Professor Bwibo today declares that he and his collegues are happy with Nestlé's working conditions, this was not quite the case when he gave me the following statement on tape in 1975:

"The increase in bottle feeding has been very rapidly seen recently since the introduction of active advertisement. Advertisement has been widely done on radios, on televisions, in papers , and even in health institutions, where we find that pictures of milk powders and babies fed on milk powders are extensively displayed in health centers and in the hospitals. It is also actively advertised in the sense that we find mothers who are leaving maternity units are given, say, a tin of powdered milk to start their babies on when they return home.
All the advertisement that is done, is actively sent out to all the population, whether the mothers are educated or non-educated, or those who can afford and those who cannot afford. And the advertisement is done right up into the small rural areas.
One can see in small shops in very remote areas a tin or two of some of this powdered milk on the shelves.
Fortunately the milk companies are seeing the need of changing

their method of advertisement and particularly the labels. One is much impressed to see these days writing like this : 'When breast milk fails, then use such and such'. This is very encouraging. But the average village mother cannot read these instructions. Therefore, this information is not very much of value... "

To stop the ill effects of the companies advertising policies, Prof. Bwibo suggested drastic restrictions:

" As the hazards of bottle-feeding a baby are very great, particularly in the rural areas, then one wonders whether advertisements should not be restricted from these areas so as to leave these mothers breast - feeding naturally as they were doing before these things came to us... Artificial feeding should be prescribed just like we prescribe medicine and the health worker who is prescribing it should make sure that he or she has explained quite clearly to the mother how the formula should be made and the washing and sterilising of the feeding utensils."

(Tape transscripts)

Since after these interviews I was convinced, that Prof. Bwibo fully supported the intentions of the film, I sent him after my return to Germany the first draft of the film script with a request for corrections and suggestions. On July 30, 1975 Dr. Hillmann wrote back:

" Thank you for your letter of July 9th. We are delighted that the film will be a good one and we discussed the draft commentary at a departmental meeting today in Paediatrics. We think it is good and that the medical information was correct apart from some changes in words to clarify the meaning in English we are returning it to you intact and we look forward to seeing the finished product. Sincerely yours (signed E.S. Hillman, Senior Lecturer-Paediatrics) P.S.: Professor Bwibo will send you the corrected copy in the next few days !"

On August 6, 1975, Prof. Bwibo returned the script with only a few word corrections and the following letter:

"I hereby send back the draft commentary of the film "Bottle Babies". We have made corrections of the text as indicated.
We are wondering whether you will be acknowledging the Ministry of Health and Kenyatta National Hospital Administration. We suggest that this should have been done as this film was done in their area.
Yours sincerely (signed N.O. Bwibo, Chairman Dept. of Paediatrics)"

I incorporated the suggestions of the Kenyan doctors in the final script, as can be seen from comparing them. When the film was practically finished, I decided to add a 6 minute part on the Nestlé trial, since it started to become an important new aspect of the issue. For this last 6 minutes, which is visibly seperated from the Kenya part, I did not use any Kenyan material and even changed the commentary speaker.

The complete film (including the trial part) was finished in fall 75 and soon afterwards shown in Nairobi during the Conference of the World Council of Churches there. I had asked the responsible officer of the World Council to arrange a screening in Kenyatta NAtional Hospital (which is attached to the University) and also to help find an agency to buy a copy for the hospital, since I was still deeply in debt from producing the film.
However, the film, shipped together with nearly 100 others, mysteriously disappeared in Nairobi customs never to be found again. Someone of the World Council of Churches then hand-carried a second print to Nairobi and it was finally shown in the University at the end of November 75 or beginning of December.

Professor Bwibo, in his letter to Ms. Noronah, refers to this screening, but his recollection seems not quite accurate. The letter by the then secretary of the Kenya Paediatric Association, Dr. Elizabeth Hillman of December 10, 1975 to me, that Prof. Bwibo mentions , seems to be the best evidence of how the film was received by doctors and staff of the hospital then :
(I quote the letter in full)

"I have just seen your film "Bottle Babies" -thanks to Elizabeth Galland who was very kind to phone me and tell me of a second showing at the WCC meeting, since I missed our University showing (which I gather was well attended by Prof. Bwibo, Mrs. Waruru , etc.)

As I expected, you have done an impressive job both pictorially and in conveying your message. One of the eloquent discussants after tonight's showing, an Indian economist, Mr. Parmar, summed up the issue very beautifully "we do not really need to blame Nestles or the other multinational companies; we just do not need these companies advertising at all here and it is up to the developing countries to say, "no thank you"." He is so right.

I think you have done us a service to stimulate action - I do not believe it will work but it may. I hope UNICEF will buy the complete film for us as I think we need it.

When are you going to do the same thing for the multinational drug companies which are probably causing more iatrogenic problems in the third world at an enormous expense even than the milk companies ? Let me know when you will be back to make that film.

Thank you for letting me be involved, and we do look forward to the still pictures.

Sincerely (signed Dr. E.S. Hillman, Senior Lecturer in Paediatrics)

P.S. Nestles has changed the radio spots AND has produced new posters AS WE SUGGESTED e.g. a beautiful African mother breast feeding a beautiful baby with no milk can in the picture. This is a step in the right direction.

cc. Prof. N.O. Bwibo "

If Dr. Hillman was, as Prof. Bwibo says she was, indeed expressing the opinion of her collegues in this letter, then his sudden change of mind becomes even more inexplicable.

Especially, since he requested through Dr. Hillman a print of the film for teaching use in the University as late as June 76. (I finally donated a copy to the Hospital which Dr. Hillman promised to hand to Prof. Bwibo during a paediatric conference in New Delhi.)

Trying to explain the shift in the Kenyan Paediatric Association's attitude towards the film one should examine the relations of the Association with Nestlé. As I was told by several doctors in Kenya, it is (or at least then was) common practice for Nestlé

to pay for the visits of foreign guests of the Association and also for the receptions in the Nairobi Hilton given by the Association on these and other occasions. I was told, that without this financial support, the Association probably could not invite foreign guests. Also Nestlé was reported to give any doctor who's wife had a baby, a 1 year supply of infant formula free.

I was unfortunately unable to verify these and other charges with the company in Nairobi itself. When I visited the office s and asked the local representative for a statement, I was informed that he had to telex headquarters in Vevey/Switzerland first. Minutes later the answer arrived and I was told, that he was not allowed to give any statements or to answer any questions I might have since the case was under jurisdiction in Switzerland. I then was politely, but firmly complemented out of the office.

It was not my intention to make an emotional and polemical film, but rather an educational documentary based on facts and scientific arguments. The fact that the film is used in many industrial and developing countries all around the world for training of health personel , in Universities, Schools, and other private and state educational institutions as well as United Nations Organisations like FAO and WHO is proof that the film's arguments cannot be brushed away as "misleading". I also cannot imagine how a jury of highly respected international scientists could award the film a silver medal during the International Science and Technology Tokyo Film Contest 1976 in the Higher Education Department, as they did, if the film did not meet their high scientific standards.

And finally Professor Bwibo and his collegues would not have approved the script, asked for the crediting of the Hospital Administration in the film and requested a copy for teaching.

Nestlé's effort to overturn the "cornerstone" of the present campaign (as Nestle President David E. Guerrant calls the film) follows the company 's ususal pattern. Instead of challenging the film's facts and arguments, Nestlé tries to discredit the film and the filmmaker by inducing third persons through whatever means the company has, to write statments of disassociation for the company's disposal. This tactic was already practised during

the Berne trial, when Nestlé sent representatives around the world in order to collect statements from doctors, especially in developing countries, supporting the company.

Dr. Elizabeth Hillman gave me her recollection of two such attempts at my Kenyatta National Hospital visit:

"As paediatricians at the University of Nairobi we received a letter from Nestles asking some questions that were very difficult to answer. The questions were:
1. Do you consider the accusation 'Nestlé kills babies' justified ?
Secondly, do you think our marketing policies as you know them are unethical and practised against your own recommendation ?
As far as breast feeding is concerned, are we on purpose trying to persuade mothers to abandon natural feeding in favor of our products ?
And, lastly, do you consider that our efforts to collaborate with the medical profession to solve the problems of malnutrition are unethical ?
You can understand that these questions are very difficult and we discussed them at length with two very cooperative representatives who came to see us. However, we couldn't give direct answers to the questions and we ended up replying that the whole department of paediatrics at the University of Nairobi believe that artificial feeding plays a very significant role in both mortality and morbidity of Kenyan infants.
We did tell the Nestles people that we sincerely hoped that means could be found to alter promotional policies and advertising so that the impact would not be to make bottle feeding more attractive and acceptable and thus discourage breast feeding in the developing countries."

One should note that this statement was given by the whole department of paediatrics, including Prof. Bwibo. The second incident was described by Dr. Hillman as such:

"A short while ago, perhaps two months, the Nestlé's representatives came to visit us at the hospital to ask if we had any opinions about the War - on - Want publication, which had been translated in Switzerland and titled "Nestlé Kills Babies". They really wanted us to say that Nestlé did not kill babies, and we discussed this at

length with them. And we are not able to say, of course, that Nestlé either does kill or does not kill, statistically speaking. But, to illustrate the point, I mentioned to these two gentlemen that there was a child over in our emergency ward at the present time who is very near to being dead, because the mother was bottle-feeding with a Nestlé product. And, for interest, I asked if they would like to see the baby. I took the two representatives over to our emergency ward, and as we walked in the door, the baby collapsed and died. I had to leave these two non-medical gentlemen for a moment leaning against the wall while I helped with the resuscitation procedure. It was unsuccessful, and after the baby was pronounced dead, we all of us watched the mother turn away from the dead baby, and put the can of Nestlé's milk in her bag before she left the ward. I apologized to the two men, because as non-medical people it is a pretty shocking experience to see a baby die and a non-successful resuscitation, when I had really meant to illustrate a very ill child probably due to bottle feeding. In a sense though, it was a very vivid demonstration of what bottle feeding can do, because this mother was perfectly capable of breast feeding. They walked out of that room very pale , shaken and quiet, and there was no need to say anything more, and that ended our interview at that particular time."

(Tape transcripts)

Besides such attempts to discredit its critics, Nestlé in several cases tried to prevent screenings of the film by sending cables or telexes to University Officials if the showing was to take place in University rooms. In one such case the University Administration of Hamburg /West Germany told a woman's group that was arranging the screening that the group would be held liable in case Nestlé sued the University and that the amount of liability would be in relation to the company's annual turnover- which was, at the time around 10 Billion US$.

It is , however, remarkable that Nestlé has naver tried to challenge the film's argumentations in court. Instead Nestlé hired one of the best known film directors in West Germany, Peter von Zahn, to film the company's own version of the baby food scandal.

For myself, I see no reason whatsoever to alter or weaken any statements made in the film. Each and every one of them has been proven to be correct.

May 20, 1978 Peter Lewis

July 31, 1978

Mr. Walter Sheridan
Senate Subcommittee on Health and Scientific Research
Dirkson Office Building
Room 4220
Washington, D.C. 20510

Dear Mr. Sheridan,

Enclosed please find materials for submission to the record, related to the Senate Subcommittee's interest in the infant formula controversy. This packet includes documents related to the film "Bottle Babies." The attack made on the film by Nestle, both in the U.S. and in Europe, indicates the importance of inclusion of these materials into the public record.

Thank you for your attention.

Yours sincerely,

Douglas Johnson

Douglas Johnson, chairperson
National INFACT Steering group

THIRD WORLD INSTITUTE
Newman Center at the University of Minnesota
1701 University Ave. S.E., Minneapolis, Minnesota 55414, U.S.A.
(612) 331-3437

July 15, 1978

TO: U.S. Senate Subcommittee on Health and Scientific Research
FROM: National INFACT Clearinghouse
RE: The Nestle Company's attack on the film "Bottle Babies"

In 1975 a German film maker, Mr. Peter Krieg, produced a documentary about the health hazards related to bottle feeding in developing countries and the role of the infant formula manufacturers in creating "Bottle Baby Disease." The film was produced in Kenya with the cooperation of the pediatric staff at the University of Nairobi and Kenyatta National Hospital.

The film is a powerful and moving statement that has helped to educate hundreds of thousands of people about the dangers of bottle feeding under inappropriate conditions. As the film makes a particularly strong statement about the role of Nestle (given that company's dominant marketing role in Kenya at the time of film production), the Nestle Co. has placed high priority on the film's discreditation.

Nestle was able to obtain a letter of condemnation about the film from one of its principal resource persons--Dr. Nimrod Bwibo, Chairperson of the Dept. of Pediatrics, Univ. of Nairobi. Dr. Bwibo--a staunch breast feeding advocate--appears in the film. Nestle believed that getting him to renounce the film would disarm the criticism and citizens' boycott of Nestle products.

Within days of Dr. Bwibo's writing the letter, the Nestle Co. was distributing it far and wide--to Senate and Congressional staffs, to churches, to its list of boycott supporters, and others. The corporation even went so far as to mail the letter to every Catholic school principal in the U.S. informing many for the first time of the boycott and Nestle's difficulties. Oswaldo Ballerin, the Nestle representative from Brazil at this Subcommittee's hearings of May 23, was instructed by the company to enter criticism of the film into the record.

The materials attached are presented to the Subcommittee and available to the public through the Infant Formula Action Coalition (INFACT). They were gathered at enquiry from other principals involved in the film. The documents demonstrate:

1. That the allegations made by Dr. Bwibo are inaccurate, and contradict his own testimony on other occasions.

2. That the Nestle Co. had the power to exert undue influence over Prof. Bwibo, and most likely did so.

We believe that the furor Nestle has created with the Bwibo letter is another instance of that corporation's attempt to deflect attention from its marketing policies by attempting to discredit and personally slander its critics. And it demonstrates the corporation's willingness to use pressure against health pro-

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fessionals and others in order to secure its marketing position.

Included in these documents are the following:

1. Letter: Dr. Nimrod Bwibo, Kenyatta National Hospital, to June Noronha, a Kenyan native.

2. Letter: David Guerrant, President of Nestle, U.S., to Douglas Johnson, National INFACT Steering group.

3. Letter: Douglas Johnson to David Guerrant.

4. Statement about the Making of Bottle Babies by the film maker, Peter Krieg, with supporting documents.

5. Letter: Douglas Johnson to Dr. Elizabeth Hillman, pediatrician, formerly Secretary of the Kenyan Pediatric Association.

6. Letter: Dr. Elizabeth Hillman to Douglas Johnson, with supporting documents.

7. Letter: June Noronha to Dr. Elizabeth Hillman.

8. Letter: Dr. Nicholaus Steinmetz, pediatrician at Kenyatta National Hospital.

9. Report on Nestle advertising practices (1973) from Dr. Steven Langdon, Dept. of Economics, Carleton University, Ottawa, Canada.

UNIVERSITY OF NAIROBI
FACULTY OF MEDICINE
DEPARTMENT OF PAEDIATRICS

File :
Telegrams: "Medken" Nairobi
Telephone: Nairobi 26659

Kenyatta National Hospital
P. O. Box 30588
NAIROBI
KENYA

14th April, 1978

Miss June Noranka,
644 Summit Avenue
St. Paul
Minnesota 55105

Dear Miss Noronah,

Following your visit to Kenya and my office I write to inform you, your group, your colleagues and any other person interested that the film Peter Krieg filmed in this department and the associated teaching areas, did not represent the right aspects of what we participated in during the filming.

The film which was intended to be a Scientific and educational film turned out to be an emotional, biased and exaggerated film - and failed to be a teaching film. It arouses emotions in people who have little chance to check these facts. No wonder it has heated the emotions of the Activists groups in America and I understand now spreading to Europe. I wish I was in an opportunity to be with your groups and we view the film together and I comment.

Peter Krieg came here and we discussed the useful scenes to be included, the doctors and nurses to participate in the programme. He also promised to give us a copy of the film.

The film was done and we never heard from him up to now. We wrote requesting for the promised copy, it never came. Being in the dilemma we requested the organisers the World Conference of Churches that took place in Nairobi to get us a copy through the Faculty of Medicine. We were surprised by its contents and the exclusion of our comments, and in particular lack of education on hygiene of the bottle, cup and spoon feeding and lack of inclusion of reconstruction of milk formular. The comments are narrated by somebody else our voices and our words do not appear much.

...../2..

The Secretary of Kenya Paediatric Association then, Dr. Elizabeth Hillman wrote to Peter Krieg expressing our disatisfaction in the generalisations, the politics of bottle feeding and the bad social connotations of bottles on the Children's graves in Lusaka, Zambia but Peter Krieg chose not to acknowledge her letter.

I am sorry we have changed offices and filing system so much and also Secretarial staff that I am unable to get the letters we wrote to Peter Krieg which I would have liked to photocopy and include in this letter.

We saw the film once and have no copy. It is difficult to recollect clearly where it was right.

One is bewildered where to begin and make corrections. I will start somewhere. If your group have specific questions, since you see the film frequently, you could ask me to comment on specific points.

Kenya, as you know, is an Agricultural country. We have dairy industry and plenty of fresh milk, especially in urban areas. Our mothers therefore use not only commercialised milk but our fresh milk. It would be against our own Agricultural industry if we say "Do not drink milk" or "Do not give milk to children" So the best thing is to educate the mothers in the best hygienic way of feeding the child, if breast milk fails, and we know at times it fails or a mother choses not to breast feed.

As a Paediatrician, I would like to put on record that I have not seen the Commercial baby Food Companies pressurise anybody to use their brands of milk. As for Nestle, we have discussed with their Managing Directors, starting much earlier than the time of the film in 1971, as to the best way of approaching baby feeding and discussed extensively advertisement especially the material to be included. The directors have followed our advice and we are happy with their working conditions.

We are interested in the well being of our children and we are Medical Scientists. So anything of Scientific value we will promote but we will avoid imagined exaggerated and distorted views.

I am taking the liberty to copy this letter to Mr. Jones Managing Director of Food Speciality in Nairobi who produce and makes Nestles' products here for his information.

Yours sincerely,

NOB Bwibo

NIMROD O. BWIBO
Professor & Chairman
DEPARTMENT OF PAEDIATRICS.

Nestlé

The Nestlé Company, Inc., 100 Bloomingdale Road, White Plains, New York 10605 (914) 682-6666

David E Guerrant
President

May 5, 1978

Mr. Douglas Johnson
Third World Institute of the
Newman Center
1701 University Avenue S.E.
Minneapolis, Minnesota 55414

Dear Mr. Johnson:

Since it is my understanding that you are responsible for coordinating the activities of the Infant Formula Action Coalition (INFACT), I am addressing this letter to you.

When INFACT commenced its boycott action againt The Nestlé Company, Inc. last year, it made no effort to find out the Nestlé S.A. position with respect to its infant food policy in the developing countries.

When the first meeting between representatives of INFACT and Nestlé S.A. took place in October last year, at our initiative, Nestlé S.A. pointed out the misleading and dishonest nature of the propaganda which your group uses to persuade concerned citizens to join the boycott movement. In spite of the positive atmosphere which prevailed at that meeting, and the open offer made by Nestlé S.A. to continue a dialogue with your group, the campaign of half-truths and distortions continued unabated. For example, in November 1977 at least four of the INFACT supporters, who had attended the October meeting and had agreed that hostile confrontation was counter-productive, took part in an anti-Nestlé demonstration outside our offices in Los Angeles.

Again at our initiative, a further meeting took place in February 1978, this time between Nestlé representatives and the INFACT "Midwest Policy Council". We again protested the biased and emotional tone of your campaign, and the complete disregard for serious scientific evidence on the issues about which you claim to be concerned.

In particular, we advised you that the Peter Krieg film, "Bottle Babies", the "cornerstone" of the boycott campaign, has been strongly criticized by the Kenyan Pediatric Association. As a result, you decided to verify the facts in Kenya. By now, you must have seen the letter addressed to your representative by the Chairman and Professor of the Department of Pediatrics, University of Nairobi (a copy is enclosed).

Not only does this letter demonstrate that Peter Krieg deliberately misled the Kenyan authorities, but that his objective is also to mislead groups like yours, and through you, the general public.

In light of this evidence it is appropriate that you inform the organizations which you have persuaded to join your campaign of the true nature of the film. Perhaps you might suggest that the religious and other groups which have purchased the film return their copies to Mr. Krieg with a request for their money back.

It also seems an appropriate time to reflect on similar half-truths and distortions published by INFACT. You claim that Nestlé attempts to focus the discussion on "narrow technical and medical grounds", yet you choose to ignore the extensive anthropological research covering 11 countries published by the Human Lactation Center, under a US-AID grant study, which gives a clear picture of the reasons for which exclusive breast-feeding is often an impossibility in the Developing Countries.

If your group is truly sincere about wishing to help the Developing Countries, you can concentrate on constructive work designed to find answers to the real problems of world hunger and poverty.

A boycott is a tactic of last resort which has been used when discussion is impossible and where there is no reasonable support for one side of a controversy. We have demonstrated our willingness to discuss the issues and have produced respected independent evidence which refutes your theories. Can you, in good faith, promote a boycott under these circumstances?

I look forward to your reply and your advice as to what you will do about the distribution of the "Bottle Babies" film.

Very truly yours,

THE NESTLÉ COMPANY, INC.

David E. Guerrant

DEG:rg
Encl.

July 10, 1978

Mr. David Guerrant
The Nestle Co.
100 Bloomingdale Road
White Plains, New York

I received your letter of May 5, 1978, including a copy of Dr. Nimrod Bwibo's letter to Ms. June Noronha. I had already received a copy of Dr. Bwibo's letter, but was still interested to hear from you and to understand something of the Nestle Company's thinking after 10 months of a growing national boycott.

In an earlier letter you stated that the Nestle Co., U.S.A., is quite distinct from Nestle, S.A. in Switzerland, and that the boycott is therefore unjustified. The fallacy of this distinction is underscored by your failure to conduct an independent inquiry to understand for yourselves the controversy in which you are now embroiled.

Dr. Bwibo's letter, which you have so widely distributed, was supplied to you by your Swiss management. Given the evidence we have gathered, it is clear that you published that letter without checking for yourselves the accuracy of its assertions. This rash action on your part has dangerously placed the reputation of a very kind and generous person in a situation of jeopardy. And it raises more boldly the problems we are attempting to resolve: Nestle's manipulation of professionals to meet its own limited purposes.

Dr. Bwibo's letter rather caustically condemns the film "Bottle Babies" as inaccurate and unscientific, and he claims to have been deceived and manipulated by the film's director, Mr. Peter Krieg.

We were disturbed by the tone and content of Dr. Bwibo's letter, and resolved to understand its source. In that light we made numerous contacts in an attempt to clarify:

1. What were the circumstances surrounding the making of the film "Bottle Babies?" Were the Kenyan pediatricians deceived, as asserted by Nestle?

2. Does the film accurately portray the bottle-feeding problem and the extent of formula promotion as it existed at the time of its making?

To aid our enquiry, we contacted:

1. Ms. June Noronha, a Kenyan native living in Minnesota, who interviewed Dr. Bwibo in March, 1978.

2. Dr. Elizabeth Hillman, referred to by Dr. Bwibo as the Secretary of the

Kenyan Pediatric Association at the time of the film's production.

3. Peter Krieg, an independent film maker who produced and financed "Bottle Babies."

4. Other pediatricians now in Kenya for additional reactions to the film.

On the basis of our research into these assertions, we find Prof. Bwibo's remarks inaccurate and highly contradictory. There are so many discrepancies between Dr. Bwibo's accusations and the documents we have compiled as to be quite embarrassing to both Nestle and the Professor. For example:

1. FROM DR. BWIBO'S LETTER: "the film did not represent the right aspects of what we participated in during the filming."

This statement implies, as Nestle attempts to capitalize, that the film was made deceitfully, only selecting certain materials for use without placing it in the context the physicians deemed accurate and important.

FACT: Dr. Bwibo was fully advised of the film's content. He personally approved the script, making corrections all of which were included in the final version of the film.

a. Dr. Elizabeth Hillman, who Dr. Bwibo mentions was the Secretary of the Kenyan Pediatric Association, told us this in a letter dated May 8, 1978:

> "We reviewed the script of the film before it was produced, with Dr. Bwibo and other members of the department of paediatrics, and it was approved (her emphasis)."

She also provided us with a copy of her letter to the film maker on the 30th of July, 1975, confirming:

> "We are delighted that the film will be a good one and we discussed the draft commentary a the Departmental meeting today in Paediatrics. We think it is good and that the medical information was correct apart from some changes in words to clarify the meaning in English we are returning it to you intact, and we look forward to seeing the finished product. (signed E.S. Hillman) P.S. Professor Bwibo will send you the corrected copy in the next few days."

b. From the film maker, Peter Krieg, we received a copy of that hand-corrected script, together with a cover letter by Dr. Bwibo (August 6, 1975) saying,

> "I here by send back the Draft Commentary of the film "Bottle Babies" we have made correction of that text as indicated."

Dr. Bwibo's corrections were minor, and were fully incorporated into the final version of the film.

Did Prof. Bwibo approve of the film's content? Enough so, it seems, that in the same letter, he reminds the film maker to acknowledge the assistance of the Ministry of Health and Kenyatta National Hospital Administration "as this film was done in their area."

2. FROM PROF. BWIBO: "The film which was intended to be a Scientific and educational film turned out to be an emotional, biased and exaggerated film--and failed to be a teaching film."

FACT: The film "Bottle Babies" is used extensively by national and international health institutions as a teaching device. Dr. Bwibo requested a copy for just that purpose.

After seeing the film Dr. Bwibo requested a copy of "Bottle Babies" be made available to his Department at the University of Nairobi for teaching purposes. In a letter dated June 24, 1976--fully 7 months after seeing the film--Dr. Hillman reiterated Dr. Bwibo's request to Peter Krieg.

Dr. Bwibo's opinion on the film appears inconsistent, to say the least. As far as we have been able to determine, he saw the film in December, 1976, and at no later time. If his initial viewing of the film was essentially positive, what data has he since received to alter that view, and from whom?

Obviously many people would also disagree with the review given the film by Dr. Bwibo. Dr. Hillman, for example, reports that she regularly uses the film in the classroom. It is also used for training by Third World governments, the World Health Organization, and such groups as the Canadian University Service Overseas (the Canadian Peace Corps). And the film gained the respect of a jury of international scientists, who awarded "Bottle Babies" a silver medal during the Tokyo International Film Festival of Science and Technology, Higher Education Section (1976).

3. FROM DR. BWIBO: "The film was done and we have never heard from him up to now. We wrote requesting for the promised copy, it never came. Being in the dilemma we requested the organisers of the World Conference of Churches that took place in Nairobi to get us a copy through the Faculty of Medicine."

The implication is that the film maker treated the Kenyan doctors rather discourteously, as the research "industry" from industrial societies is prone to do.

FACT: Correspondence exchanged between Peter Krieg and the Kenyan physicians indicates that Krieg went to great efforts to provide Dr. Bwibo with a copy of the film on its completion.

A letter dated Nov. 17, 1975, to Dr. Hillman and Prof. Bwibo informs them:

> "One of the first copies of the 'Bottle-Baby' film is now on the way to Nairobi. It travels with the films that are to be shown at this conference. I arranged with the person in charge to call you up and if possible arrange a screening at the hospital. I am also trying to get somebody in Nairobi to buy the copy for the hospital."

Shipped with nearly 100 other films to the World Council Conference, "Bottle Babies" mysteriously disappeared in Nairobi customs, never to be found again. Dr. Hillman confirmed this sequence to me in her letter of May 8, 1978: "I saw the film in Kenya but a copy which was supposed to be provided for the department was lost in transit--not an unusual happening."

When the film was lost, Peter Krieg provided another copy to a delegate to the W.C.C. Conference, who hand-carried it to Nairobi and arranged a special showing for Dr. Bwibo, Sr. Waruru and others at the University in the first part of December, 1975.

At personal expense Peter Krieg also gave a copy of "Bottle Babies" to Dr. Hillman for delivery to Prof. Bwibo at the International Pediatrics Congress in New Delhi (Nov., 1977). Because of illness in the family, Prof. Bwibo was not at the Conference as scheduled and for that reason has not yet received his copy of the film.

4. FROM DR. BWIBO: "The Secretary of Kenya Pediatric Association then, Dr. Elizabeth Hillman wrote to Peter Krieg expressing our dissatisfaction in the generalizations, the politics of bottle feeding, (etc. ...) but Peter Krieg chose not to acknowledge her letter."

FACT: Dr. Hillman did write a letter to Krieg about the film, but the discrepancy between the actual text and the description of Dr. Bwibo is striking. Dr. Hillman provided us with that letter:

> "I have just seen your film 'Bottle Babies' ...As I expected you have done an impressive job both pictorially and in conveying your message. One of the eloquent discussants after tonights showing, an Indian Economist, Mr. Parmar, summed up the issue very beautifully: 'we do not really need to blame nestles or the other multinational companies. we just do not need these companies advertising at all here and it is up to the developing countries to say "no thank you."' He is so right.
> "I think you have done us a service to stimulate action--I do not believe it will work but it may. I hope UNICEF will buy the complete film for us as I think we need it."

But has there been a shift in attitude in the Kenyan Pediatric Association about the film? And if there was such a shift, what could have caused it?

Peter Krieg, in his official statement on the making of the film, tells of the many forms of influence Nestle uses through gift-giving:

> "Trying to explain the shift in the Kenyan Pediatric Association's attitude towards the film one should examine the relations of the Association with Nestle. As I was told by several doctors in Kenya, it is (or at least then was) common practice for Nestle to pay for the visits of foreign guests of the Association and also for the receptions in the Nairobi Hilton given by the Association on these and other occasions. I was told that, without this financial support the Association probably could not invite foreign guests. Also Nestle was reported to give any doctor whose wife had a baby, a 1 year supply of infant formula free."

Evidently these practices continue. In a letter from another pediatrician in Kenya, we learned that the November 24, 1977, meeting of Pediatricians in Public Service was paid for by Nestle, including a dinner party that evening in the Nairobi Hilton.

Even with these pressures, the Kenyan Pediatric Association has not condemned the film as Dr. Bwibo implies.

5. FROM DR. BWIBO'S LETTER: "As a Paediatrician, I would like to put on record that I have not seen the Commercial baby Food Companies pressurise anybody to use their brands of milk."

This statement is somewhat less straight-forward than it appears, especially given the context of confusion about well-known facts we have just witnessed.

We have no way of documenting the pressure Nestle has used to solicit this condemnatroy letter from Dr. Bwibo. But the flow of events and the documentation we have received give the strong impression that, in fact, some extraordinary pressures were brought to bear on this eminent Third World pediatrician.

Events proceeded in this manner:

I. In 1973, a Canadian professor of economics, Dr. Steven Langdon, documented Nestle's dominance of radio advertising in Kenya. At that time, Nestle's baby formula Lactogen accounted for one of every nine advertisements (11.26% of all radio advertising time) on Swahili radio--the media of the Kenyan poor and illiterate. Lactogen was the most advertised product in the country.

II. In the spring of 1975, Peter Krieg went to Kenya to document this phenomena. He received the enthusiastic assistance of Dr.(s) Bwibo, Hillman, Meme, and others, who provided long interviews, medical advice, and eventually, approval for his script.

At that time he found Dr. Bwibo a leader in the efforts to curb the irresponsible activity of the milk companies. (A sample of Dr. Bwibo's opinions--from a taped interview--are attached at the end of this letter.)

III. In December, 1976, the Kenyan physicians saw the compled film "Bottle Babies", and expressed their satisfaction with the film. Copies were requested for teaching purposes.

IV. In January, 1978, Geoffrey Fookes of Nestle, S.A. (Switzerland) met with Dr. Bwibo in Nairobi. As a result of that meeting, Mr. Fookes reported to us on February 18 that Dr. Bwibo was "angry" about the film and would be writing us a letter of "condemnation."

We later learned from another source that Dr. Bwibo met with Nestle officials in Switzerland in February, 1978. We have not yet learned who paid for that trip, and what transpired. Perhaps, Mr. Guerrant, you would be willing to provide us with that information?

V. In March, 1978, Dr. Bwibo was interviewed at our request by Ms. June Noronha--a U.S. resident but Kenyan native who was then visiting her family in Nairobi. Ms. Noronha was not a member of INFACT, and did not identify herself with any group of critics in the U.S.--merely as a Kenyan who was often asked questions about "Bottle Babies."

When she returned to the U.S. several weeks later, she gave us an account of her interview:

"He did not deny the facts in the film, and said that he supported breast feeding above any other method, and failing that, cow's milk. He was very firm about the necessity to curb advertising practices of the infant formula companies, and said that some of the policies now in effect were a result of efforts made on his part to regulate these practices. In fact representatives from formula companies are not allowed in maternity wards, nor to have direct contact with mothers at Kenyatta Hospital. He added that the hospital continues to use breast feeding posters by Nestle, but with the company logo cut off."

Ms. Noronha described him as politically cautious, but not condemnatory with the vehemance attributed to him by Nestle officials. He was especially concerned that the final part of the film--which is about the Nestle trial in Switzerland--overly politicized the film, making it too emotional for a scientific presentation. He was also aware (as Dr. Hillman confirmed) that the film was available without that section. Dr. Bwibo emphasized his role as a scientist, and his desire to be apolitical.

During this visit, Dr. Bwibo made no mention of his meetings with Nestle in Switzerland.

VI. In April Ms. Noronha received the letter from Dr. Bwibo and, simultaneously, Nestle began its carefully orchestrated distribution.

There are several curious features to the letter, aside from its factual errors:

a. The letter is identical in tone and content to that which we were led to expect by Nestle officials in February, but not at all congruent with Ms. Noronha's interview in the intervening month. "His letter to me," she states, "takes a position that does not tally with that he took when we met."

b. Dr. Bwibo's letter refers to "your group, your colleagues"--an obvious reference to INFACT or an organized group of Nestle critics. Dr. Bwibo makes this reference despite having no indication from Ms. Noronha that she would be relating her information to any group.

c. Dr. Bwibo makes reference to "Activist groups" in America. This terminology is hardly Kenyan--but is the characterization used by Nestle officials to dismiss criticism of its policies.

d. Dr. Bwibo himself admits to seeing the film but once--and reports from other pediatricians indicate his favorable impression at that time.

These anomolies lead us to surmise that Nestle officials met with Dr. Bwibo still again, after his meeting with June Noronha, to encourage a response favorable to Nestle and to provide some "technical assistance." The speed of the letter's distribution--through such third party allies as the Human Lactation Center, for example--also indicate that Nestle carefully planned to discredit critics, rather than to confront the realities of the criticism.

There are at least three forms of unethical behavior which Nestle could use to gain the support of pediatricians, health and government officials such as Dr. Bwibo. They include political/economic/social pressure; the use of gifts or bribery; and the provision of false, misleading, and non-objective information.

a. Although Dr. Bwibo states he has "not seen the Commercial baby Food Companies pressurise anybody," his close colleague Dr. Meme told this story in a taped interview:

"We have premature infants and the mothers sometimes are not able to produce milk--so we had asked one of the milk companies to help us in giving some milk to feed to these newborn, premature infants. And one day, we decided

it wasn't right to have these milk companies' posters on the walls for advertisement. So when they were removed, then the drug company came and they said, because we had removed their posters, then they were going to cancel their supply of the milk that they were giving us free. Obviously, we didn't give in, we refused to put up the posters. Later on, they, however, did change their mind and continued to give us their milk free."

In a similar vein, a letter to film maker Peter Krieg from another Kenyan pediatrician said:

"Thank you for your letter of 24 February about the film on baby foods. I am certainly very much involved in this problem as, in one way or another, they have direct bearing on the health of our children in Kenya.
"You probably know many of the difficulties of filming on such a sensitive issue. The most important problem is that of obtaining consent and cooperation from the people in the Kenyan Government. Some of these officers are not willing to give this as they are already under pressure from the milk companies themselves. All such ventures must be cleared through the office of the President. ... I would be unable to assist you directly in obtaining all of these clearances. ... I am ... employed by the Government of Kenya, and while I am most disturbed by the activities of these milk companies, I am unable to involve myself in any activities regarding them which are not within the policy of the Government."

Nestle is in a particularly advantageous position to use economic and political leverage on the Kenyan government, and thus on government employees such as Prof. Bwibo.

Its new factory on the outskirts of Nairobi is designed to be a major purchaser of Kenyan dairy products--an industry already controlled by the political and economic elite of that country. Its stated capacity toservice markets throughout East Africa provide it with additional leverage as a potential source of foreign currency.

Mr. Jones, to whom Dr. Bwibo referred as Managing Director of Nestle's Food Specialties Company in Nairobi, is an interesting figure. He is also a Director of the Mercat Group, a vertically integrated entity that holds a virtual monopoly on the Kenyan flour industry, controlling everything from wheat production to distribution of flour and bread directly to the consumer. The Mercat Group is a "Who's Who" of politically and economically important persons in the highly stratified Kenyan society. Mr. Jones participation in that organization has given Nestle ready access and influence that go far beyond its own sales volume within Kenya.

As we told Nestle officials in our February discussions in Chicago, the perceptions held about the strength of Nestle and its potential to exercise its power to personal detriment are as important in influencing people as the actual use of pressure. Nestle has gained an international reputation for over-reacting to criticism and flexing its political muscles. For example, in Colombia a pediatrician who was being interviewed about the death of 25 infants from contaminated Nestle milks, asked not to be identified. His reasoning? "Specific accusations have always caused problems for those who have dared to speak up." (EL TIEMPO, Nov. 16, 1977)

b. Another unethical influence that Nestle could and does use is the power of gift-giving.

Giving gifts to physicians may simply make them friendly or predisposed to the company--and this is one intent. Nestle's sponsorship of pediatric conventions is an example. And the provision of free cans of Milo (a Nestle chocolate drink) to all pediatricians at Nairobi University earlier this year is another. The list could go on.

Gift-giving can also develop conflicts of interest for doctors, making it difficult for them to remain objective. Nestle's practice of giving free cases of formula to doctors' wives and for doctors' offices (often for resale) would be cases in point. More disturbing, however, was the recent documentation by CBS REPORTS of Nestle's participation in an industry association which provided the Domican doctors' association with a direct percentage of profits made from drug and baby formula sales. As these funds went into the doctors' pension program, physicians were faced by a conflict of interest--their financial future was tied to Nestle's success in baby foods, rather than to the health of their people.

Similarly it has been reported that Nestle provides quantities of infant formula to the Dominican government, which in turn sells the formula to poor people for cash. This provides the government with additional revenues that obviously influence its decision-making structure and its ability to "objectively" examine the infant formula controversy.

Giving gifts also has the power to mold institutions to meet new objectives. The Dominican government's use of Nestle gifts is a case in point. Doctors have reported to us that Nestle free formulas not only influence their government because of the extra revenues they bring in, but also because they provide the government with a short-run solution (bottle feeding) to a long-term problem (declining breast feeding and increasing infant morbidity). Rather than putting more revenuse into doctors and hospital staff to encourage breast feeding, the government allow the hospitals to become distributors and thus promoters of Nestle baby formula.

c. Another method Nestle utilizes to influence persons is the provision of false, misleading and/or non-objective information.

Information is a scarce resource in developing countries, as well as in our own. Nestle's power to make attractive pamphlets and to spend millions for consumer and medical-oriented promotion puts it in a position of a near monopoly over information regarding infant formulas.

No piece of Nestle propaganda that we have observed has confronted forthrightly the dangers associated with bottle-feeding by vulnerable groups. No advertisements have warned consumers that their children are more prone to sickness and death if bottle-fed. No pamphlets or posters or "medical information" distributed to doctors and health personnel have advised them of the myriad of scientific studies which indicate special dangers for poor people who choose artificial feeding; no warnings advise doctors of which groups in their locales would be especially subject to "bottle-baby" disease.

Similarly Nestle, U.S.A., uses its public relations budget to mislead consumers--through distribution of confused materials (such as The Lactation Review), the Bwibo letter, and through accusations about the "intent" of its critics.

Nestle has demonstrated no restraints in its distribution of materials that are completely unobjective and designed soley for its own benefit. There is every indication that these techniques have been used on Dr. Bwibo in order to gain him as a most unlikely ally in this controversy.

I am suddenly very tired of writing this letter to you. All of this material was available to you and your so-called "Office of Corporate Responsibility," just as it was to us. It was not very difficult to assemble. But your company continues to give the public and yourselves but half the story. It is sad to think that the first action of your new "Office" has been this blatant and irresponsible use of a kind and distinguished Third World doctor as a pawn in your company's self-defense.

I do not, at this moment, care to answer your statements about the Human Lactation Center study. Suffice it to say that the only organizations that make any reference to it are the infant formula companies themselves.

You are no doubt aware that Dr. Idrian Resnick, an economist who developed the research design and later analyzed the data, has submitted a critique of its conclusions to the U.S. Senate Subcommittee on Health and Scientific Research. He notes that collection of data was sloppy, varying in methodology from one country to the next. Data from an entire country often consisted of interviews with only several women. Dr. Resnick's analysis as an insider with the study thus confirms the disregard so widely attributed the work by experts in the field.

Although there is some interesting material in The Lactation Review, its intelligence and value is seriously marred by attempting to draw from the data generalizations that are insupportable, and which seek to countervail the valuable scientific work already done by others.

Once again your decision to defend Nestle practices with such weak and misleading material indicates your personal and corporate refusal to understand the problems you create through the irresponsible pursuit of profit.

In conclusion we believe our research indicates there was no attempt to deceive the Kenyan health authorities about the film's intent or content (except by Nestle, several years later). In fact, the project grew out of the mutual concerns of both the film crew and the Kenyan health professionals. Secondly, the film accurately reflects the marketing realities--and bottle-feeding problems--in Kenya as perceived by those same health authorities and corroborated by other sources. It certainly is congruent with the opinions stressed by Dr. Bwibo at that time.

Unfortunately, the issues raised in the film continue to be true in other parts of the developing world. A researcher from Malaysia just sent us fresh information of Nestle promotion on radio and TV, in public restaurants, and with free give-aways of samples to mothers through the milk-nurse program. Perhaps if Dr. Bwibo understood how dramatic the problem remains in other countries, he would have been still less inclined to defend your company with such vigor.

Your letter to me asked for two actions:

1. Inform all film purchasers of Prof. Bwibo's letter, and demand our money back from Peter Krieg.

2. Stop the boycott of Nestle products.

Neither action is now conceivable. In fact, we are even more incensed at the Nestle Company's callous and ruthless manipulation of this Third World pediatrician. You have placed him in a position of widespread publicity and factual discrepancies that will only make him look foolish, at best. Through the public distribution of this correspondence, NESTLE IS GIVING NOTICE TO DOCTORS EVERYWHERE OF ITS POWER AND WILLINGNESS TO DESTROY THE REPUTATIONS OF THOSE WHO DISAGREE WITH THE COMPANY'S MANDATE TO BUILD PROFIT AT THE EXPENSE OF SOUND HEALTH AND HUMAN LIFE.

It should be obvious to you that the burden of responsibility has shifted irrevocably to your shoulders. We demand that you:

1. Stop using Prof. Bwibo and other reputable health professionals as pawns in the defense of your company's practices in the developing countries.

2. Publish the full truth about the film via your newly created "Office of Corporate Responsibility," and inform your mailing list that a grievous error has been committed by that "Office."

We will be happy to share with your "Office" the documents necessary for such publication.

3. Stop using your resources to defend Swiss management.

Thus far your "Office of Corporate Responsibility" has produced an enormous quantity of papers, all designed to deflect criticism, or to redefine the issue in terms acceptable to your company. The red-baiting tactics utilized by your "Office" and incorporated into the Senate testimony of Nestle's Brazilian President Oswaldo Ballerin make ludicrous your claims of dialogue and objective analysis of the data.

Use your "Office of Corporate Responsibility" to do what it should: explore your company's social responsibility in this issue and from within the corporation, pressure for change.

4. Stop all promotion of Nestle infant formulas in the developing countries.

In the recent hearings on the infant formula controversy in front of Sen. Edward Kennedy's Subcommittee on Health and Scientific Research, an interesting story was told that reveals the infant formula companies' disregard for this problem. Dr. James Post, of the School of Management, Boston University, related:

"Recently a Nigerian graduate student of mine was interviewed by the company manager and regional manager of an infant formula company operating in

Nigeria. Both referred to the Code (of Marketing Ethics) as a 'nuisance,' leaving the clear impression on my student that compliance was required only as long as the pressure surrounding this issue continued."

I do not believe that the Nestle Co. has yet opened its eyes to the existence of a problem, nor consequently accepted the proper burden of its responsibility for meaninguful change. Until that is accomplished, there will be no reason to stop the boycott.

Yours in peace,

Douglas Johnson

Douglas Johnson
Chairperson, INFACT Steering group

Mr. David Guerrant
page 12
Addendum

Statement made by Dr. Nimrod Bwibo in a taped interview with Peter Krieg in 1975:

"The increase in bottle feeding has been very rapidly seen recently since the introduction of active advertisement. Advertisement has been widely done on radios, on televisions, in papers, and even in health institutions, where we find that pictures of milk powders and babies fed on milk powders are extensively displayed in health centers and in the hospitals. It is also actively advertised in the sense that we find mothers who are leaving maternity units are given, say, a tin can of powdered milk to start their babies on when they return home.

"All the advertisement that is done, is actively sent out to all the population, whether the mothers are educated or non-educated, or those who can afford and those who cannot afford. And the advertisement is done right up into the small rural areas. One can see in small shops in very remote areas a tin or two of some of this powdered milk on the shelves.

"Fortunately the milk companies are seeing the need of changing their method of advertisement and particularly the labels. One is much impressed to see these days writing like this: 'When breast milk fails, then use such and such.' This is very encouraging. But the average village mother cannot read these instructions. Therefore, this information is not very much of value..."

"As the hazards of bottle-feeding a baby are very great, particularly in the rural areas, then one wonders whether advertisements should not be restricted from these areas so as to leave these mothers breast-feeding naturally as they were doing before these things came to us. ... Artificial feeding should be prescribed just like we prescribe medicine and the health workers who is prescribing it should make sure that he or she has explained quite clearly to the mother how the formula should be made and the washing and sterilising of the feeding utensils."

PETER KRIEG

D-7800 FREIBURG
Schillerstraße 52
Telefon 0761/75752

Prof. Nimrod O. Bwibo
Dept. of Paediatrics
Kenyatta National Hospital
P.O.Box 30588
Nairobi, Kenya

May 21, 1978

Dear Professor Bwibo,

It was with great shock and sadness that I just read your letter to Miss Noronah regarding my film "Bottle Babies". Since Nestlé USA is using your letter in a well organized campaign to discredit this film and with it the whole movement against bottle feeding in the U.S., I had no choice but prepare a statement to present the facts. It is unfortunate that your recollection of our common work on the film does not quite correspond to these facts.

As you can see from my statement, which I enclose, I am indeed in possession of Dr. Hillman's letter expressing the opinion of the Kenya Paediatric Association about the film. I find it extremely positive.

I am also in possession of the first draft of the film commentary, which you and Dr. E. Hillman corrected in your own handwriting and which you , apart from some word changes to improve the English, approved as correct.

You may not know that I have tried many ways to find funding for a copy of the film for you and finally donated one to Dr. Hillman, who wanted to hand it to you during the World PaediatricCongress in New Delhi , fall 1977. Since she has not written me since, I assume that you are in possession of a copy since then.

I find it very unfortunate that you yourself forced me to publish all the background material but you will understand that by allowing Nestlé to use your letter publicly you left me no other way.

I again send you as an inclosure a copy of the film's script and would appreciate your comments in view of what you wrote Miss Noranah.
If your criticism applies only to the last 6 minutes of the film , I can tell you that this part was made after the first part was finished and added to the film as the Nestlé trial in Switzerland became suddenly a very important aspect of the whole issue. This part of the film does not include any Kenya material and there is no reference made in the text to Kenya or your hospital.
The film -even in its long version including the Nestlé trial- is used by now by many educational and scientific institutions all over the world, including United Nations Agencies, and it has gained much reputation for its factual, scientific and unemotional approach. If it would be , as you say, exaggerated, emotional and biased, it would have never gained this wide acceptence among doctors and teachers, especially in developing countries.

In light of our earlier cooperation on the film, your approval of the script and positive reception of the copy you saw soon after the film was finished it is quite a riddle to me, what made you suddenly change your opinion. Especially since you , after having seen the film, wanted to have a copy for teaching in the University !

The President of Nestlé /USA,Mr. David E. Guerrant is currently sending your letter around with a triumphant letter of his own, which I include also in photocopy. I am afraid that the publication of your and Dr. Hillman's letters to me as well as the transcripts of your taped statement to me will be very embarrassing not only for Nestlé , but unfortunately for you too. I regret this especially since I do not believe that your opinions on breast feeding , that you voiced on tape to me, have changed. I can only assume that someone tried to deliberately mislead you or pressurize you to make a statement, that is now used in a way that could hardly have been your intention. I am sad to say that you are being used to support a case which I know is not yours.

I look forward to hear your opinion on this development and remain

yours sincerely

Peter Krieg

Prof. Bwibo
University of Nairobi
Dept. of Paediatrics
Kenyatta National Hosp.
P.O.Box 30508
Nairobi, Kenya

Peter Krieg*
504 Brühl b.Cologne
Chlodwigstr. 29
West Germany

July 9,1975

Dear Prof. Bwibo,

After my return to Germany I got busy cutting the film and I have now a first rough draft ready. I just showed it to WHO in Geneva and the World Council of Churches there and they liked it very much. I now send the draft of the commentary around to doctors and participants of the film for comments and suggestions. Unfortunately most of your carefully prepared statement is not litetrally included in the film (partly it was too long of course and partly there could be language problems) but as you can see it is worked into the commentary. I would appreciate very much if you could read the draft and give me your suggestions. Also it would be helpful to pass the draft or a copy on to Dr. Ongeri, Dr. Meme, Dr. E.+ D.Millman, Dr. Forbes from Community Health and also to Sister Waruru.
I am sorry to heap a new workload on you but I think the results are worth it. Maybe you could just make a circular in the paediatric dept.
Let me thank you agagin for all the help and kind cooperation you and all your colegues gave me in the hospital. I hope to reward their efforts by doing a good and helpful film.
Please give mey best regards to all of them. Since the film is taking all my time now I hope to write them later.
It would help a lot if you could send your suggestions as soon as possible. Especially important is a check on the medical and scientific information in the script.

Thank you again for your help and best regards-

yours sincerely,

*Name changed to Peter Krieg as requested by the film maker.

Peter Krieg*

Peter Krieg*
504 Brühl /Rhld
Chlodwigstr. 28
West Germany

Dr. Elisabeth Hillman
University of Nairobi
Dept. of Paediatrics
Kenyatta National Hospital
P.O.Box 30588
Nairobi, Kenya

July 9,1975

Dear Dr. Hillman,

First I have ot apologize for disappearing so quickly without a good-bye, but since my flight was rescheduled suddenly I could not come to the hospital again and I tried in vain to reach you at home by thèephone. So let my thank you this way for your kind help and support you gave me in Nairobi.
Meanwhile the film is in a rough cut stage and I just send the draft commentary to Prof. Bwibo with the request to pass it round and to give suggestions and criticism. Please approach him also to get a copy. The photography turned out very nice and it looks like it will be a good film. Unfortunately I had bad luck with my still camera, which broke and some pictures are spoiled. I am trying to save what I can, but please tell Sister Kururu to wait a little longer for the pictures.
It would be very helpful if you could send me your comments to the draft as soon as possible and maybe also remind your colegues to do likewise. Especially important are checks on the medical information given in the film.

Please give my regards to your husband and all your collegues I met. Thanks again for your help and best regards-

Yours sincerely

Peter Krieg*

*Name changed to Peter Krieg as requested by film maker.

Kenyatta National Hospital
Pediatric Dept.
Prof. Bwibo, Dr. E.Hillmann
Box 30588
Nairobi, Kenya

Peter Krieg*

Nov.17,1975

Dear Dr. Hillmann and Prof. Bwibo,

One of the first copies of the "Bottle-Baby"-film is now on the way to Nairobi. It travels with the films that are to be shown at the World Council of Churches Conference there and will also be shown at this conference. I arranged with the person in charge to call you up and if possible arrange a screening at the hospital. I am also trying to get somebody in Nairobi to buy the copy for the hospital. Maybe after seeing it, one of you could recommend it to the authorities that are in a position to buy it. (For The costs see seperate sheet)

The person who has the film is Elisabeth Galland from the World Council of Churches, Geneva and she steys in the Sixeighty-Hotel.

Maybe you could also invite to the showing Arthur Kuben from the Ministry of Information (Tel.23727)
Mr. Kamau from the National Christian Council of Kenya (Tel ?)
Mr. McDowell from UNICEF Nairobi (Tel. 26457)
and Dr. Julia Ojiambo from Min. of Housing & Social Affairs (28411)
and of course All the people in the hospital ?

The people mentioned above are all in positions to be able to buy a copy.

As you will see, the film is the long version, which means there are 6 minutes added about Nestle and the trial. Maybe you should say that the film is also available without these last six minutes, since many organisations unfortunately do not dare attack Nestle that open...

I hope you all like the film. I still owe you still pictures, which will come later, since they are still with a magazine...

*Name changed to Peter Krieg as requested by film maker.

Best regards -

(Peter Krieg* in film...)

UNIVERSITY OF NAIROBI
FACULTY OF MEDICINE
DEPARTMENT OF PAEDIATRICS

File :
Telegrams: "Medken" Nairobi
Telephone: Nairobi 34800 Ext 2012

Kenyatta National Hospital
P.O. Box 30588
NAIROBI
KENYA

10th Dec. 1975

Mr Peter Krieg*
Teldok,
D 504 Bruhl/Cologne,
Chlodwigstr 29,
West Germany.

Dear Peter ,

I have just seen your film "Bottle Babies" - thanks to Elizabeth Galland who was very kind to phone me and t: tell me of a second showing at the WCC meeting since I missed ourUniversity showing (which I gather was well attended by Prof. Bwibo, Mrs. Waruru, etc.,)

As I expected, you have done an impressive job both pictorially and in conveying your message. One of the eloquent discussants after tonight's showing; an Indian Economist, Mr. Parmar, summed up the issue very beautifully " we do not really need to blame Nestles or the other multinational companies; we just do not need these companies advertising at all here and it is up to the developing countries to say, "no thank you ". HE is so right.

I think you have done us a service to stimulate action- I do not believe it will work but it may. I hope UNICEF will buy the complete film for us as I think we need it.

When are you going to do the same thing for the multinational drug companies which are probably causing more iatrogenic problems in the third world at an enormous expense even than the milk companies? Let me know when you will be back to make that film.

Thank you for letting me be involved, and we do look foward to the still pictures.

Sincerely
Elizabeth Hillman
DR. E.S.HILLMAN
SENIOR LECTURER IN PAEDIATRICS.

p.s. Nestles has changed the radio spots AND has produced new posters AS WE SUGGESTED e.g. a beautiful African mother breast feeding a beautiful baby with no milk can in the picture. This is a step in the right direction.

*Name changed to Peter Krieg as requested by the film maker.
cc. Prof. N.O.BWIBO

UNIVERSITY OF NAIROBI
FACULTY OF MEDICINE
DEPARTMENT OF PAEDIATRICS

File :
Telegrams: "Medken" Nairobi
Telephone: Nairobi 34800 Ext. 2012

Kenyatta National Hospital
P. O. Box 30588
NAIROBI
KENYA

30th July, 1975

Mr. Peter Krieg*
504 Bruhl/Cologne,
Chlodwigstr 29
WEST GERMANY

Dear Willi,

Thank you for your letter of July 9th. We are delighted that the film will be a good one and we discussed the draft commentary at a Departmental meeting today in Paediatrics. We think it is good and that the medical information was correct apart from some changes in words to clarify the meaning in English we are returning it to you intact and we look forward to seeing the finished product.

Sincerely yours,

E S Hillman

E.S. Hillman
Senior Lecturer-Paediatrics

Professor Burkitt will send you the corrected copy in the next few days!
ESH

*Name changed to Peter Krieg as requested by the film maker.

UNIVERSITY OF NAIROBI
FACULTY OF MEDICINE
DEPARTMENT OF PAEDIATRICS

File :
Telegrams: "Medken" Nairobi
Telephone: Nairobi 34800 Ext 2012

Kenyatta National Hospital
P. O. Box 30588
NAIROBI
KENYA

6th Aug. 1975

Mr. Peter Krieg*
504 Brulh b. Cologne
Chlodwigstr 79
WEST GERMANY

Dear Mr. Krieg* ,

I here by send back the Draft Commentary of the film "BOTTLE - BABIES" we have made correction of the text as indicated.

We are wondering whether you will be acknowledging The Ministry of Health and Kenyatta National Hospital Administration. We suggest that this should have been done as this film was done in their area.

Yours sincerely,

N. O. Bwibo

Prof. N.O. Bwibo
Chairman
DEPARTMENT OF PAEDIATRICS

Encl.

*Name changed to Peter Krieg as requested by the film maker.

BOTTLE - BABIES

(Draft, Commentary)

Kenyatta National Hospital Corrections:
Prof. Bwibo
Dr. E. Hillmann

Prof.Bwibo:
"A week ago in the clinic, a healthy looking woman brought her 3 months odd baby because the child was having diarrhea on and off and was crying a lot. She and her husband lived in one of the suburbs of Nairobi city. I examined the baby and the baby weighed 2 1/2 Kgs, that is 5 pounds and was very emaciated, the skin wrinkled , eyes depressed and with the fontanele also depressed. She was obviously suffering from marasmus and dehydration. Dehydration had resulted from the diarrhoea (disease) I asked her how she was feeding the baby and the reply was that she bottle-fed."

Title:

BOTTLE-BABIES

In the pediatric hospitals of Africa, Asia and Latin America cases like this one are on the increase. Babies with diarrhea and gastroenteritis , dehydrated and undernourished babies, babies with Kwashiorkor, marasmus and other hunger diseases. But these babies don't comefrom famine areas, their mothers are neither ill nor undernourished. What these babies have in common is that they have been bottle-fed.
They come from the slums of the big cities and from the villages. Their desparate mothers cannot grasp that their babies continue to loose weight, visibly shrink and often die. For they believe that they are giving their children the best there is: powder milk from the bottle.
Again Prof. Bwibo from Kenyatta National Hospital in Nairobi:

" The problems of malnutrition and diarrhoeal disease are very commonly seen in this hospital. And they stem from bottle feeding."

One of the slums of Nairobi. There is little difference to other big city slums in the Third World. They all harbour poverty. Electricity and running water are unknown in these shacks. Few people have regular work and money is scarce. They only have the hope for a better life, for a small share in the progress that is growing up around them but which is out of their reach. So they reach for the small symbols of progress - one of which is powder milk. It stands for prosperity and modern living. A ten week old baby will need 3 of these cans per months, soon it will need 4. The price for these cans often corresponds to a third of a half of a family's monthly income here. But the mother thinks that it is the best for her baby and she scrapes together what money she has.

To drinkable milk out of the powder, one must follow the instructions of the company exactly:

(Quotations from a Nestle-brochure)

"Hygiene is very important. The bottle must be prepared in very clean conditions, and then carefully washed and sterilised.
Between feeds keep the bottle and teat in a clean container away from dust and flys or wrap them in a freshly washed cloth. Any neglect on your part may make baby ill... Wash your hands before preparing the feed.
The water must be boiled, but not boiling, when you add the powder. Add the powder to the water. Make sure you add exactly the right number of spoonfuls."

Reality in the slums is different:
The water from the common faucet is not drinking water. She can only boil it if she has enough fuel. She rinsed the bottle with cold, dirty dish water. She doesn't know what "Sterilisation" means. Perhaps she boiled the bottle once when it was new and thought that would be enough (would last).
The mixture ratio depends less on the instructions than on the income. And the income is seldom sufficient for 3 or 4 cans a month, especially when many children have to be fed. So she dilutes the milk.
She does not know that this is harmful. As long as the milk looks white it is all right- so she thinks. Some mothers put nothing but water in the bottle thinking that it is the bottle, that has the magical effect. And so the baby rapidly loses weight, cries more and more.

While the mother works the oldest daughter usually takes care of the baby. She knows even less about the dangers of the bottle, she probably dilutes the milk even more and thus the child gets only lighly coloured water for weeks on end. The water and the bottle moreover are dirty (contaminated) , the bacteria thrive especially on the warm, milky liquid and the already weakened little body is even more open to infections. Diarrhoea occurs, vomiting, various infections of the skin, the ears, the throat. If the Baby is not delivered to a clinic or health center the hospital immediately, it will soon die. - of malnutrition, dehydration and infections. For the parents this is all inexplicable because they believe now and then that they have done the best for their baby.

In the countryside rural areas the picture is often the same. More and more mothers here are also reaching for the bottle, since bottle and powder are available in every little village shop. Someone convinced this mother that she could not breast feed. But in reality such cases are extremely rare. Often the mothers squeeze out their own milk and throw it away while at the same time they bottle feed their babies with diluted and contaminated artificial milk.
Here in the country everything speaks against the bottle. The mother can take her baby to work with her and even during her work in the fields she could easily breast-feed. Bottle - feeding on the other hand requires much work.
Water is usually precious here. It has to be brought from afar.
In this case water is abundant, but one can hardly call this muddy liquid drinking water, But Still people drink it, because there is nothing better. Man can resist much and he can build up immunity. Only babies cannot yet do this. They have to rely on the immune bodies they receive in the mothers milk. Powder milk , cow- or goats milk does not contain any immune bodies , any more or the wrong ones. Unprotected these babies are delivered to the bacteria that breed in these bottles.
These pictures suggest a happy family scene. But in truth they reveal a drama: the drama of bottle-babies. Babies who start out with this bottle, only too often end up under this one.

"Drip-Room" in Kenyatta National Hospital in Nairobi. Every day some 30 babies are brought in who are so dehydrated from diarrhoea, that only the drip which intravenously replaces the

lacking water, can save them.
Most of these babies suffer not only from diarrhoea, but also from malnutrition. A large percentage are bottle babies. Inspite of intensive efforts by the doctors, help comes too late for some. During the xxwhole treatment period, the mothers stay with their babies. Health workers like Sister Waruru utilise this time to educate the mothers about the causes of their babies's sicknesses.

Sister Waruru:
"I usually either give a group lecture or an individual lecture to the mothers. The majority of the mothers who come to us in the observation ward, have usually got children who are not just newly born but they may be about 2 weeks or over, a month or two, or about one year, two years, and their main problem is diarrhoea and vomiting. When they come to us, what we try to talk to them is on mainly what could cause that diarrhoea and how they feed their children, if they use a bottle or if they are feeding on the breast or if they are using a cup and spoon or a plate at home. And we find that the majority of the children who we have in the observation ward with diarrhoea and vomiting are bottle-fed. WE only have about maybe one out of ten of these childdren who are maybe on breast-feeding. But even if they have got diarrhoea and vomiting they have other sicknesses, like an infection, throat infection or ear infection. They don't just have plain diarrhoea and vomiting.
We try to prove to the mother that mother's milk is the best because if you have to go and mix any other milk, it will be in between(either) get dirty, but if you have breast milk, xxxxxxxxxxxxx her breasts are covered by her cloths and so they are not at any risk of contamination. If they use any other milk it means either it is going to be very expensive or if they are going to use it they can't give as much as they want, and if a mother feeds on the breast she can give as much as she has on her breast."

For many of these mothers the advice to breast-feed comes too late. They have weaned them long ago. Their own milk has dried up. Sister Waruru can only teach them the elemextary rules of hygene and articicial feeding. But xxxxxxxxxxxxxx this does not make powdered milk cheaper nor the water cleaner and so many children soon return to the hospital with new infections.

There is no lack of visual aids in Sister Waruru's class. ~~Besides~~

Along with
their half starved and emaciated babies the mothers bring their bottles of which they are so proud but which have caused their babyes' misery.

In the maternity ward of the hospital breast-feeding also is encouraged. The newborn are always left in reach of the mother. There is no doubt from the medical side that mother's milk is superior to any artificial product. Dr. Meme, a doctor ~~pediatrician~~ at the Kenyatta National Hospital , says:

" Breast milk has inherent advantages over artificial feeding. Human milk contains sufficient quantities of all the essentiel foodstuffs for the first few months of life. It is convenient, economic, always readily available at the proper temperature, fresh and free of contamination. One of course of the great advantages of is psychological satisfaction both for the mother and for the infant. We, for instance, know that physical contact is a very important aspect in the growth of the infants so that they develop to be mature , more balanced adults. "

And Dr. Ongeri, a Senior Lecturer, ~~nutrition specialist~~ in the same hospital, adds:

" Human milk has some immune substances which protect the child from getting any infection, mainly of the gut."

It is this immunising effect which is one of the most important characteristics and advantages of mother's milk. Because the new born baby is dependent on the anti-bodies from the mother's milk during the first few months to protect it from infections. Only
Later can it develop its own immune substances. Powder milk however, does not contain any anti-bodies and because of that the danger of infection is considerably higher for bottle-babies. In the developing countries infant mortality is usually twice as high for bottle-babies as it is for breast fed babies.

Of course there are cases in which artificial feeding cannot be avoided. In case of certain diseases of the mother , twins or death of the mother , for example, powder milk is often a life-saving ~~saver~~. But in these cases doctors advise cup and spoon feeding, which is more hygenic, has less risk of infection and still provides for contact between mother and child.

But what is it that causes a healthy mother to give up breast feeding for expensive powder milk in the first place ?

One of the most important factors is advertisement. With radio spots, posters, and calenders the producers suggest to the mothers that powder milk is at least as good if not better than their own. In colour , in all languages and dialects powder milk is praised as a sure guarantee for healthy, happy babies, as a symbol of progress and prosperity.
Even Hospital walls are plastered with posters and calenders advertising the companies' products. In return the companies donate large size packages of their milk for clinical use. Free kits with bottles, sample milk and colour brochures are given away to mothers outside and even inside the maternity wards.

In comparison the means doctors and health services have to promote breast feeding are rather limited. A few black and white posters but especially the tireless efforts of nurses at the child clinics who relentlessly explain, advice and educate - they are the only looby the babies have. They are up against publicity budgets which run into millions, against the power of the media and all the modern techniques of persuasion. And while they only reach relatively few mothers and usually only after the babies are in a critical danger state, the advertisements are everywhere - in the city slums, and in the countryside.

(Radio ads)

As soon as a baby is out of danger it returs home to make room for the next one. Sister Waruru sometimes goes to visit the family to to check on the child's further recovery. Only too often she finds, that the mother has started using the bottle again, partly because she has to go to work and can't take the baby with her, partly because she again succombed to the promises of advertising.

For this mother it was not too late to return to breast-feeding. Her undernourished baby survived the worst in the hospital and is slowly gaining weight. But it is not yet certain, whether it has suffered permanent damage or if it will grow to be a healthy, strong and intelligent child.

Mothers throughout the world want the best for their babies. Even when making mistakes tney do it in the belief of helping their child. The grasp for the bottle can be a fatal grasp. Many children could still be alive, many could be spared sickness and malnutrition, if their mothers had been enlightened about the dangers of bottle-feeding, if they had known of the advantages of breast-feeding, if they had not been exposed to the often misleading sales promotion for milk powder.

Not only the babies are victims. Their families are financially weakened and the economies of developing countries are burdened by expensive milk powder imports. No country can really afford to replace a product like mothers milk, that can be produced in every country at practically no cost, in sufficient quantities and incomparable quality with an expensive, inferior and even dangerous artificial product. Self- sufficiency in food stuffs should begin with mother's milk.

UNIVERSITY OF NAIROBI
FACULTY OF MEDICINE
DEPARTMENT OF PAEDIATRICS

File :
Telegrams: "Medken" Nairobi
Telephone: Nairobi 26659

Kenyatta National Hospital
P. O. Box 30588
NAIROBI
KENYA

24th June 1976

Mr. Peter Krieg*
Teldok Films,
D-504 Bruihl/Cologne
Chlodwigstr 29,
West Germany.

Arrive. 26.5.77

Dear Peter* ,

We are leaving Kenya this week for Canada and Professor Bwibo has asked that I write again to you to clarify the situation regarding the documentary film "Bottle Babies" He clearly understood that there would be a copy of the film made available without charge for use in teaching in his Department of Paediatrics at the University of Nairobi. He is disappointed that this has not happened.

Could you please write to him about this matter?

My new address is :-

E.S.Hillman, MD, FRCP.,
Associate Professor , Paediatrics,
Memorial University,
St. John's , Newfoundland ,
Canada.

I fully intend to continue the breast feeding CAMPAIGN ~~campaign~~ in Canada and I have asked the Canadian Government to buy "Bottle Babies" for teaching and campaign use . Good luck to you.

Sincerely,

E S Hillman

DR.E.S.HILLMAN
SENIOR LECTURER IN PAEDIATRICS.

cc.
Prof. Bwibo
Department of Paediatrics.

*Name changed to Peter Krieg as requested by film maker.

P.S. Where are the stills you promised Mrs. Waruru and me?

Dr. E.S.Hillman
Ass. Professor, Paediatrics
Memorial University
St. John's , Newfoundland
Canada

Peter Krieg*

May 26, 1977

re Bottle Babies

Dear Elisabeth,

Sorry for not writing so long, but we were busy with filming, moving and all kinds of things. (some info on it enclosed) As I had written to Nairobi already, we had a defect on our still camera in Kenya and had hardly any usable fotos. Regarding the copy for the University we had several offers from Church organisations to provide a copy, but non has actually done it. The World Council of Churches tried to bring in a copy which was supposed to stay with Dr. Bwibo, but it was stolen at customs, as you know. I had written to Bwibo since, but got no reply, whether they were really interested, and how to practically make the transport. If this is cleared, I would be willing to give them a copy free, as we did with Tanzania for example.

Meanwhile the campaign has reached worldwide dimensions and the film is used by many organisations and 3.World Governments as a tool in the campaign and in education. My new film is about a positive exmmple for a change- the Chimaltenango Development Project in Guatemala.

Hope you are both enjoying the new job. Please give my regards to your husband.

yours sincerely, Peter Krieg*

*Name changed to Peter Krieg as requested by film maker.

Elisabeth S. Hillman M.D.
The Dr. Charles A.Janeway
Child Health Centre
St. John's, Newfoundland A1B 3V6
C a n a d a

June 16, 1977

Dear Elisabeth,

Thank you very for your letter of March 24. I agree with your proposal concerning Bottle Babies and have ordered the Lab to send you a print of the short version. Please give my best regards to Prof. Kwibo and make sure you get the film safely through the different customs. I am going to India next month myself for two months to do a film, but will be back before your conference. Maybe you can show the film at the meeting in Delhi ?

"Seeds of Health" is available in Canada through the University United Church of Canada, 85, St. Clair Avenue East, Toronto Ontario M4T 1M8 (as far as I know!) (For preview)
The Bottle Baby copy for Memorial University is also on its way.
My next film in North America will be on wheat and the problem of world hunger - so I guess there will also be something on obesity... Maybe the local TV station can help you out.

Hope to run into each other one of these days-

Sincerely,

Peter Krieg
(getting used to that one...)

INTERFAITH CENTER ON CORPORATE RESPONSIBILITY

A Sponsored Related Movement of the National Council of Churches
475 Riverside Drive • Room 566 • New York, NY 10027 (212) 870-2293

Douglas Johnson
c/o Mike McCoy
1709 Lamont St. N.W.
Washington, D.C. 20010

Dr. Elizabeth Hillman
Memorial University of Newfoundland
St. John's, Newfoundland
Canada, A1C 5S7

Dear Dr. Hillman,

It was very good to talk with you those brief moments on Monday. After sitting through our last Nestle negotiation meeting and receiving the letter from Prof. Bwibo, I was starting to feel a bit paranoid. You've revived my spirits.

I have asked my office in Minneapolis (INFACT--the Infant Formula Action Coalition) to send you a packet of information from us, including a description of the American campaign. INFACT and ICCR are co-ordinating the campaign together, but on different fronts. ICCR works primarily with institutional investors to develop shareholders resolutions within the American formula companies. They have also had a suit against Bristol Myers (Mead Johnson), and are now co-ordinating the Senate hearings--which is why I'm here in Washington, D.C. INFACT is developing a grass-roots educational campaign around the issue, and organizes the Nestle Boycott.

Our hearings are now set for May 16th, though they may be postponed to the 23rd. They will be in Sen. Kennedy's Health Subcommittee, and possibly joined by Sen. Church's Subcommittee on Foreign Economic Policy (which oversees transnational corporations). Obviously, they are a very important event for us, as they will allow (if we prove our case in a convincing manner) placement of the problem on legislative agendas.

We are now seeking materials for inclusion in the record of the hearings. Materials from you and your husband would be very important, especially given the development with Prof. Bwibo. I have asked the person receiving the letter from him to forward a copy to you, plus an account of her meeting with him. We can be assured that Nestle will come to the hearings and dramatically introduce the letter into the record in an attempt to discredit their critics. It is, of course, imperative that we be prepared to counter the letter; at the same time, this should be done in a way that will not harm or discredit Prof. Bwibo. His career and reputation should not be used as a pawn, as I feel it now is by Nestle's pressure.

These are the items that would prove helpful to us, submitted by yourself and your husband:

1. The original letter (to which you referred) from Dr. D.A. Hillman to the companies/the film-maker/the lawsuit (?).

2. An account from yourselves about the making of the film, including:
   a. a time-line of contacts between yourselves and the film crew through its attempted distribution to you in Kenya and your seeing of the film with Prof. Bwibo (did you say that you now had a copy of the film and used it?).

   b. Your view of its intentions (as stated in advance) and its outcome.

   c. Your view as to its accuracy, especially as it described the problem in Kenya at the time of its making.

   d. The impact, if any, of making the film and being involved in the discussion on the consciousness &/or resolve of the Kenyan medical authorities (including those in the film) to organize a solution to the problems addressed.

   e. Any other comments that would put the film into context.

3. The "infant formula" problem as you observed during your stay in Kenya:
   a. Demographically, how extensive was the use of infant formula or bottle-feeding (urban/rural/class).

   b. What problems did you observe that were associated with its use? Please elaborate.

   c. What was the role of the corporations in promoting the product to groups that were vulnerable to misuse? Please elaborate as to types of promotion practices--especially those directed to the medical profession.

4. A time-line of the actions taken in Kenya to deal with this problem, either through a breast-feeding initiative and/or restricitions on the promotion activities of the corporations. Who initiated the efforts? Why? What difficulties did they encounter (especially as related to pressures exerted by the formula companies).

5. Your estimation of the preferred weaning and/or supplementation program for Kenya, given its social/cultural/economic situation. (Sample: is Wyeth Labs can-label claim accurate: SMA, THE LOGICAL ALTERNATIVE TO MOTHER'S MILK?)

6. Other comments which you think would be helpful in evaluating the situation, the role of the infant formula manufacturers, and public policy options.

You are probably both aware of the work of Dr. Otto Schaefer of the Medical Services Branch in Alberta. He has worked extensively with Inuit and Native American infants, and discovered drastically higher rates of morbidity among bottle-fed infants in those communities. I am enclosing a copy of a letter our Canadian contact (Pat Mooney) sent to us. Together they are proposing serious marketing restrictions for Saskatchewan that may well serve as a model for other developed nations. We have asked Dr. Schaefer to testify at the hearings, so as to make more obvious the connections between developing countries and our own Third World communities.

I know that both you and your husband have done much on this problem previously. I hope you will not consider it an imposition to ask still more. I can only assure you that your efforts will go to good work. Although I can not predict the legislative fervor of the U.S. Senate, I do believe the time is quickly approaching when it will seem appropriate to them to begin curbing the abuses of the large formula producers. Our public campaign has been quite successful, taking them by surprise (and us as well). Already the campaign has successfully incorporated a breast-feeding initiative within A.I.D., to provide developing countries with resources to promote breast-feeding. Control of the counter-promotion is the next logical step. Hope you'll both help us take it.

Thank you very much for your assistance. Please write your comments directly to me at the Washington, D.C. address. I will call you at the beginning of next week to clarify and answer any additional questions you might have.

Yours in peace,

Douglas Johnson

cc. Douglas Clement, National INFACT Clearinghouse
Leah Margulies, ICCR
June Noronha

The Dr. Charles A.
Janeway Child Health Centre
NEWFOUNDLAND DRIVE, ST. JOHN'S, NEWFOUNDLAND A1A 1R8 CANADA

May 8, 1978

Mr. Douglas Johnson
C/O Mike McCoy
1709 Lamont St. N.W.
Washington, D.C. 20010

Dear Mr. Johnson:

I am enclosing all the material (not much) that survived our travels from Kenya to Newfoundland in 1976. You are certainly welcome to use anything there that is of use to you. It is, unfortunately, not much.

First, I wish you success in the May 16th hearings.

Secondly, I agree that Professor Bwibo, who is a very fine man, an excellent paediatrician, and my friend, should not be used as a pawn in this affair.

Now, in answer to your numbered paragraphs:

1) The dog-eared letter 19.Dec.74 to Mr. Jones was our first written communication to Nestles.

2) a) Any letters re the film that I still have are in this file e reviewed the script of the film before it was produced, with Dr. Bwibo and other members of the department of paediatrics and it was approved. I saw the film in Kenya but a copy which was supposed to be provided for the department was lost in transit - not an unusual happening. You can see my letters asking the Canadian Government for a copy. I then wrote to Willi G. who sent me a copy and we are using it regularly in Nutrition teaching and in Seminars on Developing Countries here at our University and Child Health Centre.

.../2

2) b) The intention of the film was to show the problem as it existed in Kenya. It did do this. We were all disappointed in the ending which I still feel detracts from the impact of the film by directly blaming Nestles. As you see in Willi's letter, the film is available without the last part. He told us this because we said that part made it less useful as a teaching aid.

c) Completely accurate. I was there with him.

d) The impact of making and discussing the film was minimal. The nurses (Mrs. Waruru, a wonderful friend) and I were very aware of the problem. The rest of the hospital staff were also aware. No one had a clear-cut idea of how to deal with the advertising campaign although it was not condoned. Since we never had the film to use in teaching while I was there, it had little impact except at the one meeting where I saw it and was well received.

e) Kenyans were too close to the problems shown in the film. It is easier to recognize and deal with this when you have the perspective and can stand back a bit and consider there were so many problems to deal with that I an sure seemed more important to Kenyans at the time and now. Merely coping with the volume of severely ill children took most of their energy although good paediatricians like Professor Bwibo knew theoretically that prevention was more important than treatment.

3) a) Bottle feeding was rare in rural areas even on our second teaching tour in Kenya. It was rapidly increasing in the pathetic slum areas near the cities and in the cities. As far as "class" was concerned, it was unfortunate that the role-models for Kenyan women were bottle feeding (because they, were all employed full-time eg nurses, teachers, etc). There was a problem already with obesity in these bottle-fed upper class babies!

b) Diarrhoea, marasmus, and lack of bonding; also the obesity noted in 3 (a) above. Dr.Lemire completed a small study on bottle fed babies in Kenyatta Observation ward and showed as other studies have that bottle fed babies from poor homes were more apt to present with severe diarrhoea and dehydration than breast-fed babies.

c) Types of promotion practices have all been listed before: colourful advertisements , hospital and clinic posters, radio spots, milk nurses, free milk to doctors and hospitals. The ordinary people could only listen and see the examples put before them.

.../3

4) The medical staff and public health nurses (specially the latter) promoted breast feeding in their teaching but not necessarily in their practice (this applies to physicians). The difficulties encountered were simply that nurses in a developing country did not have the advertising know-how or money to "sell" breast feeding as effectively as the milk companies sold their products.

5) S.M.A. can be "the logical alternative to mother's milk" here in North America where we have clean water and enough money. This is just not true over there. The preferred supplementation when needed is locally produced dried milk and locally available high-protein plants.

6) I think infant formula manufactures should mount a strong pro-breast feeding campaign with all their expertise, in the 3rd world countries and sell their other products over here. As far as the problem of not breast feeding in North America, I think physicians and nurses had better put their own house in order and promote breast feeding ourselves before we blame the milk companies but they certainly don't help us.

I agree with Dr. Schaefer that breast feeding must be promoted here and that the decrease in illness, hospitalization etc particularly in remote areas is very apparent just as in the 3rd World .

In Conclusion:

We observed a decline in breast feeding in our two sojourns in Kenya (1969-71 & 1974-76) - particularly in the urban people. We were extremely concerned by this decrease as we saw the result; an increase in diarrhoea and marasmus. In my work as a physician teaching in the Paediatric Observation Ward at the Kenyatta National Hospital in Nairobi it was glaringly apparent that the babies with gastroenteritis - particularly those with severe gastroenteritis were bottle fed.

I agree with Dr. Jeliffe and others that artifical feeding cannot be considered a substitute for breast feeding in developing countries because it is just too expensive and because clean water is not available in these homes.

I am convinced that the decrease in breast feeding is due to the advertising of the infant milk companies. Increasing numbers of working mothers and rural people coming to cities has helped but the milk companies are largely responsible. The lip service advertising is not enough eg "When breast milk fails..." and the "beautiful" posters are terribly harmful.

.../4

The promotion of artifical milks must be regulated to protect vulnerable groups. These companies could find their new third world market in developing protein-rich weaning foods manufactured from indigenous plants and distributed to replace expensibe imported milk.

Good luck and let me know how it turns out.

Sincerely,

Elizabeth Hillman

Elizabeth S. Hillman M.D.
Director of Ambulatory Education
Associate Professor of Paediatrics

ESH/ah

Enclosure

23rd October 1974

E.S.Hillman
Box 30588
Nairobi
Kenya

Dear Sir/Madam,

I have pleasure in enclosing 7 copies of our report on the use of powdered milk in the Third World. As you say this is an important document, and as you are going to use it in a teaching situation we feel it would be unfair to charge you any money.

I hope the report will be useful to you and if you would like any further information about our work please do not hesitate to get in touch with us.

Thank you for your good wishes, and all good luck to you in your work.

Yours sincerely,

Alice Thomason

Alice Thomason
Communications Department.

Dr. Hillman
Dept. of Paediatrics
University of Nairobi
P.O.Box 30588
Nairobi.

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557196, 557196

P.O. BOX 30588 NAIROBI - KENYA

Dec. 6, 1974 AAJ/rbn

Dear Dr. Hillman:

May I sincerely thank you for the very interesting discussion we had with you with regard to an article issued by the "War on Want" organisation.

As mentioned by you, this article was discussed in a seminar by your students, and I would be extremely grateful if you could let me have a brief summary of the conclusions reached by this group discussion.

I would like to mention that the main points arising out of the article were its eventual translation from English to Germany by a group of people in Switzerland who preceded the article with a headline "Nestle Kills Babies" and an editorial directly attacking Nestle.

Nestle policy has been and always will be to promote the use of our products only if breast milk fails through various causes. Our aim is to consult members of the medical profession and other health workers through whom we only discuss our products.

In addition to the summary mentioned above, I wonder if you would be kind enough to comment on the accusation that "Nestle Kills Babies". Would you consider the accusation justified and do you think we are responsible for the death and permanent physical or mental disablement of thousands of children.

I would be most grateful if you could possibly give this your early attention and address the letter to Nestle S.A., P.O.Box 353, 1800 Vevey c/o Myself at the above address.

Incidentally, I have written to our office in Switzerland requesting they forward the article on cup and spoon feeding as well as information on protein and nutritional information.

Yours sincerely,
FOOD SPECIALITIES KENYA LIMITED,

A.A. Jones,

(A LIMITED LIABILITY COMPANY INCORPORATED IN KENYA)

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557186, 557156

P.O. BOX 30266 NAIROBI - KENYA

Drs. E. Hillman & Dr. J. Brown
Department of Paediatrics
Medical School
University of Nairobi
P.O.Box 30588
Nairobi.

Dec. 6, 1974 RMW/rbn

Dear Doctors:

Thank you for having received Mr. Maire and Mr. Wamala yesterday and for the interesting discussion you had with them in connection with the accusations aimed at our Company in Switzerland.

You will recollect that a group of people in Switzerland translated an article written in English by "War on Want" into German for distribution to the press in Switzerland.

Though this was correctly translated, an editorial preceding this article was entitled "Nestle Kills Babies".

As discussed our Company is most concerned at these unjust accusations. I would therefore be most grateful if you would kindly let me have your comments on the report "War on Want". I should like to suggest that your comments are based on the following questions arising from the report:

1. Do you consider the accusation "Nestle Kills Babies" justified?

2. Do you think our marketing policies as you know them are unethical and practiced against your own recommendation? As far as breastfeeding is concerned, are we on purpose trying to pursuade mothers to abandon natural feeding in favour of our products?

3. Do you consider that our efforts to collaborate with the medical profession to solve the problems of Malnutrition unethical?

May I kindly request you to give this matter your earliest attention, and please address your letter to

Nestle S.A.
P.O.Box 353
1800 Vevey
Switzerland.

However, I would request that the letters be sent to myself c/o Food Specialities Kenya Ltd., P.O.Box 30265, Nairobi.

Thanking you for your help in this matter, and for your valuable time which you gave to my collaborators,

Yours faithfully,
FOOD SPECIALITIES KENYA LTD.,

A.A. Jones,
Director.

MINISTRY OF INFORMATION AND BROADCASTING

P.O. Box [illegible]
NAIROBI
KENYA

VOICE OF KENYA

Telephone 29211

Ref. No. VOK/CS/[illegible]/[illegible] 17th December, 19[illegible]

Dr. [illegible] Hillman,
Faculty of Medicine,
Department of Paediatrics,
University of Nairobi,
NAIROBI.

Dear Dr. E. S. Hillman,

Thank you very much for your letter of 25/11/74, and for the interest you have shown in our programmes.

Your letter arrived at a very appropriate time - when we were working out items and format for the 1975 programmes. The suggestions you forwarded to us were given very favourable consideration and though it might not be possible just now to pave way for a special programme dealing with the various subjects you mentioned, it will be possible to incorporate the subjects for discussion into our educational programmes.

We have submitted your name and telephone number to our producers so that as soon as they start producing programmes for next year they can get in touch with you for further discussion and advice.

Once again thank you for your co-operation.

Yours Sincerely,

(OSCAR K. BEAUTAH)
Ag. HEAD OF GENERAL SERVICE

c.c. Controller of Programmes (S).

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28th January, 1975

Our Ref: ANS/1/75/68

The University of Nairobi,
Faculty of Medicine:
Kenyatta National Hospital,
P. O. Box 30588,
NAIROBI

Attention of Dr. E. S. Hillman

Dear Madam,

Thank you for your letter of 6th December, 1974 and have noted the contents therein.

We would like to inform you that we are manufacturing Wide Mouth Bottle from Poly Carbonic Material which is ideal and Hygienic for sterlizing purposes. We also make Polypropylene Bottles in the same dimensions and are advertising regularly in the East African Standard as per the attached advert.

We would be pleased to receive any comments on the above subject.

Thanking you,

Yours faithfully,
PAN PLASTICS LIMITED

DIRECTOR

MINISTRY OF INFORMATION AND BROADCASTING

P.O. Box 30456
NAIROBI
KENYA

Telegrams and Cables:
"BROADCASTS", Nairobi

VOICE OF KENYA

Telephone: 34567

Ref. No. [illegible]/Vol.11/156

14th March, 19..

Dr. E. S. Hillman,
University of Nairobi,
P. O. Box 30588,
NAIROBI.

Dear Sir,

This is to acknowledge receipt of your letter dated 12th February, 1975, regarding Lactogen Radio spots.

I understand that the representative of Food specialities Kenya Limited, M/S E.L. Humpreys, Wamala and Mohamed Mbwana have discussed this matter and have already been in touch with you.

Any developments on this subject will be communicated to you, as and when we receive them.

Yours faithfully,

(A. J. MUMANYI)
PUBLIC RELATIONS OFFICER
for: DIRECTOR OF BROADCASTING

Health and Welfare Canada
Health Programs Branch

Santé et Bien-être social Canada
Direction générale des programmes de la santé

December 30, 1975

Your file Votre référence

Our file Notre référence

AIRMAIL

6867-1-7 (RHL)

Dr. E.S. Hillman,
Senior Lecturer in Paediatrics,
Department of Paediatrics,
Kenyatta National Hospital,
P.O. Box 30588,
NAIROBI, Kenya.
East Africa.

Dear Liz:

Many thanks for your kind letter. It was great to hear the good news that you, Don and the family were planning to go to Newfoundland on return to Canada, July, 1976. Congratulations are in order to Don on his appointment as Professor of Pediatrics, Memorial University. I would anticipate that news will trickle out later about your appointment to a senior position in the university.

Your reference to the film on breast feeding hits a particularly resonant note. There is an outstanding need for such a film in developing as well as developed countries. I have contacted several potential sources of funding for purchase of such a film for your department. The responses, by telephone, were quite favourable, however, each group would appreciate hearing more information from you. You may consider contacting -

Mr. Kendrich R. Marshall,
National Director,
Canadian Save the Children Fund (CANSAVE)
70 Hayter Street,
TORONTO, Ontario.
M5G 1JA

Failing a positive reply from CANSAVE, you might direct a request to -

Mrs. Pat Mortimer,
Director of Public Information,
UNICEF,
443 Mount Pleasant Road,
TORONTO, Ontario.
M4S 2L8

As you are aware, the Canadian International Development Agency (C.I.D.A.) provides budgetary funds to McGill University to support the operation of the Canada-Kenya project. These funds take care of staff, services and back-up expenses. Mr. George Jackson, Montreal General Hospital, is the person most directly involved in the administration of the project and would be a possible source of support for the purchase of the documentary film.

In the meantime, I have written to Dr. Lyall Black, Director General of Medical Services and in charge of the operational programs for Canadian Indians and Inuits. In addition, Information Services have been approached and will request a copy of the film for review prior to making any recommendation for purchase. It is noted in the brochure that government organizations will be required to pay a licence fee which is negotiable. This is important but should not delay the preliminary proceedings.

I certainly hope that your endeavours will prove to be successful. We look forward to seeing you in the near future. All the best to everyone.

Season's Greetings.

Sincerely yours,

Robert H. Lennox, M.D.,
Senior Consultant,
Child and Adult Health,
Health Standards and
Consultants.

24th Feb. 1978

Mr. Kendrick R. Marshall
National Director,
Can[illegible] Save the Children Fund(C[illegible])
70 Hayter St.
Toronto Ontario
Canada M5G 1J3.

Dear Mr. Marshall,

In December I wrote to Dr. Robert Lemmon, Senior Consultant in Canada's Health & Welfare Department to ask how I could buy a new and excellent film purchased for use here and in C[illegible]. The film is "Gentle Nurse" and it was made here in Nairobi with the assistance of members of our department and our public health nurses. I think it is very well done and would be valuable in promoting breast feeding and nutrition education to various groups, Gov, medical and paramedical.

I am enclosing a brochure on the film, which includes the price. Dr. Lemmon said you might be interested in purchasing a film for us for use here and in Canada. I am quite sure that Teldok Films would send you a copy on approval and that on seeing it you would decide the message is well presented. Is there more information I could provide,?

Please let me know if this is possible. Thank you for your interest.

Sincerely

DR. A.A.HILLMAN
SENIOR LECTURER IN PAEDIATRICS.

24th Feb. 1971

Mrs. Pat Mortimer
Director of Public Information
U.N.I.C.E.F.
443 Mount Pleasant Road,
Toronto, Ontario, M4S 2L5
CANADA.

Dear Mrs. Mortimer,

In December I wrote to Dr. Robert Lennox, Senior Consultant in Canada's Health and Welfare Department to ask how I could have a new and excellent film purchased for use here and in Canada. The film is "Bottle Babies" and it was made here in Detroit with the assistance of members of our department and our public health nurses. I think it is very well done and would be valuable in promoting breast feeding and nutrition education to various groups, boy, medical and paramedical.

I am enclosing a brochure on the film, which includes the price. Dr. Lennox said you might be interested in purchasing the film for us for use here and in Canada. I am quite sure that Teldok Films would send you a copy of approval ~~or that on approval~~ and that on seeing it you would decide the message is well presented. Is there more information I could provide?

Please let me know if this is possible. Thank you for your interest.

Sincerely,

DR. J.S.HILLMAN
SENIOR LECTURER IN PAEDIATRICS.

2nd March 197[illegible]

Ms. Virginia Hazard
U.N.I.C.E.F.
P.O.Box 44145
[illegible].

Dear Ms. Hazard,

After speaking to you at that fabulous film at the Cultural Centre, I spoke to Dr. Sam Ongori about your suggestion for the film funding for "Battle Babies".

Sam says he has already seen you and that there is no money left for the film this time and that Prof. Nimrod Uwibo will write to try to get a free copy of the film which we all believe is ourdue.

We will wait and see what happens. I have also written the Canadian Government to ask them to buy a copy for me to use in teaching when I go back there.
Thank you.

Sincerely

E.S.HILLMAN, M.D.
SENIOR LECTURER IN PAEDIATRICS.

13 9 76

CANSAVE CHILDREN

The Canadian Save the Children Fund
National Headquarters: [illegible]
Toronto, Ontario - M[illegible]
Telephone (416) 364-[illegible]
Cable: CANSAVE TORONTO
National Director: Kenric R. Marshall

29th March, 1976.

Dr. E. S. Hillman,
Senior Lecturer in Paediatrics,
University of Nairobi,
Kenyatta National Hospital,
P. O. Box 30588,
NAIROBI, Kenya.

Dear Dr. Hillman,

Please accept my apoligies for not having responded earlier to Dr. Lennox's request and to your letter of February 24th. The reason for the delay was that I had hoped we might be helpful and to give you a positive response. Unfortunately, our budget is very tight and I find that I am not able to give you an affirmative answer. We are very much in need of audio visual materials to promote understanding of our programs and for this year at least are not able to meet the demands of our own constituency.

If the situation changes, I will take advantage of your suggestion and write to ~~Lali~~ Teldok Films to determine whether in fact they are prepared to send me a copy of the film on approval. If that turns out to be possible, I will have it reviewed by our Program Committee and will let you know the results. In the meantime, however, I do hope that you will be able to find other sources of funding.

Wishing you every success.

Yours sincerely,

K. R. Marshall

Kenric R. Marshall
National Director

ln

Dr. E.S.Hillman
Ass. Professor, Paediatrics
Memorial University
St. John's , Newfoundland
Canada

May 26,1977

re Bottle Babies

Dear Elisabeth,

Sorry for not writing so long, but we were busy with filming, moving and all kinds of things. (some info on it enclosed) As I had written to Nairobi already, we had a defect on our still camera in Kenya and had hardly any usable fotos. Regarding the copy for the Universtity we had several offers from Church organisations to provide a copy, but non has actually done it. The World Council of Churches tried to bring in a copy which was supposed to stay with Dr. Bwibo, but it was stolen at customs, as you know. I had written to Bwibo since, but got no reply, whether they were really interested, and how to practically manage the transport. If this is cleared, I would be willing to give them a copy free, as we did with Tanzania for example.

Meanwhile the campaign has reached worldwide dimensions and the film is used by many organisations and 3.World Governments as a tool in the campaign and in education. My new film is about a positive example for a change- the Chimaltenango Development Project in Guatemala.

Hope you are both enjoying the new job. Please give my regards to your husband.

yours sincerely,

Appendix II

EXCERPTS FROM THE COURT DOCUMENTS

Below are short excerpts from the many hundred pages of evidence submitted to the court by the Third World Action Group (for further excerpts, see Information for the Press No. 1).

Drastic Lesson for Nestlé Representatives

Excerpts from a taped interview with Dr. Elizabeth Hillman, Senior Lecturer in Paediatrics at the University Hospital in Nairobi, Kenya (From "Glückliche Flaschenkinder?", a programme by Peter Krieg, November 4, 1975; Sender Freies Berlin/Radio Bremen/Westdeutscher Rundfunk).

" A short while ago, perhaps two months, the Nestles representatives came to visit us at the Hospital to ask if we had any opinions about the War on Want publication which had been translated in Switzerland and titled "Nestles Kills Babies". They really wanted us to say that Nestles did not kill babies, and we discussed this at length with them and were not able to say of course that Nestles either does kill or does not kill, statistically speaking. But to illustrate the point I mentionned to these two gentlemen that there was a child over in our emergency ward at the present time who was very near to being dead, because the mother was bottle feeding with the Nestles product, and for interest I asked whether they would like to see the baby. I took the two representatives over into our emergency ward and as we walked in the door the baby collapsed and died. I had to leave these two non-medical gentlemen for a moment leaning against the wall for a while and I helped with the rescuscitation procedure. It was unsuccessful. And after the baby was pronounced dead we all of us watched the mother turn away from the dead baby and put the can of Nestles milk in her bag, before she left the ward. I apologized then to the two men, because as non-medical people it was a pretty shocking experience to see a baby die and an unsuccessful résuscitation. And I had really meant to illustrate a very ill child, probably due to bottle-feeding. In a sense though it was a vivid demonstration of what bottle-feeding can do, because this mother was perfectly capable of breast-feeding. They walked out of that room, very pale, shaken and quiet and there was no need to say anything more."

"Having been directly involved with sick children in the casualty/emergency room since 1968, I can attest to the damage done to children by artificial milk "formulas" in dirty bottles.

In many informally conducted surveys, I have asked mothers why they took the baby off the breast and gave them bottled milk. Oftentimes the reply has been "I was told to do this at the clinic," or "Sister said my milk was no good (or not sufficient)."

It seems as if the average mother who attends our clinics feels that her child cannot be really healthy unless they are bottle fed with artificial milk (e.g. Lactogen, Enfamil, Kim, S26, etc.), given expensive cereals such as Cerelac and Farex, and imported Vitamin C in the form of Ribena, Rose Hip Syrup, Delrosa, and washed with "baby" soap and anointed with "baby" oil. The Kenyan baby needs none of these for proper health and some of the above may be actually harmful to the child.

We are all aware of the tremendous successes which milk companies are having in selling their products in Kenya - "the new market". No doubt this is in response to a decline in their sales in Western countries where more and more mothers are breast feeding their children. On a recent visit to Canada, I noticed that many mothers were feeding ordinary cow's milk by bottle (not the expensive "baby" milks) with no detrimental effects at all on their babies.

Certainly the Kenyan mothers with adequate facilities can bottle feed their children as efficiently as Western mothers (even without the often insulting simple "instruction"). We need not be reminded that such facilities are not available to the vast majority of Kenya mothers today. In these instances the "instructions" are impossible to follow, e.g. when there are no running taps in the home.

May I request that a full scale operation be mounted against this threat to the lives of our less-fortunate Kenya children. I would like to suggest the following:-

1. That the Ministry of Health and the Nairobi City Council be not active participants in the promotion of bottle feeding with artificial milk. This means that:-

   a) No advertising of such products must be allowed in the clinics, either by pictures or gifts:

   b) Milk companies must not be allowed to advertise their products by gifts to mothers who deliver in our maternity wards.

2. The Ministry of Health should censor all T.V. radio and newspaper commercials dealing with the child's health. They should remove any suggestion that these products are necessary for the baby's health.

3. The Health Education Department should intensify [illegible] using the mass media to inform the public (especially the less fortunate group at risk) that breast milk, uji, and local foods are better than artificial milk, foreign cereals [illegible] bottled fruit juices.

(Letter from a Kenyan paediatrician to the Kenyan Ministry of Health)

"I must say that we agree completely that [illegible] the use of bottles in the rural districts of the [illegible] to [illegible] consequences. Unfortunately I cannot give you [illegible] tion about what has happened here, but I will make the following [illegible]:

The two products on which Nestle expend a great deal of [illegible] the Ivory Coast are Cerelac and Sweetened Condensed Milk, [illegible] the latter which is mentioned continually on the radio, often in native languages. But it is not only the nature of the product itself that can have harmful effects, but the fact that artificial feeding of infants by bottle is supported (and illustrated by many pictures and photos) and this changes the infants' health calamitously. The advertising certainly creates the impression that the modern, progressive mother prefers artificial feeding to breast-feeding - which causes women to imitate this 'modern' custom and often bring about the death of their children.

I cannot tell you whether mothers in the poor regions where these products are sold, give their children too much water in their bottles out of poverty, but I can confirm two things;

a) The sale of, and propaganda for, Sweetened Condensed Milk are very widespread, especially in the poorest villages.

b) Apart from the milk/water ratio, the lack of hygiene, which is found so often in these villages, makes the baby bottle a completely unsuitable method."

(Director of a Mission Hospital in the Ivory Coast, in a letter to the Third World Group. Translated from the French.)

The UN and medical organisations have also been warning for years of the consequences of excessive advertising.

"Particular devices used by commercial companies to induce support from health services must be especially censured, e.g. the employment by some firms of "milk nurses" to make home visits and attend clinics to promote sales of specific products, the issue of free samples, posters, calendars, etc., as an incentive to favour particular brands or companies. Insufficient discrimination has been shown by companies in the content of their advertising communications, and the extensive use of mass media as a channel for such communications may have multiplied any detrimental effect of commercial advertising efforts on nutrition of the pre-school child.

June Noronha
644 Summit Ave. #4
St. Paul, Minn. 55105
May 4, 1978

Dr. Elizabeth Hillman
Memorial University of Newfoundland
St. John's, Newfoundland
Canada, AIC 5S7

Dear Dr. Hillman:

I was requested to send you a copy of the letter I received from Dr. Bwibo and an account of my meeting with him. I was in Kenya on a visit to my family. I am originally from Nairobi, and while I was there, I talked to a few people about infant feeding practices in Kenya.

With Dr. Bwibo, who seemed to be relieved to talk to someone, for he was somewhat disturbed about the film and its application abroad, I discussed some of the issues that Doug Johnson mentions in his letter to you. Dr. Bwibo was disturbed because he said he had had no editorial priveleges vis-a-vis the film, and that the film tended towards the emotional as opposed to the scientific. He did not deny the facts in the film, and said that he supported breastfeeding above any other method, and failing that, the use of cow's milk.

He was very firm about the necessity to curb advertizing practices of infant formula companies, and said that some of the policies now in effect were a result of efforts made on his part to regulate these practices. In fact, representatives from formula companies were not allowed into maternal wards, or to have direct contact with mothers at Kenyatta Hospital. If there is contact, it is with the doctors in their offices. He added that the hospital continues to use posters by Nestlé with the logo cut out of the posters.

He obviously did not want to get embroiled in the politics of the situation, even when I asked if being scientific ruled out ethical questions. As you have lived in Kenya, I presume you are familiar with the political and social situation, and the position many people find themselves when they would like to continue with their work, and are confronted with questions of a political nature. I do not know Dr. Bwibo, and only assume as a Luo, and a well-respected pediatrician, he has found the best way possible to live his own life.

However, his letter to me takes a position that does not tally with that he took when we met. He did make a distinction then between formula and milk, and did talk about his belief as a doctor that formula should only be used when necessary, and not as a supplement, or a basic food.

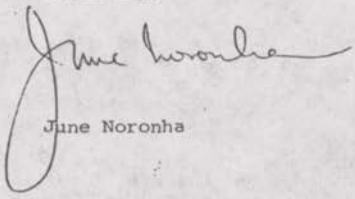
I also talked to Dr. Memi, who was less subtle in his opinion, and thought what the infant food companies were doing was "criminal". I wish the situation was as clear cut. In Kenya, historical precedents are as great a factor in the use of formula, as the practices of formula companies, which incidentally, they are very aware of, and

use very much to their advantage.

I hope this will help in any response you make to Doug Johnson's request. Especially since I understand that copies of the letter I received are now being circulated by Nestlés corporation as a defense of their Position.

Do you miss Kenya? I do.

Sincerely,



June Noronha

cc. Douglas Johnson
Leah Margulies
Doug Clement

*Typed from handwritten original

P.O. Box 30588
Nairobi, Kenya
May 10, 1978

Dear Mr. Johnson,

I received your letter two days ago and have in the interim spoken to people who were involved in the making of the film here. I also visited health centers again, and looked through ladies magazines to see what ads are currently running.

First, let me apologize for handwriting this letter, but I have no satisfactory typing service available for use right now.*

When I first came here in 1976 there were milk nurses in some (? all) local well baby clinics as well as at the maternity hospitals. There had been a move to have this discontinued before, with what I gathered to have been varying success. That fall Dr. Mugo was the pediatrician who became responsible for the overseeing of these establishments. At a meeting of pediatricians in public service that October or November (1976) I raised this issue and Dr. Mugo expressed his intention to see this practice stopped. From what I hear and have seen he has kept his word. I don't work in their center and don't have opportunity to go there usually. Yesterday I visited the Riruta Health Center and found it crammed with patients who were being served by government employed Moft. No other personnel was there. And not a single industry sponsored ad was in evidence. So things seem to be better, at least in one health centre. I know nothing of what goes on in other parts of the city or the country.

I have sampled this week's magazines, and found only one ad (enclosed) which as you can see is not truthful, but it's better than they used to be. Nestle has toned down its ads here, prefacing them with a phrase such as "Breast feeding baby is best but if -- etc." I don't watch TV or listen to the radio, so I can't tell you about such ads at such short notice.

I work in the pediatric observation ward at Kenyatta National Hospital where all acutely ill infants and children are admitted. I have seen bottle fed infants who had severe diaherra and who have died, in whom the cause almost certainly was inappropriate hygiene. As you know, for many the simple requirement of washing utensils is an impossible one -- they have no piped water, and certainly no hot water. Yet mothers were bottle feeding their babies because they had been led to believe that this was the best way to guarantee a healthy baby.

Similarly I have seen many marasmic and moribund babies who had been fed on a prepared milk formula. This had not been mixed correctly because the mother tried to have a can of powdered milk last as long as possible. The baby got water but little milk. She simply could not afford to buy the stuff - but thought that it was best to give this to have a healthy baby. Almost always it was clear that she could have breast fed.

These are anecdotal stories which don't prove cause and effect and anyone working here can give them to you because everyone has seen this. Here and elsewhere. But this is in no way constitutes the kind of evidence you require. I have not made, nor has anyone here made a serious study to determine the extent of the problem or how it is changing.

Mr. Johnson
Page 2 (typed from handwritten original)

In my official duties I have seen nomadic mothers in the desert with a filthy encrusted bottle feeding their infants. Why they had them I can only conjecture. I have no hard evidence.

As regards the film "Bottle Babies", I have not seen it. I have not spoken to Prof. Bwibo since he is away on holiday. I have spoken to a number of people who were involved in the making of the film in one way or another and who saw the film. Apparently two films were made, one promoting breast feeding and pointing out the dangers of bottle feeding, the other a more direct attack on Nestle because of its promotion practices. I got two types of responses.

The one expressed the view that the first film was fine but the second was not because the people here had not been told a direct attack of Nestle would be made (they had no comments regarding factual information presented), and they did not feel that it was the responsibility of university people to take public action of this kind. (They are entitled to their view, but I very strongly disagree with it.)

The other view was that the film (the second one) was fine and needed to be made. Oddly enough, especially one very competent pediatrician spoke very strongly in its favour but expressly asked we not to mention his name. The reason, he freely told us, is that he fears retribution, and as he says, he has to be able to work. How realistic his fear is I can't say, but it might go some way to explain Prof. Bwibo's attitude as expressed in the letter you mention. Im Department of Pediatrics meetings he has certainly been outspoken about the need to "do something" about such (inaccurate) advertising.

What is being done here to counter such promotion? Little. There was no government rules, government officials are often in a conflict of interest position, and anything goes. The Kenya Pediatrics Association has made overtures to the Voice of Kenya TV and radio to control ads a bit as far as health related subjects are concerned. This has had varying and mostly temporary success.

Promotion to doctors. I have had no direct mailings from Nestle. Nestle has sponsored the 3rd Annual Meeting of Pediatricians in Public Service held November 24, 1977 in Nairobi and it hosted the party and dinner afterwards. At the end of a talk I gave at the meeting in the Hospital I pointed out what was happening by Nestle sponsoring the meeting and party and urged the pediatricians not to go to the dinner. They all went.

A few months ago Nestle invited the University pediatricians to come to their plant . Again most of them went and were delighted to receive free cans of Milo (a chocolate drink). I strongly disapprove of such practices for many reasons, but in this respect Nestle is behaving no differently from any other drug manufacturer.

Mr. Johnson
Page 3 (typed from handwritten original)

As regards Prof. Bwibo's letter, I consider it unimportant, and you should not fear its effects. If you have done your homework you will know of dozens of excellent studies on the subject which leave no doubt as to where the problem lies. Professor Jelliffe and other have spent much time demonstrating this. Don't get side tracked by one film or by what one pediatrician has to say who does not have the same credentials because he has not produced any related research findings in this area one way or the other. Don't get caught arguing opinions. Let Prof. Bwibo's opinions be. You have available to you in the literature so much factual information as to make this letter irrelevant.

I shall be returning to Montreal in August of this year -- and I'll be leaving Nairobi in mid-June. If I can be of further assistance, please let me know.

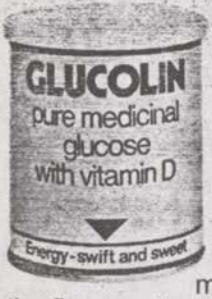
Sincerely yours,

Nicolas Steinmetz M.D.C.M. M.P.H. F.R.C.P(C)
Associate Professor of Pediatrics
and Epidemiology and Health
McGill University -- Montreal
Sr. Lecturer, Pediatrics
University of Nairobi

30-982 O - 78 - 44

KENYA WOMAN OCT 1-5 1978

The baby builders



GLUCOLIN Pure medicinal glucose. Provides strength and energy for babies and children. Contains vitamin D and compounds of calcium and phosphorus to help build strong bones and teeth.

FAREX Baby's first solid food. Specially made so that you can add the flavours that your baby likes. Contains protein, vitamins, minerals and iron to help baby grow strong and healthy.

CARMA Gripe Mixture The gripe mixture that makes your baby happy. Recommended by doctors for wind, gripes, hiccups and general tummy upsets.

HALIBORANGE Cod liver oil that tastes nice. Contains vitamins A and D that promote the healthy growth of your child, and extra vitamin C for resistance to minor infections.

MULTIVITE SYRUP The seven vitamins essential to a growing child. Daily use will give your child health and vitality.

Glaxo

GLAXO EAST AFRICA LIMITED POBOX 18288 NAIROBI KENYA

30 982 0277

CARLETON UNIVERSITY

OTTAWA 1, CANADA

DEPARTMENT OF ECONOMICS
AND
ACCOUNTING

June 9, 1975.

Mr. Ted Greiner,
Division of Nutritional Sciences,
Cornell University,
Savage Hall,
Ithaca, New York 14850.

Dear Mr. Greiner,

Thanks for your letter of May 24th. I'd be happy to provide any help I could for your study. My work in Kenya was at a more general level - an attempt to, inter alia, analyse the impact of advertising by multinational manufacturing subsidiaries on the pattern of economic development as a whole. In the course of doing that work I interviewed Nestlé and Glaxo subsidiaries, both of which promote infant foods in Kenya. Both subsidiaries, interestingly, discussed some of the ambiguities in what they were doing - particularly the cases of poorer mothers using their products, who cutback the amount of formula used in any one feeding. But beyond that I probably didn't ask them specific enough questions to be very helpful to you (I was interested in their employment and linkage effects, levels of profitability, relations with government, degree of autonomy from head office, etc.)

What I do have, though, which might be useful to you is a breakdown of advertising activity by subsidiaries in Kenya - particularly advertising on the mass audience Swahili-language radio network. If you like I could send you that plus some general analysis of mnc taste transfer activity in the country. Let me know of anything else you think I might have that would be helpful, and I'll send it along, too.

Meanwhile, I look forward to receiving the monograph you mention, and would also appreciate any further data you analyse on the infant foods issue; I first got interested in this area in the light of Illich's work in Latin America, and it seems to me the baby food area is one of the grossest examples of the destructiveness of "modernization" that he stresses.

Let's keep in touch.

Yours sincerely,

Steven Langdon

Steven Langdon.

wrote back on May 3

Statement on the Marketing of Infant Food Preparations in Kenya

This statement reports research in 1973 in Kenya pertaining to the marketing of infant food preparations in that country by subsidiaries of multinational corporations, with some particular reference to the wholly-owned Nestlé subsidiary in Nairobi, Food Specialities Kenya Ltd.

1. Nature of Study:

The research considered in this statement was part of a larger study of multinational corporations in Kenya, undertaken with the approval of the Office of the President in Kenya, for a doctoral thesis at the University of Sussex. Overall, 81 subsidiaries were surveyed in detail, as well as a considerable number of local firms in comparable industrial subsectors. As part of the study, which focused particularly on the impact of subsidiaries in transferring foreign product tastes to a less-developed country, a three-week survey of product advertising in the country was undertaken, under my direction, by my research assistant, Mr. Richard Kamau.

Three manufacturing subsidiaries promote infant food preparations in Kenya--a Nestlé subsidiary, a Glaxo subsidiary and a Cow and Gate subsidiary. The first two of these are larger than the third and were both included in the overall survey interviews.

2. Marketing in Kenya:

In order to establish a profile of marketing techniques used in Kenya, interviews were conducted with the managing directors of the two largest advertising agencies in Kenya, Ogilvy and Mather (Eastern Africa) Ltd., and Grant Advertising (owned by, respectively, U.S. and Canadian parent companies). Both men stressed that the national Swahili radio network is far and away the main medium for reaching the mass African market, while national English-language newspapers (published in Nairobi and Mombasa) were more important for reaching the African elite and expatriate markets.

The largest daily newspaper in Kenya reports a circulation of some 80,000 copies, while the best available estimate is that there are 1.3 million radios in Kenya. It is likely, too, that more persons listen to each radio than read each paper. So it is clear that radio advertising clearly can reach a mass audience, using the lingua franca of East Africa, while newspaper advertising can only hope to reach a better-educated, elite audience.

The survey undertaken of advertising in these two media in 1973 confirmed this differing orientation. Some 91.2% of Swahili

radio advertising was for beverages, over-the-counter pharmaceuticals, soap and detergent, and food products--basic manufactured goods aimed at a mass market; only 38.9% of press advertising was for such products, with another 34.2% promoting such higher-income products as cameras, tape-recorders, petrol, vehicles, machinery and paint. Results of the overall survey are attached as an appendix to this statement.

3. Marketing of Infant Food Preparations:

Infant milk products (Ostermilk, Lactogen and Nan) are promoted in two main ways in Kenya--through clinics to which many African mothers go, and through radio advertising. The result is that the products are sold to a wide market. As one subsidiary executive reported,

> we sell to a very broad market especially the infants' food. That gets wider and wider and wider--due to the clinics where Mothers go to--that's where they are introduced to these products. And a lot more people know about the product than one usually thinks. We are carrying out market research, though it's very time and money consuming, and the products are well-distributed and well-known. (Interview transcript, Nairobi, 1973).

Infant food subsidiaries are heavy advertisers by Kenyan standards. Consumer goods subsidiaries in the country spent on average 3.5% of their sales revenues on advertising; infant food subsidiaries averaged 6%, and this infant food advertising concentrated on radio. As a subsidiary

executive noted,

> we advertise quite a lot, on one kind of media advertising mainly--that is radio. We don't believe in press advertising, since there are not so many reading daily papers. But radio, from what our investigations have shown, is the best, and we rely quite heavily on radio advertising. (Interview transcript, Nairobi, 1973).

In more specific terms, advertising for Nestlé's Lactogen accounted for 11.26% of total Swahili radio advertising time logged during the 1973 study period. Only two other companies (Brooke Bond and Colgate-Palmolive) did more advertising, while other large-scale advertisers accounting for less time included Coca-Cola, Unilever, Sterling Drugs, Glaxo, Cadbury-Schweppes and Union Carbide--all large mass-market consumer goods producers. In short, Lactogen was promoted more on the mass market medium in Kenya than virtually all other brand-name products. Lactogen advertising accounted for 86.9% of all infant foods' Swahili radio advertising. At the same time, there was no advertising for Lactogen in the more elite-oriented press medium examined during the same period; infant food advertising from all companies accounted for only .3% of press advertising overall.

Lactogen advertising, then, was clearly oriented to the mass African market; it dominated infant food advertising as a whole to that market; and it formed a very substantial proportion of overall Swahili radio advertising in Kenya.

The basic message of that advertising was as follows:

> - If the mother's milk is finished, feed the infant with Lactogen. It is guaranteed to keep your child strong and happy.

- If the mother's milk is not enough, feed your infant Lactogen. It has been guaranteed to keep your child happy and strong. It helps him to grow.

- If the mother's milk is finished, feed your baby with Lactogen. It has protein for making the baby grow strong. It is guaranteed to make your child happy. It is produced by Nestlé.

(All translations from the Swahili by Mr. R. Kamau)

4. Conclusion:

Evidence from this Kenyan research shows that infant food products, particularly Lactogen, are intensively marketed through what advertising agencies and infant food subsidiaries see as the medium for reaching the African mass market-- the Swahili national radio system. Such infant food advertising, especially for Lactogen, forms one of the largest e ements of that radio advertising for the period surveyed. At the same time, there is virtually no promotion of infant foods through elite-oriented press advertising.

Significantly, some of the implications of this mass marketing are recognized even by executives of the infant foods subsidiaries in Kenya. As one manager conceded in an interview, though suggesting his company wanted African consumers to use his product only as a supplement to breast-feeding, not as an alternative to it:

> Some people who can't afford the product still buy it and make it last; instead of putting two spoons, they put one; and then you create deficiencies. That is the problem.

market. This "mass" market, of course, as another advertising firm stressed, was still very much a minority (¼ to 1/3) of the Kenyan population; but as another agency explained, this nevertheless meant that:

> we do have this very, very big-size market... where we are counting more in millions than in tens of thousands; for a large range of packaged consumer goods, that have a fairly low unit retail cost, there is a substantial market.

The agency's managing director (who had been posted to other company subsidiaries in other poorer countries, too) went on to note that "in all developing countries the emergence of these middle ranges of the socio-economic scale as an important consumer group, has been one of the features of the last 15 years;" in Kenya this change has undoubtedly been a critical factor in consumer-oriented import substitution by mnc subsidiaries in the post-independence period.

This mass orientation of much mnc taste transfer effort is evident in data on advertising, on what ad agencies noted was the main instrument for reaching the broad African market - the national Swahili-language radio network. Advertising time and content were monitored, over varying eight-hour periods, for three weeks in early 1973 (Jan. 29 to Feb. 18); and though the periodic nature of advertising campaigns means that the data cannot provide a definitive picture of ad emphasis by firm over any given year, the results of the study, in Table Five, offer a useful snapshot of the sorts of firms (and the sorts of products) which are promoted on

Kenya's main mass medium. The table shows that 81% of Swahili advertising during the period was by mnc subsidiaries, promoting particularly such standardized brand-name consumer goods as Coca-Cola, Brooke Bond tea, Colgates Dental cream, Lifebuoy soap (from Unilever), Cold Power Detergent (Colgates), Lactogen infants' formula (Nestlé), Eveready batteries (Union Carbide), Cadbury's Bournvita, and pharmaceuticals and cosmetics from a half-dozen firms (Sterling-Winthrop of the U.S., Nicholas of Australia, Reckitt & Colman, and Glaxo from the U.K., Bayer from Germany, etc.). Only milk (Kenya Co-operative Creameries), beer (Kenya Breweries) and maize flour (Unga Ltd.) represented product areas where local firms dominated radio advertising.[2]

Table Five also shows product advertising patterns in the national press for the same period. Some interesting comparisons with Swahili radio patterns emerge, reflecting the more limited, but higher income market, the advertising agencies reported, which this medium reached (the papers analysed were the Daily and Sunday Nation, Taifa Weekly - the only Swahili-language case - and the East African Standard; the largest of these reported a circulation of close to 80,000 copies, and though each copy may be widely-read, this still compares very poorly with the 1.5 million radios estimated to be in Kenya; Swahili-language papers have an even lower circulation). Although beverages remain the largest advertising category, the press promotes a much wider range

TABLE 5: ADVERTISING PATTERNS IN SELECTED KENYAN MEDIA, JAN. 29TH TO FEB. 18TH, 1973

CATEGORY OF PRODUCT(S)	- A - Percentage of Total Seconds of Swahili Radio Advertising				- B - Percentage of Square Inches of National Press Product Advertising			
	MNC Firms	Local Firms	Unclear Ownership	All Firms	MNC Firms	Local Firms	Unclear Ownership	All Firms
1. Beverages	23.9%	10.1%	-	33.9%	8.5%	8.4%	5.7%	22.6%
2. Pharmaceuticals, Patent Medicines & Cosmetics	21.2	-	3.6	24.7	5.8	0.3	0.5	6.7
3. Soap, Detergent, Toothpaste	16.3	0.8	-	17.1	2.4	-	-	2.4
4. Food Products	13.0	2.5	-	15.5	5.7	1.3	0.2	7.2
5. Electrical Appliances, batteries, etc; other consumer items (cameras & tape recorders)	5.4	-	-	5.4	5.0	-	-	5.0
6. Rubber Products	1.2	-	-	1.2	2.1	0.8	-	2.9
7. Household & Miscellaneous Chemicals	0.1	-	-	0.1	8.4	1.6	-	10.0
8. Petrol & Petrol Products	-	-	-	-	8.5	-	-	8.5
9. Vehicles	-	-	-	-	5.6	2.1	-	7.7
10. Machinery & Equipment	-	-	-	-	5.3	-	1.4	6.6
11. Paint	-	-	-	-	6.4	-	-	6.4
12. Cigarettes	-	-	-	-	5.6	-	-	5.6
13. Textiles & Shoes	-	-	-	-	1.4	0.9	0.3	2.6
14. Other Manufacturing	-	-	-	-	3.1	1.1	0.8	5.0
15. Other Miscellaneous (Sweepstakes, Banking, etc.)	-	2.1	-	2.1	0.2	0.6	-	0.8
TOTAL	81.0%	15.5%	3.6%	100%	73.9%	17.1%	9.0%	100%

A: Based on monitoring of regularly varying eight hour periods daily on national Swahili-language network.

B: Covering Daily Nation, Sunday Nation, Taifa Weekly, East African Standard.

Note: A total of 10,344 seconds of advertising is analysed for radio, and 13,797 sq. inches for the (mainly) English-language press.

of products and clearly emphasizes higher-income products, like household chemicals(waxes, bleaches, insecticides, deodorants, etc.), petrol and vehicles much more than Swahili radio, and significantly more than the basic consumer goods on which radio advertising concentrates. Perhaps the most important point to note, however, is the similar mnc dominance of this advertising medium; some 73.9%, at least, of all product advertising space had been placed by subsidiaries.[3]

These data add objective confirmation to the perspective already stressed in this section. It is clear that mnc subsidiaries do dominate advertising in Kenya; they are obviously emphasizing "taste transfer" efforts; and by and large their efforts are directed at transferring tastes for particular, standardized, brand-name products on which their advantages elsewhere are already based. Local firms are clearly not competing strongly, at least at this formal level of mass product promotion (except in several restricted product areas). At the same time, these results suggest the mnc sector is seeking more than an elite market, though the emphasis on building a mass market (through Swahili radio ads in any event) seems limited to a range of more basic manufactured brand-name items.

vi) Conclusion:

This set of sections has tested the basic taste transfer hypothesis of this study, and by and large the evidence presented seems to confirm the hypothesis. Reasons for entry

July 31, 1978

Mr. Walter Sheridan
Senate Subcommittee on Health
Dirkson Office Building
Room 4220
Washington, D.C. 20510

Dear Mr. Sheridan,

Enclosed please find various documents related to the infant formula controversy, for inclusion in the public record assembled by the Subcommittee on Health.

They include documents forwarded to my office. Some carry special instructions.

1. From El Salvador:
   a. a clinical history, shared by Dr. Alcides Caballero Lopez.
   b. a letter to our office from Dr. Rafael Ruiz Izaguirre.

2. From Yemen:
   a. Statement from Christine Ansell, nutritionist.
   b. Statement from R. Gault, R.G.N. R.S.C.N.

   In regard to Yemen, we received today a color photograph of a Nestle delivery truck, prominently displaying advertisements for its infant formula products. We are making copies. Please advise if this material would be important for the record.

3. From Liberia, West Africa
   Statement of Dorothy Jean Wrase. R.D.

4. From Papua New Guinea
   Statement from Lynn Fester, former CUSO worker, nutritionist.

5. Official statement of the Candian University Service Overseas (CUSO), the Canadian equivalent of the U.S. Peace Corps.
   "CUSO Statement on Formula Feeding in Developing Countries" with accompanying photographs and a recent ad for Carnation.

6. Letter: Prof. Charles Pike (African Languages and Literature, University of Minnesota) to Douglas Johnson, regarding the Swahili translation of breast feeding information on Nestle Lactogen Can, obtained in Kenya, Feb., 1978. Label of said Lactogen product has previously been submitted to your committee for inclusion in the record.

(more)

THIRD WORLD INSTITUTE
Newman Center at the University of Minnesota
1701 University Ave. S.E., Minneapolis, Minnesota 55414, U.S.A.
(612) 331-3437

7. Copy of Nestle Dextrogeno can, obtained in Vera Cruz, Mexico, May 1, 1978. Label contains no breast feeding information, in violation of official code of marketing ethics publicized by Nestle.

In addition are include several documents which may already be in your possession. I have enclosed these as a safety margin.

8. The Label Game, Interfaith Center on Corporate Responsibility.

9. Observations on the Effects of Infant Formula Use in Guatemala, by Sister Dorothy Gartland, S.P., and Reverend Charles Dahm, O.P.

10. Notes on the Availability of Infant Formula on the Indian Subcontinent, by Mary Rudkowsky, Boston Industrial Mission.

11. Commericial Infant Foods and Malnutrition in St. Vincent, by Ted Greiner, Division of Nutritional Sciences, Cornell University.

We respectfully request that these materials be made part of the Subcommittee's public record.

Sincerely yours,

Douglas Johnson

Douglas Johnson, chairperson
National INFACT Steering group

DR. RAFAEL RUIZ IZAGUIRRE, M. D.
PEDIATRA - NEONATOLOGO

DIRECCION PROFESIONAL
CENTRO PEDIATRICO
3A. DIAGONAL NO. 222
URBANIZACION LA ESPERANZA
SAN SALVADOR, EL SALVADOR,
AMERICA CENTRAL
TELEFONOS: 23-3665 Y 23-6080

DIRECCION PERSONAL
81 AV. NORTE Y 7A. C. PTE.
COLONIA ESCALON
SAN SALVADOR, EL SALVADOR,
AMERICA CENTRAL
TELEFONO 23-3634

San Salvador 9 de Maye de 1978.-

Mr. DOUG JHONSON
C/O MIKE Mc COY
1709 Lament St. NW
Washington DC, 20010
U.S.A.

Dear Mr. Jhensen:

I was asked te write by Miss Hellen Langer, a Peace Cerp volunteer whe claims net te be CIA'S, about a quite interesting matter, breast feeding and its relationship with neenatal diarrhea and relater complicatiens.

I am Head Prefesser ef eur Medical Scheel and my clinical - statien is at eur Maternity Hespital, a facility in which 60-70 births pen - day are the ussual, exclusively frem lew secie-ecenemic extractien. I was - trained as a Pediatrician at the Hespital Infantil de Mexice and at Stanferd's Newbern Center as Neenatelegist.

There are lets ef serieus preblems in eur newberns, but in cenectien te the breast-freeding er lack ef, what I have te say is as fellews. One: intrahespitalary diarrhea causes mere deaths than the rest ef a hest ef diseases put tegether. Twe: this is a situatien in which the basic cendi - tiening facter es a clear deficiency in the immunelegical status ef the newbern, te my epinien a mixture ef prenatal malnutritien and ne breast feeding. Three: similar newberns bern eutside, with breast feeding have a much better resistance te neenatal gastreenteritis. Feur: we are in the way ef ergani - zing eur ewn breastmilk bank and hepefully in a few menths we could have mere selid figures in this respects.

Since medical research, particularly involving fellew-ups in - this ceuntry is beyend eur wildest dreams, what happens in regards ef acute - gastre-enteritis en greups ef breastfed vrs. net breast-fed infants is still - pure theerizing. Hewever, anybedy werking with kids ef lew secial backgreund can tell yeu that unless yeu have geed intestinal defenses, yeur chances ef -

DR. RAFAEL RUIZ IZAGUIRRE, M.D.
PEDIATRA - NEONATOLOGO

DIRECCION PROFESIONAL
CENTRO PEDIATRICO
2A. DIAGONAL NO. 222
URBANIZACION LA ESPERANZA
SAN SALVADOR, EL SALVADOR,
AMERICA CENTRAL
TELEFONOS: 25-3688 Y 25-4080

DIRECCION PERSONAL
91 AV. NORTE Y 7A. C. PTE.
COLONIA ESCALON
SAN SALVADOR, EL SALVADOR,
AMERICA CENTRAL
TELEFONO 23-3624

reaching age 2 are no better than 75%, according to official figures. Real figures could be lower. The main cause of this is, again, diarrhea.

Fortunately, breast feeding is becoming again very popular and more and babies are benefiting from this.

If there is anything more I can tell you about this matter, please write.

Yours truly,

Dr. RAFAEL RUIZ IZAGUIRRE

R E S U M E N C L I N I C O

Paciente: DIAZ HERNANDEZ KARLA CAROLINA

Edad : 1 mes 10 dias. (el 7 de Febrero 1978)

Sexo : Femenino.

Nombre del Padre: Jose Isidro Diaz.

Nombre dela Madre: Martha Lidia Hernández

Lugar de Origen: Canton Lolotique San Miguel.

Lactante menor femenino, hija de Padres aparentemente sanos, embarazo que transcurrió normalmente, parto eutocico atendido en su domicilio. Respira espontaneamente, llora al nacer, con medidas y peso al parecer normales.
Inicia su alimentacion al seno materno sin complicaciones, una tetada cada 2 o tres horas (en esto no hay seguridad) durante dos meses y medio, y debido a que paulatinamente esta alimentacion fué decayendo, es decir cada vez se hizo insuficiente la leche materna, se optó por alimentar con leche artificial lechematernizada especificamente (Enfamil) e inmediatamente se desencadena cuadro diarreico agudo por lo que fué traída a consulta de emergencia prescribiendosele Antidiarreicos, derivados del Caolin pectina y sulfametoxaxole. No cede la diarrea y nuevamente se le administra leche materna, suspendiendose la lactancia artificial, administrando a la Madre estimulantes de la lactancia. La niña mejoró rápidamente.

Tomó los datos el Dr ALCIDES CABALLERON LOPEZ, Pediatra del Hospital San Juann de Dios San Miguel El Salvador CA.

30-982 O - 78 - 45

Translation: Clinical History

Patient: Dias Hernandez, Karla Carolina
Age: 1 month, 10 days (Feb. 7, 1978)
Sex: Female
Name of Father: Jose Isidro Diaz
Name of Mother: Marth Lidia Hernandez
Place of Origin: Canton Lolotique San Miguel (El Salvador)

Minor female infant, dauther of evidently health parents, prenancy proceeded normally, delivery normal, in the mother's home. Breathes spontaneously, cries at birth, weight and measurements normal.

Begins nourishment at breast without complications, nursing every 2 or 3 hours (presumably, not recorded) for 2½ months. Owing to the fact that this means of feeding was gradually decreasing, that is, every time the maternal milk seemed insufficient, feeding with artificial "maternalized" milk (Enfamil) was chosen, immediately there began a problem of acute diarrhea for which the child was brought to emergency care and prescribed antidiarreics, derivatives of Kaolin pectina and sulfametoxaxole. The diarrhea continued and mother's milk was given and artificial feeding suspended. The mother was given stimulants for lactation. The child improved rapidly.

Data taken by Dr. Alcides Caballero Lopez, Pediatrician of the Hospital San Juan de Dios, San Miguel, El Salvador, CA.

Translation by Mrs. Helen Langer, San Francisco Gotera, Morazan, El Salvador.

Name: Christine Ansell

Profession: Nutritionist

Qualifications: B. S. S.R.D.

Experience:: One and one-half years as a nutritionist in the Mother and Child Health Clinic, Al Qaa, Sana'a, Y.A.R.

Instances of Promotion of formula feeds: (as seen in the Y.A.R.)

1. Pharmacies are all well stocked with these products. Abuse in this case is much the same as general drug abuse.

2. In the general shops, bottles and tins of milk are displayed. They are always very obviously and insidiously available.

3. Company advertising includes:
Morinaga(one type of baby milk) desk stands in Ministry of Health.

Morinaga posters of healthy (Japanese) baby.

Morinaga writing/ notepads.

4. The most important influence is the corruption of the doctor's practice to encourage him to promote the formulas either out of true ignorance or private gain. This is by far the most important way that formulas are promoted since what a doctor in Yemen says in Yemen doesn't just carry extra status; it is indisputably right.

To the best of my knowledge, all the above- stated in true.

C. J. Ansell

C. J. Ansell

Subscribed and sworn to before me this 9th day of May 1978.

John Egan McAteer

John Egan McAteer
Consul of the United
States of America

ARTIFICIAL BABY MILKS.

Firstly background of what I consider may be some of the reasons for the use of Artificial Baby Milks by Yemeni women, which has evolved over the past 10yrs approx., due to the advent of importation of Infant Formulas.

Many superstitions have occurred over the past 10yrs, which are contrary to the "Koran" which states women can breast feed up till two years. These superstitions are also contrary to the years before importation as breast feeding was the only means available.

At the birth of a child breast feeding in the first three days is considered unhealthy and of no importance and often bottle feeding is commenced. If a mother should become ill it is felt that the illness may be transmitted to the child through the breast milk therefore it is discontinued and artificial means used. Although possibly felt that the child will go back to the breast when well, due to the introduction of sugar in the milk the child rarely wants breast later as not sweet enough.
A yearly baby is often desired by husband and as a Yemeni women feels that she cannot breast feed her youngest while pregnant breast feeding is often discontinued as early as 3/4 months.
Due to poor weaning technique late in commencing weaning a mother often feels her milk is not sufficient and commences artificial milk.
The Yemeni ladies day often has a full workload due to large families and often time to sit down to feed (20mins approx) is impossible and artificial milk given by bottle either by older child or held by baby itself is easier.
Due to large migration of husbands to Saudia Arabia, America, England., women now also become bread winners giving them little time for house and work.

There are no real visible evidence concerning Artificial Milks which would be apparrent to a visiter in Yemen such as billboard posters or any real advertising which would draw ones attention to artificial foods.
Pharmacy's must be one of the Main Area's of promotion of Artificial foods. They are frequented by most Yemeni's and advise asked concerning health. Due to the lack or not training of Pharmacy workers artificial Milk feeds are advised for the aforementioned problems although all could be solved through eduction.
Radio and Television. Most people own or have access to both which advertise although initially state only if no breast milk of course due to superstitions this is often so.
Most Yemeni Doctors also play a role as they are approached for advise due to problems aforementioned due to lack of knowledge on their part or little time for educational and preventative medicine.
Women's social life is also I am sure one of the main advertising area's where tea parties are held and only women attend. Talk centres round home and children and of course fears and problems concerning breast milk arise. As many women use artificial milk it is passed on and eventually from generation.

My conclusion is that at one time promotion of Artificial Milk was crucial to control. Now it is too late as Yemeni's promote artificial feeds themselves due to lack of knowledge and the problem of having an alternative. The only way to control now is eduction of the people.

R. Gault

R. Gault. R.G.N. R.S.C.N.

The above statement pertains to the Yemen Arab Republic where I have done my observations. To the best of my knowledge, all the above-stated is true.

R. Gault

R. Gault. R. G. N. R.S.C.N.

Subscribed and sworn to before me this 9th day of May 1978.

John Egan McAteer

John Egan McAteer
Consul of the United
States of America

Infant Formula Use and Promotion in Liberia, West Africa
U.S. Senate Hearing
Written Testimony

May 17, 1978

My observations took place between September 1971 through November 1973 in the Republic of Liberia. I worked as a dietitian at the John F. Kennedy Medical Center in Monrovia under the auspices of the United States Peace Corps. The JFK Medical Center was a 250-bed hospital that was the hub of medical care for the country. Approximately fifty percent of my time was spent in the in-patient and out-patient pediatric areas.

The average daily census of pediatric in-patients was eighty. Thirty to forty of these patients were hospitalized for protein-calorie malnutrition, i.e. 25 to 30 diagnoses of Kwashiorkor, 5 to 15 diagnoses of nutritional marasmus. The hospital stay was from three to six weeks. Diet histories taken from the mother indicated that a majority and perhaps as high as 80 to 90 percent of the children had been fed only infant formula prior to hospitalization.

Mothers were asked to demonstrate how they prepared the infants' formula in the in-patient and out-patient areas. The prepared formula was usually diluted with too much water. The rule of thumb used by most of the mothers was, "If it's white, it's O.K." A majority of the mothers were not literate and consequently the instructions written in English, German, French, and/or Spanish were not of help. Instructions in pictorial form were difficult for most of them to understand.

Promotion of infant formula was very prevalent throughout the Republic. Posters about Lactogen and SMA infant formulas were hung on

the walls of the Maternity Center in Monrovia. Free samples of Lactogen were often given to mothers being dismissed from the Maternity Center. The radio station carried musical ads written to African "High Life" music singing that a "Lactogen Baby is a Healthy Baby." Transistor radios carried this message to the rural areas of Liberia. SMA infant formula was frequently advertised at the Cinema Theater on Tubman Boulevard in Sinkor, Monrovia.

The use of infant formula was more prevalent in the urban area than the rural area. Many of the mothers worked for employers who would not permit them to bring their babies with them. Liberian women usually tie their babies to their backs with a cloth. Acceptance of a program to allow mothers to work in the Medical Center's kitchen with their babies on their backs with time allowed to breast feed their babies was low.

It cost approximately $18.00 per month to feed an infant on formula. The average wage of a dietary employee was $1.00 per day. Consequently, most of the income would be used to feed the baby. In the event the mother could not afford to purchase a full container, a shopkeeper was most accommodating to sell a number of scoops of formula into a plastic bag.

Distribution of powdered milk and infant formula, as well as soap, occurred in rural clinics. The people preferred the soap, but took the milk and formula, fearing they wouldn't receive the soap if they refused it. The distribution of powdered milk and infant formula was often done with a Peace Corps volunteer supervising. USAID vehicles usually transported the milk or formula to the rural distribution site.

Pharmaceutical companies have not limited distribution of their products in Liberia to infant formula. Drugs removed from the market in the U.S. were available in the open markets and dispensed without prescription.

Respectfully submitted,

Dorothy Jean Wrase, R.D.

Dorothy Jean Wrase, R.D.
354 Elton Hills Drive #32
Rochester, Minnesota 55901

DJW:rf

Lynn Fester
207-3610 52 Avenue
RED DEER, Alberta
T4N 4J4

INFACT
1701 University Avenue SE
Minneapolis, Minnesota
55414

June 23, 1978

Dear Sir/Madam;

I have been asked by the Canadian University Service Overseas to forward a brief report on my feelings regarding artificial feeding of children in third world countries. I will confine the discussion largely to the practice of bottle feeding.

I worked as a Provincial Nutritionist in Papua New Guinea from October 1974 to March 1976. During this time, I did a variety of things including rural health patrols and clinics, nutritional status surveys, as well as seminars and educational programs for teachers, nurses, paramedics and other groups. I therefore had considerable opportunity to observe the feeding patterns of under-fives, one of our target groups for nutrition intervention.

In the attached report, I present some of my observations, evaluations and recommendations.

Thank you for your consideration of this report, and for circulating it to the proper authorities.

Yours truly,

Lynn Fester

Lynn Fester

REPORT ON THE PRACTICE OF ARTIFICIAL FEEDING OF INFANTS IN THIRD WORLD COUNTRIES

I. Introduction

II. Physical and Physiological Aspects of Artificial Feeding

III. Sociological Aspects of Artificial Feeding

IV. Methods of Advertising

V. Recommendations

VI. A Day In The Life...

I. INTRODUCTION

Throughout history, there had been no question that breast feeding was the best way to feed baby — it was the only way! Until recently, that is, when the technically and socially liberated "developed" countries discovered artificial feeding. The invention resulted in shelves full of gleaming cans and bottles winking enticingly at the young mother. She was quick to take up this new "in thing" which gave her freedom that her a ancestors never had.

When emmisaries from these developed areas began moving into the third world, they took their lifestyle with them. Unfortunately, conditions were not the same as "back home" and a wide range of serious problems has resulted.

In the following paragraphs, artificial feeding refers to use of baby bottles and all types of milk mixtures used with them.

II. PHYSICAL AND PHYSIOLOGICAL ASPECTS OF ARTIFICIAL FEEDING

Artificial feeding requires a large amount of clean water to prepare formulae and sanitize equipment. In Papua New Guinea, especially the highland areas, water is carried in buckets from deep valleys to hilltop villages. This is the family's entire supply and drinking is the priority, washing bottles is not.

Formulae should be prepared with boiled water. This requires that extra wood or kerosene be used to boil water for formulae or sanitizing bottles.

Prepared formulae should be kept in a cool, clean place. There are no refrigerators in Papua New Guinea villages, and often not even a closed cupboard to keep dirt and insects away from bottle and formulae.

Artificial formulae should be prepared in sanitary conditions using proper proportions of water and milk base. Often directions cannot be read, or finances fo not permit adequate milk base to be purchased. The child, drinking a dirty, very dilute mixture of water and base is a prime target for illness and malnutrition.

III. SOCIOLIGICAL ASPECTS OF ARTIFICIAL FEEDING

In the non-agricultural society of developed countries, many buy food for the entire family. Work done in industry brings money to the family, and some of this money is nset aside for food, including infant formulae. In Papua New Guinea, food is produced on the land and any small income from cash crops is designated for non-food items. Often there is not enough money set aside for purchase of sufficient milk base. The result is milky-coloured water that has negligible nutritive value.

In Papua New Guinea, "white people" use artificial feeding methods, therefore this assumes important status. Natives in towns, and later in villages, adopt this practice to increase their status in the eyes of their friends and neighbors.

IV. METHODS OF ADVERTISING

1. Television: does not exist, fortunately.

2. Radio: is national radio and has negligible advertising.

3. Magazines: Papua New Guinea magazines are virtually non-existant. All 'glossies" are imported form Austaalia, so contain all the usual "western" advertisements:
-bottles
-types of formulae
-infant food
The above are always accommpanied by young and lovely mothers with fat, laughing babies.

4. Newspaper: Some advertising had been in the newspapar, but I believe was discontinued after a lobby of health workers and concerned citizens.

5. Stores: This is the biggest area of concern, as these products are prominently displayed in all stores. Villagers coming in are exposed to these items which they have seen "Europeans" and more sophisticated Papua New Guineans using.

6. Hospitals/Health Centres: Also a problem, when babies are in the health centre without the mother (admittedly unusual), bottles are used for feeding. This, as well as health care personnel bottle feeding, is a considerable influence on village native womem.

V. RECOMMENDATIONS

Following are some thoughts on steps that could be taken to minimize this very serious problem.

1. No advertising of artificial feeding products or methods should be allowed on any medium.

2. No artificail feeding materials should be available to be sold by stores of any kind. A doctor's prescription would then be required before a woman could get a bottle from the health centre. This would ensure limited issue and proper education.

3. Bottle feeding in health centres and hospitals should be discouraged. A cup should be used even though it is somewhat more time consuming.

4. A national advertising and promotional campaign to encourage breast feeding should be launched.

5. All foreign workers however well-meaning, going to third world countries should be made aware of the problems inherent in artificial feeding. This way they would be in a better position to promote practices good for the health and welfare of that society.

I realize that these recommendations would be suggested to, in large part, independent countries. They are free to do as they wish. However, I think none of us underestimate the "western" influence. Certainly none of us would be foolish enough to state that what we say and do can make no difference. In fact, with the current swing to breast feeding we are experiencing in our own countries, perhaps the above recommendations could apple equally as well to us. Example is the best teacher.

A DAY IN THE LIFE...

Dawn will soon break and melt away the mist surrounding the remote hilltop village in the highlands of Papua New Guinea. Mother is reviving the coals in the central pit of the hut to cook sweet potato for breakfast. Son is a half mile away deep in the valley getting the buckets of water for use by the family for the day. During the time of no rain, water is a precious commodity. Father sits in the "men's house" smoking and gossiping, waiting for Mother to bring the morning meal. In the corner of the hut, Baby lies in a net bag on a bed of dirty rags. His thin arms and legs are still. Ribs protruding, eyes wide, he emits tiny whimpers. Daughter takes a dirty bottle with milk left from yesterday from the bag and gives it to Baby to quieten him. Baby turns his head and continues to cry.

Son returns with the water, and some is put in the iron pot to be boiled for tea. After the breakfast is over, Mother uses some fo this water for Baby. She empties the old milk from the bottle into the dog's food dish, rinses the bottle with a little cold water and fills it with clean, boiled water. She doesn't realize the danger of the scum which is still thick around the top. She adds a little of the precious, expensive milk powder and puts the nipple in place. A shake and the milky-coloured mixture is ready. She picks up Baby, and tries in vain to make him eat. He turns his head weakly away from the nipple, to spent now to even cry.

A week later, Mother and Father walk home along the ridge-top, the string bag empty. The nurses worked tirelessly with Baby, giving medicine and intravenous fluids, and showing tender concern, trying to make him well. It didn't work. Baby is dead.

Why does this happen? Why do so many mothers in developing countries turn from breast feeding to artificial feeding - the killer!

The civilized "western" countries have been very influential in the third world, transporting our ideas and liberated begaviour with our money and technology. It's time to evaluate our actions and advice, to try to remedy some of the wrongs that have been done.

It's too late for Baby. Let's hope it's not too late for others.

Senate Subcommittee Submission

"CUSO Statement on Formula Feeding in Developing Countries"

June, 1978

CUSO, an organization which since 1961 has placed over 6,000 volunteers in 66 developing countries to fill manpower gaps, wants to put on record its opposition to the continued promotion by formula companies of bottle-feeding in Third World nations.

Although an independent development agency, we are similar in many aspects to the U.S. Peace Corps, and our own volunteers as well as the educated people from developing countries with whom we have contact report that the large multinational food companies are continuing to promote bottle-feeding via heavy advertising campaigns and by "free gifts" of formula which are particularly tempting to the poor.

The attached advertisement in the St. Lucia Sunday Voice last March is just one example of the type of advertising directed towards those with a low level of literacy. The cartoon approach makes easy reading!

Our volunteers report that advertising via radio, store window displays, milk nurses and free gifts of formula are commonplace. The attached photos were sent by our Field Staff Officer, Carol Shipley, in Botswana and were taken in downtown Gabarone in February this year.

...2

One of our nurses, Fatima Patel, from Peru has already testified before your subcommittee. She stated that prepared infant formulas are available even in remote jungle areas where she is working; these places can be reached only by river or on foot. She explained how the women often mix unboiled, contaminated river water directly with the formula, and she terms the formulas "deadly poisonous" to the Indian population she serves.

Another of our volunteers, nutritionist Lynn Fester, who served in Papua New Guinea from 1974 to 1976, is also so incensed by the issue that she is submitting her own report to your subcommittee.

A volunteer-teacher in Papua New Guinea recently told us that the government there has now made it impossible to buy baby bottles and nipples without a doctor's prescription, and then they are available only in the major centres. She writes: "There are three main reasons for this: the bottles are not being cleaned and sterilized properly and therefore infection and disease spread rapidly. Secondly, whole, fresh milk as we know it is not available in Papua New Guinea unless you are lucky enough to live near a dairy herd which is unlikely. Mothers are forced to purchase powdered milk and to economize they dilute the milk sometimes to the point where it is not milk at all, just a watery white liquid. Thirdly, virtually no refrigeration is available in the villages and mother must mix a bottle at a time."

All our volunteers report that the move away from breastfeeding to bottlefeeding has most definitely led to serious illness and death in infants. The use of unsafe water to prepare the formula results in gastro-enteritis. In addition, bottlefeeding puts severe economic strain on families in a developing country: the cost of formula can use up as much as one-third of a family's income and the whole family suffers as a result.

We are therefore convinced that formula promotion has drastic and terrible results for infants of developing countries.

Catherine Hare
Health Programme
Officer
CUSO

St. Louis SUNDAY POST March 30, 1958 Page 16

J.Q. CHARLES PRESENTS.....

The Story of

BETSIE the Contented Cow that loves babies ...

UNIVERSITY OF MINNESOTA
TWIN CITIES

Department of Afro-American Studies
214 Social Sciences Building
Minneapolis, Minnesota 55455

May 6, 1978

Douglas Johnson
c/o Mike McCoy
1709 Lamont St. N.S.
Washington, D.C. 20010

Dear Mr. Johnson:

Having now carefully read the English and Swahili Lactogen advertisements, here are my conclusions.

A. Maziwa ya mama ni bora kwa mtoto wako lakini ikiwa mtoto anahitaji kunyonyeshwa mara kwa mara au pengine huwezi tena kumnyonyesha, tumia maziwa yaliotengenezwa spesheli kuumpa mtoto mahitaji ya mwili'.

Whereas the English clause - "but when supplementary feeds are required or when you can no longer breast feed" - implies clearly a need to supplement the nourishment of the mother's milk (likely based on medical advice), the Swahili suggests Lactogen be used for the mother's convenience. The phrase - "lakini ikiwa mtoto anahitaji kunyonyeshwa mara kwa mara " - means, "but if the child needs to be breastfed often". The second part of the phrase - "or when you can no longer breat feed" - implies a biological inability to breastfeed. The Swahili translation - "au pengine huwezi tena kumnyonyesha" - can imply this also, but also suggests occupational or social reasons.

B. "Lactogen yenye 'Full Protein' yametengenezwa kwa kufuatia mpango wa Nestle ambao unasisitiza usafi na ubora wa bidhaa."

This is an accurate translation, or version; yet "Full Protein" leaves much to the imagination of a Swahili reader. It may take on a degree of scientific credibility not present in its English context.

C. "Yamechanganywa na vitamin ll pamoja no iron kuhakikisha mtoto akuwe vyema na mwenye afya."

Again, "vitamin" and "iron" take on a disproportionate credibility. Also, the English version indicates ingredients and composition, whereas the Swahili version does not.

D. "Kutayarisha" (Preparation)

Both English and Swahili versions seem clearly written. Why no pictures for the Swahili version?

E. "Kipimo" (Dosage)

No comment necessary.

F. "Vipimo vya Kunyonyesha" (Feeding Table)

There are two typographical errors in the Swahili version (mda = muda for "period of time" and mweizi = mwezi for "month". Neither would cause misunderstanding. I couldn't understand why the extra spoon appears in the Swahili version and not the English. It makes the details of the asterisks more difficult to read in my copy. The Swahili directions are as easy to understand as the English, but its arguable how easy these kinds of detailed directions are to read and understand in any language.

Conclusions

1. While most of the basic directions and information is correctly explained in Swahili, the emphasis of the importance of breat feeding is clearly played down in the Swahili advertisement.

2. The Swahili version uses English words - "iron", "vitamin", "protein" - to its advantage, giving a sense of scientific verisimilitude. It ignores, however, the list of ingredients/composition.

3. The Colonial heritage in Kenya often makes Western models attractive. Nestle can use this to its advantage by picturing a smiling European boy, using specific English words to its advantage, and by having Swahili and English slogans appear side by side. The impression is one of Lactogen as modern and progressive, the modern women having little time for breastfeeding.

I hope this will be of some help to you.

Yours sincerely,

Charles Pike
African Languages
and Literature

CAP/bp

Nestle Dextrogeno Can

The attached copy is a label of a Nestle infant formula product, purchased in a pharmacy in Poza Rica, Vera Cruz, Mexico on May 1, 1978 for 44.50 pesos (which equals approximately $2.00 U.S. On that day $1.00 U.S. =22.64 pesos).

On botton of the can the following with slightly imprinted: 70 SP

GB

Purchased by a member of a group of students from a Minneapolis school.
Group led by: Tom R. Odendahl
3244 Stevens Ave. S.
Minneapolis, Minnesota 55408

The can was made in Mexico, and appeared quite new. It makes no mention of the preferrability of mother's milk over this or any formula, despite official policy.

(Note: The material referred to was illegible and consequently retained in the files of the subcommittee.)

THE LABEL GAME

In February 1978 an ICCR researcher investigating the infant formula problem in Guatemala brought back thirty-two cans of various commercial milk products for infants. All were freely available for purchase without prescription. Prices ranged from $1.80 per can to $3.50 for the more specialized products. The average was $1.90-2.20. In Guatemala, the third poorest country in the Western Hemisphere, the minimum wage is $2.50 per day, for those lucky enough to find jobs.

Of the 32 cans, 14 were infant formulas and other milk based preparations designed specifically for infant use; 4 were infant formulas for sick babies; 9 were powdered milk (whole or skim); 4 were specialized dietary products with possible infant use; and 1 was a baby cereal.

A quick analysis of the labels on the formula cans revealed some surprising results. Of the 14 brands of formula, why do only 3 mention anything about the preferability of breast feeding? And even in the cases where it was mentionned, just how strongly and unambiguously was breast feeding really recommended? To answer these questions, we must first recall the specific stipulations on product labeling included in the manufacturers various self-regulatory codes of marketing behavior.

The Code of Ethics of the International Council of Infant Food Industries (ICIFI), offcially adopted on November 11, 1975, states:"Product labeling will affirm breast feeding as the first choice for the nutrition of normal infants". This code covers Nestle, American Home Products (Wyeth Labs), Cow and Gate, four Japanese firms, and a variety of smaller Dutch, Danish, and other European firms. Abbott Labs (Ross Labs) Code of Ethics states, "Our product label carries a statement that breast milk is the preferred feeding for infants." How do the companies explain that several years after these codes were passed, cans of infant formula continue to be marketed without any such mention? Not only is breast feeding not stressed, but some of the labels make claims that are clearly intended to mislead the mother into thinking that infant formula and breast milk are so close to being the same thing that any differecnes don't really matter. Consider these labels:

SIMILAC with Iron (no mention of breast feeding)
(translated from Spanish)

There is no food equivalent that more closely resembles the milk of healthy well-fed mothers

SIMILAC with IRON

Similar to Mother's milk

Wyeth S-26 (no mention of breast feeding)
(translated)

Nourishes the baby like the mother's breast
S-26
A superior food for the infant

The Wyeth label goes on to state," Offer the baby all the formula he wants, just as if you were giving him the breast". Then the label asserts that the formula is the same as mother's milk in protein, mineral content, fats, sugars, etc.

Morinaga (no mention of breast feeding)
(translated)

> ...For the health of your baby and so he grows intelligent and happy...Morinaga Milk for infants, humanized exactly to resemble mother's milk. So you can feed your baby giving it as much as he demands, just as in feeding from the mother's breast.

Even for those three brands that chose to include a staement about breast feeding, the message was far from unequivocal. Consider these labels:

Nestle NAN
(translated)

> Maternal lactation is the most adequate for the baby, but in case of its tot al or partial absence, or for other reasons it's necessary to repalce or complement it, you can use NAN with total confidence, a powdered food quantitatively and qualitatively similar to mother's milk, for use right from the infant's birth.

ENFAMIL (Mead Johnson/Bristol Myers)

> Breast milk is best for your infant and is the preferred feeding whenever possible. ENFAMIL is a sound nutritious substitute or supplement for breast milk to be used when breast feeding is unsuccessful, inappropriate, or stopped early.

Several of the labels for powdered milks also contained recommendations for infant use. Gitana, a Dutch brand, says "Gitana helps you raise healthy, sturdy babies." Three Borden milk products recommend infant use, despite Borden's promise to not promote their milk products for infant use. "Cremora is recommended for babies". "Instant KLIM is recommended for babies". "Rosemary may be modified for infant feeding in the same way as fluid milk". Furhtermore, none of these labels gave adequate information on how to prepare the milk, or how to sterilize feeding bottles.

....

Nobody is suggesting that correct labeling is the solution to the infant formula abuse problem. But the fact that the industry seems incapable of complying with its <u>own</u> self-regulatory codes does raise serious questions about the industry's willingness to act responsibly. Not only are these self-regulatory devices too weak to do much good, but they also are not even enforced on a matter as simple to control as product labeling. The extravagent claims on the labels strain scientific integrity to the breaking point, and are designed to instill doubts in the mothers that breast milk may be insufficient, inadequate, and inappropriate.

Observations on the Effects of Infant Formula Use in Guatemala

A Report Prepared by Sister Dorothy Gartland, S.P., and Reverend Charles Dahm, O.P., on Their Visit to Guatemala, January 30 to February 4, 1978.

On Monday, January 30, we traveled to the town of Antigua, 45 kilometers from Guatemala City (slide 1). We entered the local open-air market that is held Monday, Wednesday, and Saturday. It is approximately three city square blocks and frequented predominantly by Indians who come from outlying areas in vans, trucks and buses. We saw only one other gringo couple in the market. (slides 2,3,4,5)

The stalls in the market sold prepared food, grains and vegetables, clothes and manufactured foods. We found infant formula and powdered milk in most of the small kioscos, or little shops. The predominant brand of powdered milk was Nido (Nestle) as it is in all of Guatemala, and a close second was Lirio Blanco, (White Lily by Somafa, Switzerland). Some also carried Nestle's powdered cereals for infants; i.e., Nestun and Cerelac. Lirio Blanco cost $1.45 per pound and Nido was about the same. The predominant brand of infant formula in this market, as in all of Guatemala, is Nan (Nestle). At this market it sold for $1.80. At one kiosco called San Miguel, (slides 6,7,8,9,10), the owner told us that Nan sold very well, approximately 50 cans a month. She also sells about 50 cans of Nido per month. We went to a similar kioscos that said it sold approximately one can of Nan a day. In this market there were approximately 15 small kioscos (average size 20 ft. x 12 ft.), selling infant formula (cf slide 11). More were selling powdered milk but not formula. The sellers mentioned that they obtained the products from agents that came from Guatemala City. In the town of Antigua, they and others told us that more could be obtained at pharmacies, but due to lack of time we were unable to visit them.

When we asked about other brands, we were told that they could be obtained from pharmacies in town but not in the open air market. Some people we talked to in the market even thought that infant formula was not available in this market. When we asked one Indian woman seller about the use given to Lirio Blanco (a powdered milk), she said it was not for infants of some months but rather for older ones. Milk for younger ones was available in the pharmacies in town.

The area of the market was quite unsanitary with lots of garbage and rotting vegetables strewn around, as is evident in the slides. Many of the people in the market were clothed in native Indian dress and walking barefoot.

We stopped at one stall that sold empty cans and bought some of infant formula and powdered milk. We took a picture of the variety of cans, including Simalac, Lactogen, Enfamil, Pelargon, Nestogeno (cf slides 12,13). The availability of these cans indicates the availability of the formula in this area, undoubtedly at the pharmacies.

Before leaving the market we took a picture of the market with the active volcano in the distance (slide 14) and of the housing next to the market (slides 15, 16).

on Tuesday, January 31, we visited the largest hospital in Guatemala City, Roosevelt General Hospital, which is a public hospital servicing predominantly urban poor (slide 17). We met with Dr. Carlos Beteta, head of the emergency pediatric section. He is also in charge of the residents in this section. We explained our purpose and asked if he had found a problem with the misuse of infant formula and powdered milk. Although he had not had previous contact with people from the U.S. on this issue, he had heard of the controversy with Nestle in Switzerland.

He said there was definitely a problem in Guatemala. In fact, a case had just come into his section ten minutes ago. He invited us to interview the mother and father with him. We found a couple who had brought their eleven-month-old child to the hospital from 280 kilometers (cf slides 18, 19, 20).

The baby showed signs of malnutrition in its face, but its body was not terribly skinny or bloated. The parents allowed us to photograph them with the baby. She explained that she had breast-fed the baby for six months and then became pregnant again. She then began to feed the baby only powdered milk - Nido. She said the doctor told her to switch to powdered milk but did not seem too sure about it. Beteta doubted that a doctor had advised that, though he thought that perhaps by her slight build, she might not have been producing enough breast milk.

The mother had been mixing one tablespoon of powdered milk with five ounces of water and that is all she fed the baby for three months. During this three-month period, she used one 5-lb. can of Nido. Again, in a rather unsure way, she said that her doctor told her to mix these proportions. The parents said that they had lost their first child after eleven months. It had been bottle-fed right from the beginning because it had been born prematurely and, therefore, had been taken away from the mother.

We then talked with Beteta about the problem. He said that infant mortality in Guatemala was between 62% and 70% before the age of four. He said that the case we had just seen was not as severe as most the hospital received. He estimated that his emergency pediatric section received 100 cases per day. Of these, 80 were suffering from malnutrition and approximately half of these, i.e., 40 per day, were a result of the misuse of infant formula or powdered milk. I asked him this question twice to make sure that these figures were what he intended to say.

We asked him about the policy in this hospital. He said that he had been working on promoting breast-feeding for several years. The hospital used to get free samples, but approximately three years previously he was able to get a policy to stop that, both in the pediatrics and maternity sections.

Approximately three years ago, Beteta and some of his residents realized that the posters for bottle-feeding on the hospital walls, which had been supplied by drug companies, were also working against their promotion of breast-feeding and got a policy to take them down. We saw only two posters in the pediatric emergency section, both for breast-feeding (cf slide 21). He had not seen calendars and posters recently, though he did say he thought the companies were advertising infant formula in newspapers, radio and television.

When asked about the training of doctors, Beteta said that he was also teaching in the School of Medicine and that for approximately five years, the School had been trying to promote breast-feeding. At various times in the conversation, the doctor blamed the medical profession, the drug companies and the government for this problem.

Dr. Beteta said that drug company representatives come to the hospital and meet with residents and may give a few residents a free can of powdered milk or formula, but the hospital did not accept free samples, and there was not much free distribution of it to the doctors there. Infant formula is sold in the hospital pharmacy, however, and can be prescribed by the doctors for needy cases.

As we were leaving, he called our attention to another case that had just been admitted (cf slides 22,23). After some discussion with the mother, it was determined that this child was approximately one year and four months old. She was quite gaunt and lethargic. The mother allowed us to photograph the child. She was quite poor and reported that she had stopped breast-feeding after 40 days since the baby was hospitalized for some other problem. She explained that the baby had been given a shot and developed paralysis in the legs. When the baby was released from the hospital, the mother began feeding it powdered milk - Nido. Soon the baby began vomiting and suffering from diarrhea so the mother stopped the formula, thinking that it was causing these symptoms. She substituted water and rice as well as some other mixtures with water. The doctor indicated that this case was closer to the common one they receive, though bloating had not yet begun.

On our way out of the hospital, the doctor pointed out another child, eleven years of age that weighed only 30 lbs. according to the doctor, the weight of a four-year old. We were unable to interview his parents or learn the causes of what the doctor considered a severe case of malnutrition. He believed that the child should have died long ago, but that had somehow survived. He thought there was little the hospital could do for him.

We asked Dr. Beteta about other hospitals in the city where free samples might be distributed. He mentioned Bella Aurora, and Centro Medico and Hospital Herrera Llerandi. He said that free samples were distributed in these hospitals. He himself worked at Bella Aurora and had tried without success to get them out. He referred us to Dr. Carlos Guerra, a resident there, for more information.

On Wednesday morning we visited Bella Aurora and talked with Dr. Guerra. He had spent six months of his internship while in medical school in Quiche, a rural area several hundred kilometers from Guatemale City, where he had seen some misuse of bottle-feeding. In general, however, the people were too poor to buy it. He said that Bella Aurora did not have free samples distributed to the mothers. In fact, he said the hospital did not distribute anything free. A woman working for Gerbers, who had had a baby in Bella Aurora, came every Monday, Wednesday and Friday. She instructed the mothers how to care for their babies, washing, etc. She explained bottle-feeding but did not push it according to Dr. Guerra who had listened to her presentation to mothers. She explained how to do bottle-feeding in case mothers wanted to stop breast-feeding after a few months. She distributed a pamphlet to mothers

on child care and a pamphlet on nutrition published by INCAP. He could not find these at that time (he said he had just come out of the operating room to talk with us), and the woman did not come that Wednesday morning. I left an addressed envelope with stamps for her to send me copies.

Dr. Guerra said that the hospital did not promote bottle-feeding but rather encouraged women to breast-feed. Beteta had not indicated this to us. Guerra said that approximately 80% of the women leaving the hospital were breast-feeding. Later three women from the La Leche League stated they did not believe the percentage could be so high. Dr. Guerra emphasized that the patients in Bella Aurora were of the educated class. Generally they did not want to breast-feed because, first, they did not want distended breasts, and, second, they thought that infant formula would be better for their children.

He said that doctors generally do not know how to educate the expectant mothers about breast-feeding. He thought they were ignorant since most did their internship with the poor who generally breast-feed. Thus doctors did not have to learn about it. The mothers themselves knew how or would learn from someone else. Once a doctor acquired his own practice, he knew little about breast-feeding. In addition, the more educated class with which he was probably working would prefer bottle-feeding.

Guerra suggested that we talk with Dr. Edgar Munos Palacios at the Instituto de Nutricion de America Central (INCAP) who knew contacts in the University. Guerra thought that the real knowledge about this problem was at the University, not the Department of Public Health, since it was conducting research and had students in the rural and poor areas. He thought that some theses had been done on related subjects.

On Tuesday, January 31, 1978, we traveled to the countryside (slides 24,25). The first village we visited was Patzicia, a town that is listed by the Guatemala Guide Book as 70 kilometers from Guatemala City with a population of 7,101 and an area population of 10,585. The population is 85% Indian. The town is along the road to Lake Atitlan. We stopped and asked at a small kiosco or store by the road if they sold powdered milk or infant formula. They said no and then directed us to a store off the road in the village.

We visited with the owner of the store and the local school teacher who was proud that he could speak a bit of English. The store, called Tienda Mejoral (cf slides 26,27), carried Lirio Blanco, Nan, and sometimes Similac, though it was presently out of it. The owner explained that he sold about 25 cans of Nan a month or approximately one a day. He had no signs or posters on infant formula or powdered milk.

As we were finishing talking with the owner, he pointed out that the doctor who serviced the town was just leaving. We talked with Dr. Israel H. Gudiel who did not think that malnutrition from misuse of formula or powdered milk was much of a problem. He noted that the Indians were too poor to buy them. In fact, he was trying to get them to use more milk, particularly young children. He prescribed it in order to make up for some nutritional deficiencies that he saw. He thought the milk was more nutritious than other mixtures the people tended to drink, such as rice and water. He stated that 80% of

the local population did not drink milk and he thought more should. He was surprised to hear the owner say he sold 25 cans per month; he would have estimated less. It should be noted that there were a few other stores in town that also sold infant formula and powdered milk, but we did not have time to visit them all.

The doctor also mentioned that a lot of the young children were fed milk and other products from CARE. He thought the products helped the children during the first year, but once they were stopped, the level of malnutrition began to decline. In general, he opposed the free distribution of these products as paternalistic and developing dependency.

The owner of the store then directed us to a pharmacy just a block away. It was called Christy Farmacia and was even smaller than his own little store. We talked with the owner-pharmacist who was also a midwife in the town. She carried Nan, Nido and Similac, though just then was out of Similac. She said she sold about 75 cans of Nan per month, which we imagined would have surprised the doctor. She had no promotional materials on these products. She explained that almost all of the infant formula was purchased by the ladinos, i.e., the non-Indians. She said that the women alternated the bottle and the breast. Three hours after a bottle, they would the breast, and three hours later they gave the bottle and so on. This was the common practice. We asked if this alternating did not tend to cause a deduction in the amount of breast milk, and she said no, not at all. She indicated that there was another pharmacy in the town, but we were unable to visit it because it was closed. When we were leaving, we witnessed a funeral passing up our street (cf slide 28).

After our visit to Patzicia we continued to the lake and passed through the town of Panajachel. This village on the edge of the lake is 166 kilometers from Guatemala City with a population of 2,235 ...d 3,531 in the area. Approximately 71% of the people are Indians according to the Guatemalan Guide Book.

We stopped at the local grocery store which was larger than previous stores, obviously giving some service to the white population in the area who were working in the tourist industry. The store carried a lot of many kinds of infant formula and powdered milk. These included Pelargon, Lactogen, Nestogen, Nan (Nestle), Similac (Abbott), S26 and SMA (Wyeth). It also stocked various kinds of powdered milk such as Lirio Blanco, Nido, and Carnation, all in one pound and five-pound cans. The store also had packages of Nestle's various kinds of dried cereal for children, infants and adults.

The owner of the store explained that she sold about 30 cans of infant formula a week. Much of this was sold to the people of the village. By that she meant the poorer and more Indian population up the road rather than the whites connected with tourism. She said the doctor in the town, who attended the public health center as well as his own private practice practically across the street, asked her to stock infant formula as he frequently prescribed it to his patients. The owner explained that the most popular with the doctor were S26 and SMA and after that, Nestogerf and Lactogen, and then Nan for infants after six months or more. She mentioned that her price was low since her husband considered the item a necessity item and, therefore,

kept the profit margin low. The cans cost from $2.28 to $1.90. She said the more expensive price than in the city was due to the charge for transport. She said they added approximately $0.20 for this whereas we calculated they were adding almost $0.40. Nestle's cereals cost $1.60 for 200 grams.

After leaving the grocery store, we stopped at the public health center where we just missed the doctor. We talked to the nurse who explained that the center distributed CARE milk to those who needed it. She did not think that malnutrition from infant formula or powdered milk was a problem. The doctor assigned infant formula to mothers who needed it; for example, those who could not breast-feed. We felt that we were not going to get much more information from the nurse, and we were running late so we left.

On Wednesday afternoon we visited Beth Styer who is a leader in the local La Leche League. She is a North American working in Guatemala with Church World Services. She was joined by Ruby Stout, another North American married to a Guatemalan. She did public health education in a clinic. Finally, Dina Nahusius was present. She is a Guatemalan and the new organizer for the Spanish-speaking La Leche. She spoke perfect English. All three women could easily be classified among the very well-educated in Guatemala. They told us that La Leche was working principally with the upper and upper middle class.

Styer had visited ICCR before coming to Guatemala and had taken the questionnaire for investigating about infant formula use but had never got around to using it. The other two women had heard about the problem and campaigns but had not read anything. We explained the campaign and what we were finding in Guatemala. They thought that free samples were indeed being distributed in private hospitals. They promised to get their La Leche mothers, some of whom were always in the hospital, to gather some samples and literature for us. Nahusius also said she would try to get a complete set of materials from Nestle since a friend of hers was the wife of a high official in Nestle in Guatemala. None of them believed that 80% of the mothers left Bella Aurora Hospital breast-feeding. That figure was much too high, they said. They said it was the custom of private hospitals not to give the baby to the mother until 24 hours after delivery. While they dealt principally with upper middle and upper class women, they emphasized that these women have very strange ideas about breast-feeding and need education. Most doctors are not capable of giving it, they said. They were unfamiliar with what was going on in the general hospitals but told us to make sure to see people at INCAP and gave us the names of Srta. Berta Garcia who was working on a study on this subject, as well as Dr. Benjamin Torun, who was the head of the project,and Dr. Juan Urrutia, the head of Pediatrics at INCAP. The three women said the drug companies were advertising infant formula on TV and in newspapers and magazines. They did not listen to radios. Styer called in her maid to ask about the radio. The maid did not recall having heard ads for infant formula but for powdered milk. Styer gave us a week's set of newspapers which we later reviewed and found no ads.

Thursday morning we visited INCAP and met with Berta Garcia and Dr. Juan Urrutia. They were most interested and helpful. Both knew about the Nestle controversy in Switzerland, but they were unaware of efforts in the U.S. or the Nestle boycott. Garcia explained the study conducted by them in Guatemala

as part of the WHO study conducted in Chile, Philippines, Sweden, Zaire, and a few other countries. The study investigates the incidence of use of non-breast milk foods. The Guatemalan part is done in rough draft, but she did not think the others would all be done for another year or two. She thought they might publish the Guatemalan part separately, though it would be included in the book when the others were finished.

In Guatemala they studied a sample of 600 mothers, 200 from urban elites, 200 from the urban poor and 200 from rural poor. She said they found little use of the bottle among the rural poor though it was generally available. The study showed that more than half of the rural poor did not know of an alternative to breast milk. Moreover, Garcia said, those who know cannot afford infant formula. The contacts for this WHO study are Doctor Angele Petroz Barbazian (an Iranian) who is head of Maternity and Child Care at WHO and Dr. Manuel Carbaldo, project officer of the studies. In another study, Garcia also asked 135 lactating mothers in rural areas if they supplemented breast-feeding with something else, and most replied, "Why?" Most thought that even if they had little milk, what they had would be enough.

Garcia thought the real problem was among the urban poor. Both she and Urrutia knew that the policy of Roosevelt General Hospital was no free samples and the promotion of breast-feeding. They also noted that it had the mother come out of the delivery room with the baby at her side so that breast-feeding would begin immediately. They also said the other general hospital, Hospital San Juan de Dios, had these same policies. She said that in private hospitals the baby is kept from the mother for 24 hours with the belief that the mother's milk won't come until then. They don't realize, she said, that it is the sucking of the child that brings the mother's milk. Both Roosevelt and San Juan de Dios hospitals had had milk banks supplied by the drug companies where mothers could buy infant formula at discount prices. They said the Social Security Hospital, however, was still giving free samples and not putting the baby with the mother immediately. While the staff at that hospital, called Instituto Guatemalteco de Seguridad Social (IGSS) wanted to stop free samples, they had the political problem of doing it without causing a protest among the patients who expected free samples and would accuse the government of cheating them if they were stopped. (Later we found out that IGSS did not give free samples). The two general hospitals were generally for the urban poor while IGSS was for the working poor and lower middle class.

Garcia said INCAP's Guatemalan study showed that the average rural poor mother weaned after nine months, the average urban elite mother after two months, and the average urban poor mother after one month. These urban poor are those in the cities between five to seven years. The study controlled for age, occupation and education of mother and father, nuclear or extended family, professional, skilled, domestic, agricultural, housewife, number of children (living and dead), number of visits to doctor, if any. They found that 34% of rural poor never go to a doctor.

Garcia mentioned that rural people will tend to imitate the urban people and particularly the rich. She noted that there was a new resurgence of breast-feeding as is evidenced in the La Leche League and women such as Dina Nahusius, whom she knew. She admitted that most of these were North American and that

it was not so widespread among Guatemalan women. She also thought that more and more pediatricians were interested in the problem. She knows one who will not accept a patient who is bottle-feeding simply out of choice and not necessity.

Garcia also mentioned a new study INCAP is doing in conjunction with WHO to test the production of mothers' milk. One of the most frequent reasons for using bottle-feeding is that the mother or doctor thinks that the mother does not have enough milk. Mothers frequently think this because of a general insecurity or because the baby cries, or because the baby is thin, which is actually quite natural. They are testing a sampling of babies with their mothers over a 24-hour period. On a very delicate scale they weigh the baby before and after feeding at the breast to calculate the amount of milk the baby drank. The baby is dressed with a tight absorbent diaper during the feeding so if he urinates or defecates, no weight is lost. After the 24-hour period of testing, the mother's milk is tested. Babies of different ages and social situations are involved, namely, rural babies of 1,3,6,9,15 and 18 months; urban poor babies of 1,3,6 and 9 months, and urban elite babies of 1,2 and 3 months.

The study has shown that the average intake of the babies in a 24-hour period is between 500 and 600 grams. The age of the child does not seem to affect the amount of milk taken. Those who have given bottles as a supplement definitely produce less milk. Generally, women in the study are surprised to hear how much milk they give.

Garcia and Urrutia noted that one of the major problems is with the obstetricians who don't consider this matter their problem. They consider their responsibility ends at birth. They believe if they could convince them of their responsibility, then there would be time (i.e. 9 months) to educate the mothers. The problem occurs between the obstetrician and pediatrician. They did say, however, that they found some progress in the education of doctors on this subject.

In regard to the promotion by drug companies, Garcia and Urrutia thought they were not promoting it as publicly as they had. Previously Urrutia had seen the calendars, almanacs, posters, etc. They thought that because of the problems in Switzerland, Nestle's international office became very angry with local Guatemalan salespeople and cracked down on them and their public advertising. Ghey said that they had not seen advertisements for some time, but then considered that maybe just they had not received it because of their position and work on the issue. They did say that the companies were still visiting the doctors. Their promotional strategy now focused on financial support to the Pediatrics Association, funding social events for the doctors and largely underwriting the annual congress of the pediatrics association. "Actually the salespeople and the doctors become quite good friends," he said, "so you see it is hard to say no to the favors the drug people ask." He felt that Nestle's biggest profits were in chocolate, however. Urrutia believed that Nestle and Mead Johnson were the most powerful in Guatemala because they were the first in the country.

#9

Urrutia also felt that Nestle's had switched its strategy to intensify its promotion of cereals and soups (called sopitas, the diminutive to indicate it is for children) rather than milk, but he thought the same bad effect would result. He said these companies are very intelligent. Now they were finding the problem of babies switching too early from milk to cereal. So he thought there really was little change in this regard by the companies.

Urrutia also felt that it is easier for the pediatrician to prescribe the bottle rather than be bothered with mothers breast-feeding and then said that it would also be more financially beneficial to prescribe bottle-feeding since that would mean more doctor's visits and consequently more fees for the doctor.

Urrutia explained that many mothers think after six months of nursing that the baby is not eating well and so they take up the bottle or some other mixture. He thought the figures cited by Beteta (i.e., that 40 of 100 cases submitted to the general hospital a day would be from the misuse of formula) to be accurate and not surprising to him.

When asked about the promotion of Encaparina, Urrutia mentioned that it was too expensive to be popular. We mentioned that it was cheaper than formula and powdered milk.. He said that was true but its price was too high relative to other comparable but inferior products. Its price was rising because its base, cotton seed, was being used for other things now, which was driving up the price. He said that it has the same content as cow's milk but more nutritious than powdered milk and cheaper. Nevertheless, there was the same sterilization problem with Encaparina.

The INCAP study also showed that the price of infant formula is more expensive in urban poor areas than in urban elite areas.

Urrutia mentioned that while INCAP was only in the research stage at this point, action plans were to follow the studies.

On Thursday morning, February 2, we stopped at a pharmacy, Farmacia Lourdes (8th Avenida 5-82, Zona 1) to see what they were selling. This store is located one block from the main plaza (Plaza de Armas). When we arrived at 8:30 a.m., small merchants were setting up their stalls and just spreading their wares on the curb. In this particular block, vegetables and some meat were on sale (cf slides 32,33,34,35). The pharmacy carried a wide variety of powdered milk and infant formula. The pharmacist reported that he sold about 200 cans of Similac a month; it was his biggest seller in the infant formula line. Nan was also a fairly big seller with SMA and S26 in third and fourth places, perhaps only 50 per month of each. He calculated that he sold about 400 cans of infant formula per month. We also purchased a can of Bristol Myers Protevita for $3.98. The pharmacist explained this was used by the elderly as well as infants. He sold about 50 cans a month. He also carried Merinaga (Japanese) infant formula. He had no promotional material on any of these products.

After leaving the pharmacy we walked around the corner and entered another pharmacy which was larger and sold many grocery products. There we found huge displays of cans of Nan, Nido and Lirio Blanco piled in pyramids (cf slides 36,37,38,39).

#10

Later Thursday morning, February 2, we stopped at a small urban kiosco or store near the center of the city. It is called La Tienda La Estrella located at 24 Calle 2-38 Z1 (cf slide 40). It is located only 50 yards up the street from very poor housing (cf slide 41). We found SMA and S 26 on sale for $2.30 each. The owner explained that he sold approximately three or four cans of infant formula a week. It should be noted that this was one of many small tiendas in the area. The interior of this one was about the size of half a city bus.

On Thursday afternoon we visited the second largest market in Guatemala City, called Mercado, located at the corner of 6th Avenida and Calle 18 in Zona 1 (cf slides 42,43,44). It covered two large city blocks. The market was filled with poor people, though people of all classes might come here to buy vegetables and meat. Here we found many stalls selling Nan, Nido and Lirio. We also bought a can of Conlac and Ceteco Super.

We then went to the largest market in Guatemala City, called El Terminal. This place was approximately 6 to 8 square city blocks. It served as the major bus terminal for people coming from outlying regions (cf slides 45, 46,47). There was an open market on the curbs, some under stalls (corrugated iron roofs) and a lot in a huge two-story warehouse type building (cf slides 48,49). We visited several stalls inside and found mostly Nan, Lirio Blanco and Nido (cf slides 50,51). We visited the empty-can market and found many others, such as SMA, S 26 and various kinds of Nestle.

That same afternoon we visited one of the very poor outlying areas of the city called Betania, located in Zona 7 of Guatemala City. This section was like the typical belt of poor shacks that surrounds most Latin American cities. The houses were made of wood, cardboard and some corrugated iron. They normally consisted of one room and were crowded together. Dirt floors were common fare. Water was fetched from a common faucet in the area (cf slides 52,53,54,55,56,57,58). We stopped at one pharmacy in the area called Sal Andrews (cf slide 59). It was a clean pharmacy about the size of a third of a city bus. The pharmacy carried a wide variety of infant formulas and powdered milks, including Similac, Nan, Nido, SMA, S 26, Morinaga. (The pharmacist gave us a brochure for Morinaga). The pharmacist said he sold about two or three cans of Nido per day and about one can of Nan per day. The other brands of infant formula did not sell as well. Most buyers had a prescription for the infant formula. One or two other pharmacies existed in this area and people told us that infant formula and powdered milk were available at several small stores. We did not have time to look further, however.

On February 4 we visited the Instituto Guatemalteco de Seguridad Social (slide 60). We interviewed the supervisor of the maternity section. She explained that the hospital did not give or allow free samples to be given to mothers. They used formula only for special cases that needed it and for preemies. For this purpose the hospital used Similac. The supervisor did not know why Similac and not others was used. That decision was made in the front office. She calculated the hospital released 50 mothers a day, and she said almost everyone left nursing her baby. The hospital also stocked a Dutch brand of infant formula called Bebulac. The supervisor was kind enough to look for a doctor to give us a prescription so we could take

a sample since nothing was sold or given in the pharmacy without a prescription. She and the doctor were both interested in the issue and had not heard of the campaign. Their policy of emphasizing breast-feeding indicated they thought it a good one.

The supervisor explained that the mothers were in the hospital for only a short time, 24 hours. The staff had little time for education, but it did give some orientation on breast and bottle-feeding. The mothers were then assigned to an outlying clinic, called perifericos. She said that there, too, they emphasize breast-feeding.

There was only one small poster visible in the various rooms of the maternity section that we saw. It was in the section for premature babies and was of a mother with baby and bottle, about ten inches in diameter, but without the name of any company. In the future, it would be good to visit one of the outlying clinics.

Finally, we passed by the headquarters of Nestle, Abbott and Bristol Myers (cf slides 61,62,63,64,65,66). Wyeth did not have a listing in the phone book. We asked for information about products and sales at Nestle and for whatever information in pamphlets they could give us. We were put off to the next day in order to visit with the head of Nestle for Guatemala. We did not have time to return.

Guatemala is the largest Central American country with a population of six million. More than half of the people are Indian. Per capita income is $650 a year. In 1970, 5% of the population received $2,189 average per capita, while 50% received $81 average per capita. The prevailing daily wage for agricultural work is a little more than $1.00 per day. 63% of those over seven years of age are illiterate. The economic growth rate between 1971-75 was 5.5% and in 1976 was 8%. U.S. investment at the end of 1974 was $200. (These figures are from AFSC's International Affairs Reports, June, 1977, based on World Bank reports and NACLA's Guatemala, 1974).

In considering relative prices in Guatemala, it should be noted that workers at the Coca Cola bottling company in Guatemala City have a starting wage of $3.00 a day. (The minimum wage in Guatemala is $2.50). The average wage of workers at Coca Cola (approximately 350 workers) is about $3.50 a day. The price of the bus has been held down by the government to 5¢. The price of a telephone call is 5¢ for three minutes.

We also visited with Phil and Angie Berryman, workers for American Friends Service Committee in Guatemala. They had helped Dr. Warner and Eric deWasseige on their trips to gather information. The Berrymans felt that people working for social change whom they had contact with were not that interested in the infant formula campaign. They could understand why it should be attractive in the U.S. They felt their contacts were much more concerned about larger economic and political issues such as human rights violations, workers' rights, coffee and beef exports. In addition, many of these people bottle feed their own children, and, therefore, feel a bit guilty about raising the issue for others. They also emphasized the need to maintain contact with the people in Guatemala once we had gathered information, since some of their friends resented being used as a source or a laboratory and then not getting any feedback about the effects of the campaign.

Addresses of Contacts in Guatemala

Dr. Carlos Beteta: Private Office: 15 Avendia 2 Cuion 32, Zona 13, phone: 65801
General Hospital: Hospital Roosevelt, Carretera Roosevelt

Comment: Head of emergency pediatrics at largest general hospital. An excellent contact, very sympathetic, aware of problem and fighting it for several years. Keep in touch.

Berta Garcia and Dr. Juan Urrutia
INCAP, Calz Roosevelt, Zona 11, telephone: 4-0378
Worked on study for WHO; very sympathetic, keep in touch.

Dr. Benjamin Torun: INCAP, Carretera Roosevelt
Also involved in WHO project but did not have time to see.
Also Dr. Edgar Munoz Palacios is a contact here:
phone: 4-5655

Beth Styer: 19 Calle 557 Zona 10
A leader of La Leche League, North American, said she would get materials, ads, etc. Keep in touch. Phone: 680538

Ruby Stout: 1 Avenida 5-32 Zona 9. Telephone 62372
Works in health education center. Knows La Leche people and works with them.

Dina Nahusius: 11 Avenida 1193 Zona 14 (Lox 149); telephone 68-20-820
Head of Spanish-speaking La Leche League. Knows wife of top Nestle official. Said she would try to get materials. Keep in touch.

McCann Erikson Company is the advertising agency for Nestle in Guatemala.
7 Avenida 1163 Zona 9.

Dr. Figuora: Instituto Guatemalteco de Seguidad Social (IGSS)
A La Leche contact in the Social Security Hospital, but we had no time to visit.

Mrs. Dale Humphrey: Head of La Leche League but unable to see her. Lives in Antigua. Husband's phone at work in Guatemala City: 63194.
In Antigua, #5 on 4 Calle Norte.

Hospital Bella Aurora: 10 Calle 2031 Zona 14. Dr. Roberto Guerra a contact there. Phone: 68-19-51.

Hospital General San Juan de Dios, Parque de Industria, 8 Calle in Zona 9.
Second largest general hospital in Guatemala City; no time to contact.

Centro Medico - large private hospital where formula is supposedly given as free samples. 6 Avenida 3-47 Zona 10. Telephone 65061.
No time to contact.

Hospital Herrera Llerandi: Large private hospital. 6 Avenida 8-71 Zona 10. No time to contact.

CARE: Avenida 6-47, Zona 9, telephone 6-31-94. No time to contact.

Abbott: Carretera Roosevelt, Zona 7.

Nestle: Via 4, 6-65, Zona 4, telephone 66051; director is Sr. de Lima.

Bristol Myers: 6 Avenida 6-40 Zona 4, phone: 66725.

Dr. Israel H. Gudiel, doctor in Patzicia, Calle del Empedrado, Patzicia.

Phil and Angie Berryman: 3 Calle 3-06 Zona 2 tel. 29-3-80

Products obtained in Guatemala (all are one-pound cans)

Nestle

Nan - major line of infant formula, for $1.80 to $2.20
Pelargon - formula for first year
Lactogen - formula
Nestogeno - formula for the second semester, $2.28
Nestobon - formula for babies, especially those with diarrhea, $2.61
Gluco-B - for breast-fed, older children and adults, a special energy drink
Cerelac - wheat cereal for family
Nestun - rice-based cereal, 200-gram box, $1.60
Nestun - mixed cereal, 200-grams for $1.60
Nestun - three-cereal mix, 200 grams for $1.60
Nido - powdered milk for about $1.50

Mead-Johnson

Enfamil - formula
Alacta - half skim milk for $2.50
Olac - formula for bottle-fed and older infants for $2.59
Sustagen - nutrition powdered mix in various flavors - chocolate, strawberry, etc., $3.91
Sobee - formula for babies allergic to cow's milk, $2.09
Protenum - high protein, low fat powdered drink, $3.11
Dextro Malto - formula for $2.20
Protevit - energy drink for children and adults, $3.98

Abbott-Ross

Similac - regular formula
Similac - formula with iron
Isomil - formula

Wyeth

S 26 - formula, $2.60
SMA - formula, $2.20

Borden

Rosemary - powdered milk made in Denmark, $1.45
Kilm - powdered milk with French label, $1.60
Cremora - two different cans for powdered cream

Carnation

Carnation powdered milk was sold only in boxes

Other Brands

Gitana - powdered milk with baby and bottle on front from Coop Milk Producta, Holland
Conlac - special infant milk produced in Mexico by Leche Industrializada and developed by the National Institute for Nutrition
Morinaga - infant formula made in Tokyo for $1.98

Ceteco - powdered milk from Curacao Trading Co., Holland

Lirio Blanco - powdered milk by Somafa, Zurich, Switzerland

Bebelac Humanized No. 1 - Dutch milk product for new babies by Lijempf, Holland
13 Cereales - box of cereal nutrition mix for mothers; made in Guatemala, 95¢

INDIA/Kashmir/1978

NOTES ON THE AVAILABILITY OF TINNED FORMULA IN THE INDIAN SUBCONTIENT

Mary Roodkowsky,
BOSTON INDUSTRIAL MISSION

In the late summer of 1977, I spent six weeks in Northern India and in Nepal, on a medical expedition. Our group was approximately half United States doctors and medical students from a number of universities, and one-half Indian doctors and medical students from the All - India Institute of Medical Sciences and the Srinagar Medical Hospital School, of Kashmir. We conducted health surveys in Ladakh (eastern Kashmir) with the sanction of and assistance from the Ministry of Health of the Indian government.

In this remote region of the world, one of the major problems was an excessively high infant mortality rate, over 200 deaths/1000 in at least two of the villages we visited. Many of these deaths are directly attributable to the very poor sanitation system, notably a water supply network in which the same stream provides water to a village and simultaneously conducts human and cattle waste away from the village. It was not uncommon for us to fill our water bottles from the only village stream and to see someone defecating into that stream 100 feet uphill.

Ladakh is remote in many respects, including its economy. Some aspects of modern enterprise have entered; one of the most noticeable "high technology" products available is tinned baby formula. Nestled among burlap bags of tsompa (barley powder), rice, dahl (lentils) and tea, staples of the Ladakhi diet, are the bright purple cans of Lactogen and baby blue tins of Lactodex.

Infants in areas such as Ladakh desperately need whatever immunities their mothers' milk can provide. The local water must be boiled for twenty minutes if pathogenic bacteria and parasites are to be killed. Yet concepts of sanitation and germ theory are relatively unknown in this area; cooking is often done with firewood, a scarce and precious commodity not to be wasted in this barren, mountainous area. The preparation necessary for safe use of infant formula can be a real hardship for local people.

The cost of infant formula, used properly, is also prohibitive. In Patna, Bihar, India a 500 gram can of Lactodex costs Rs 15, or about $1.73. A rickshaw driver usually earns somewhere between Rs 15-20/ day; a banghi (sweeper), perhaps Rs 10-15/ day. In Kathmandu, Nepal, one can of Lactogen cost Np. Rs. 19.50 or about $1.55. The waiters in one restaurent near our hotel, mainly young men, earned Np. Rs. 50/month. (By comparison, powdered milk was available at Rs 4 for 200 g, equivalent to Rs 10 for 500 grams.)

The recommended dosage of Lactodex for a young infant is 18 grams/feeding, and 6 feedings/day. A can, therefore will last almost 5 days. One and a half day's wages are therefore necessary to supply one week's food for baby.

The popular opinion in the bazaars favors the use of formula. Vendors say that it is bought by rich and poor alike. They often commented that doctors think it is good, and babies like it. In Patna one shopkeeper asserted that, "It is light. It eases the pressure on the stomach"; he assurred us that he has "maximum sales". In Katmandu, women told us that "children who drink powder are healthy."

Powdered milk is not the only modern food being introduced into children's diets. More and more frequently babies are being weaned on a manufactured biscuits, rather than the traditional tsompa and brown rice. But in a region where clean water is difficult to provide and immunities provided by breast milk are an invaluable boost to health, it is hard to make a case for the increased use of such modern foods, expecially tinned formula.

Paper delivered at the American Anthropological Association meeting in Washington, DC November 19, 1976

COMMERCIAL INFANT FOODS AND MALNUTRITION IN ST. VINCENT

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Although modernization brings promises of better things to come for many people in a developing country, inevitably it also brings unsettling changes which can prove harmful or even fatal to the more vulnerable members of that society. A compelling example of this is the widespread shift from breast feeding to bottle feeding occurring in many modernizing areas. The relatively expensive commercial milk powders are commonly over-diluted by mothers in an attempt to make them last longer, and because of the lack of adequate hygienic facilities and water supplies, the milk is usually delivered to the baby in a contaminated state. The result is a loss of weight and increased levels of infection, especially diarrhea. These interact synergistically to cause severe malnutrition, especially marasmus among thousands of Third World infants who could otherwise be safely breastfed.

Undoubtedly, this shifting infant feeding pattern is due to many interrelated aspects of the modernization process. This includes cultural or environmental factors such as the destruction of the extended family and changes in the status of women. But because of the unique susceptibility of the process of breast feeding to psychological factors, there may be ideational causational factors involved also. One of these, which, in contrast to many causes for the shift from breast to bottle, would seem unnecessary and probably preventable, involves the activities of companies engaged in the marketing for profit of products for infant feeding.

I concentrated on this aspect of the problem in an infant feeding study carried out during the summer of 1975 in St. Vincent, West Indies, a small English-speaking country of about

100,000 people, with a per capita GNP of just over US $200 in the early 1970's. I interviewed health professionals, persons involved in the advertising, import and sales of infant foods, and the mothers or guardians of 192 one-to two-year-old infants, nearly the entire population of that age in two Vincentian towns.

Tables 1 and 2 show the nutritional status of my sample, based on weight for age, compared with earlier studies on the island. The levels of malnutrition are fairly high and the mean weight for age is about 85 to 86 % of the Harvard Standard.

The infant feeding pattern in St.Vincent almost always includes breast feeding, often continuing for relatively long periods, as illustrated in Table 3. Table 4 records the reasons mothers gave for weaning, that is, the complete cessation of breast feeding, ranked according to the mean age of weaning. One cultural factor sometimes cited as an important cause of weaning, the mother working, was listed by only 7 mothers, for babies weaned at a mean of 5.1 months. On the other hand, the two largest categories, "mother just felt like it" and "baby weaned itself" probably involve ideational factors. Of particular relevance for the latter category, by far the largest, is the fact that milk, usually a commercial milk powder, was introduced while still breast feeding, at a median age of 2 weeks (and a mean of 4 weeks). Many infants may in fact have shown a preference for the milk from the bottle, since it required less effort to obtain and was invariably sweeter than breast milk.

Why was milk introduced at such an early age? I do not know the historical supplemental infant feeding practices in St.Vincent. However, bottle feeding was well-established there by the 1940's,

Table 1. Per Cent of St. Vincent Infants, Age 1-2, Found to Be Malnourished

Degree of Malnutrition	Per Cent in: CFNI (1967) (N= 538)	Greiner (1975) (N= 202)
Moderate (61-80% of standard weight for age)*	31.4	35.0
Severe (≤ 60% of standard weight for age)*	2.0	3.0

*Harvard Standards, boys and girls combined

Table 2. Mean Weights and Per Cent of Standard Weight for Age of St. Vincent Infants, Age 1-2

Age	No. of Measurements: Antrobus (1967-1969)	No. of Measurements: Greiner (1975)	Mean Weight (kg): A	Mean Weight (kg): G	Per Cent of Standard Weight for Age*: A	Per Cent of Standard Weight for Age*: G
12 Months	174	42	8.95	8.6	90	87
18 Months	140	52	10.27	9.4	91	83
24 Months	104	14	11.23	10.8	91	87

*Harvard Standard, combined boys and girls.

Table 3. Age of Weaning (Cessation of Breast Feeding) in St. Vincent

Age (Months)	Per Cent Weaned in: Antrobus* (N= 252)	Greiner** (N= 193)
0	2.0	6.7
1-3	9.9	18.7
4-6	19.0	19.7
7-9	23.0	22.3
10-12	17.1	17.1
13-15	19.1	5.2
16-18	6.3	6.2
> 18	3.6	4.1
	100	100

Age (Months)	Beaudry (1968)*** (N= 163)	Greiner** (N= 193)
0-4	15.3	30.6
5-8	18.4	26.9
9-12	50.3	26.9
13-18	9.2	11.4
> 18	6.7	4.1
	100	100

*Estimated from text and Figure 8 of Antrobus (1971)

**24 (12.4%) of these mothers were still breast feeding at the time of the interview

***Calculated from data in Table XXI of Beaudry (1969)

REASONS FOR WEANING, RANKED ACCORDING TO MEAN AGE OF WEANING

Reason	Mean weaning age (months)	N	% of infants
To get baby to eat other foods	14.0	3	2
Right age for weaning	10.9	12	7
Breast feeding unpleasant; baby sucks too hard	9.1	5	3
Milk is of bad quality; bad for baby after certain age	8.0	8	5
Mother cannot afford to feed herself well enough	7.7	6	4
No reason; mother just felt like it	7.4	14	9
Mother pregnant	7.4	13	8
Miscellaneous (nipple problems, advice from mother, etc)	5.8	7	4
Baby weaned itself	5.7	58	37
Mother had to work	5.1	7	4
Mother and baby separated (abandonment, death, etc.)	5.0	11	7
Advice of health professional	3.8	10	6
Baby was sick	3.5	5	3
Mother was sick	3.2	5	3
TOTAL (MEAN)	(6.6)	164	102*

*Answers from 8 mothers were placed in two categories (thus N=156 babies was used as the denominator in calculating percentages). An additional 25 mothers were still breast feeding at the time of the interview.

and thus is now common practice. Mothers were confused when asked why they introduced milk at that age. That was just the way one feeds a baby. When asked what was the best feed for a young baby, 24 % of the mothers said breast milk, 37% named an unbranded food or milk, and 39% gave a brand-name infant food. However, when asked whether a baby would be healthy if exclusively breast fed for four months, 69% of the mothers said yes, 25% said no and 9% volunteered that it depended on how well the mother was fed. 7% said they thought infant formula acted like a medicine for a baby, 42% said it acted like a "tonic" and 46% said it was just a food.

Commercial infant foods made up a large percentage of the infants' first milk, though as time went on most mothers constantly shifted the baby from one product to another. Among several reasons given for doing this were "I switch when the baby wearies of it," that is, refused the bottle or lost its appetite, and "when it no longer agrees with the baby," that is, when the baby begins to vomit or have diarrhea.

What influences mothers to choose commercial infant foods? Simple availability may be important, especially given their labels showing healthy bouncing babies, nurses, and touting their added vitamins. In the food stores in Kingstown, the only city, there were 7 brands of infant formulas, 11 brands of infant cereal, and 3 brands of strained baby food. Several other types of processed milk were included in my definition of infant food, because they were marketed largely for infant feeding. Three of the four brands of sweetened condensed milk and 5 of 8 brands of evaporated milk had infant feeding schedules on their labels, and they had been fed to about half the infants in my sample.

Another influence is health professionals. Although most of them in St. Vincent were aware and concerned about the problems caused by commercial infant foods, the effects of previous practices were evident. In one town almost all mothers who used the most popular brand of infant formula said they used it because a previous nurse had recommended it. Some mothers said they chose a particular brand because it was the one used in the hospital or malnutrition ward.

Glucose was widely used and recommended by health professionals for prelacteal feeds and for diarrhea. But mothers had come to think of it as an excellent food for all [illegible] babies, especially thin weak ones. In one town 78% of the infants received weak glucose solutions by bottle after birth, at least till the first box was used up. But it was fed to 34% for 3 months or more. In the stores the four brands of glucose were shelved with the infant foods and their labels claimed they were valuable as a nourishing food for use in malnutrition, cyclical vomiting, and diarrhea in children, etc. They cost 4 times as much as brown sugar.

The powerful effect of the district nurse in particular, could be seen in one town where the nurse said she recommended cod liver oil to all the mothers (although the local pediatrician felt it was unnecessary in St. Vincent). Eighty per cent of the mothers said they gave it, though few could afford to give it for long. Nearly all said they were giving it because of the nurse's advice.

It was difficult to assess the extent to which promotional efforts of infant food companies were influential. Newspaper advertising had begun by 1935, the earliest newspaper that could be located, and continued up to the summer of 1975 in local and regional papers. Cinema advertising was extensive at least in the 1960's and early 1970's in that part of the Caribbean. But most forms of mass media advertising had subsided because of price controls, import restrictions, and, according to advertising agencies, the growing

realization among companies that advertising dollars were more effective when spent promoting to the health professions or actually hiring nurses to sell the products (though there were no so-called milk nurses in St. Vincent). Furthermore, sales response data is needed to measure even the immediate effects of advertising. And it is probably impossible to measure the effectiveness of promotion to shopkeepers who in turn influence mothers.

However, even in a small and insignificant market like St. Vincent, much money has been spent on infant food advertising. One company even sent two agents there to do marketing research to prove to local merchants the profit potential of carrying strained baby food. And there appear to be some visible effects of this advertising. The most heavily advertised formula is the most widely used (64% of the babies had received it), though one of the more expensive. So-called "tonic foods" are even more heavily advertised, recently at least, and the most heavily promoted had been fed to 86% of the infants, and only 1% of the mothers were not familiar with it. Sixty-one per cent of the mothers had heard or seen infant food ads, 15% recalling two or more advertised brand names. Sixty-nine per cent of the mothers who heard ads said that the ads made them want to try the products.

Probably one of the most effective forms of promotion was the free literature given or shown to each mother by the nurses. Produced by infant formula companies, these booklets give a short, lukewarm mention of breast feeding and then go on to extoll the advantages of the companies' products. They may have helped create or support certain myths about a mother's diet and the quality of her milk that were prevalent in St. Vincent. Although there is scientific disagreement as to the extent to which a poor diet can reduce the quantity of a mother's milk, its quality does not seem to be significantly lowered except in severe maternal malnutrition (Nutrition Foundation, 1975; Thomson and Black, 1975). Though only one mother complained of insufficient milk, there seemed to be a preoccupation with its supposed poor quality,

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given as the reason for weaning in 5% of the cases.

As mentioned above, when I asked mothers if a baby could be healthy if it were exclusively breast fed for four months, 9% said that it would depend on the quality of the mother's milk. Although 69% of the mothers felt the baby would be healthy, only 4% had not introduced milk to their own babies by that age. I asked many of them why, and the usual response was that they could not afford to "feed up" well enough. The "baby books" usually grossly exaggerate the nutritional needs of pregnant and especially lactating women. According to one given out in St. Vincent, a breast feeding mother must consume 3500 calories a day (the US RDA is 2500), "and a large portion of this amount must come from foods which are rich in protein: meat, fish, poultry, eggs, dairy products (milk, butter, cheese, yogurt, etc.)" Often the need to "drink milk to make milk" is stressed.

I calculate that only 14% of the households in the town where I got fairly representative economic data had a per capita expenditure greater than the cost of exclusively bottle feeding a six-month-old infant, and only 26% had a per capita expenditure greater than the cost for a three-month-old infant. There obviously must be pressure on mothers to dilute the formula. Some told me that when the money was low they would substitute sugar water or "bush tea", infusions of local herbs, for some milk feeds each day.

But even if mothers were unable to afford adequate quantities of commercial infant foods, they clearly were convinced that it was worth sacrificing a large percentage of their food expenditures to buy at least some. A storekeeper in one town told me he made about half of his profit from infant foods. I estimated that nearly 50% of his shelf space was devoted to them. In 25 stores surveyed in Kingstown, including all the large ones, infant foods occupied an average of 29% of the shelf space devoted to non-alcoholic foods and drinks.

It is difficult to estimate the overall impact of commercial infant foods on the economy of St. Vincent. Certainly a significant quantity of foreign exchange must be used to import them. About $570,000 worth of milk was imported in 1972, making it the third highest import item. In a country which imports the vast majority of its food, this was behind only flour and cars. If the weaning and supplementation pattern in my sample was representative, over $300,000 worth of powdered milk would be needed annually to adequately replace the breast milk lost by not following an optimal two year breast feeding and supplementation pattern.

Most important and impossible to calculate are the costs in terms of human health. From 1972-1974, 11% of all hospitalization was for diarrhea and nutritional diseases. From 1970-1973, when the mean infant mortality rate was 69.1 deaths per 1000 live births, these diseases were responsible for 69% of infant deaths occurring after 28 days. If Vincentian infants were optimally breast-fed, and if their mothers spent the money on staples that goes for commercial infant foods, such high levels of infant suffering and death simply could not occur.

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economic
development
bureau

May 19, 1978

Mr. Walter J. Sheridan
Kennedy Health Sub Committee
Dirkson Office Building
Room 4220
Washington, D. C. 20510

Re: Our File No. 683

Dear Mr. Sheridan:

Inasmuch as there are to be hearings on the question of the role of infant formula promotion in third world countries and it seems likely that the material found in the 1978 Vol. III, No. 1 of The Lactation Review might become an issue, I thought it might be useful to send you the enclosed.

I have referred to my earlier paper sent to you so please feel free to circulate it as you wish. Please forgive the poor state of the typing and corrections in that paper, there was no time to clean it up.

At a later date I will submit a brief list of recommendations I think the Senate should consider in this matter.

If I can be of any service, please let me know.

Incidentally, I think my paper submitted to Dana Raphael to which she refers in her letter to me of May 5, 1978, copied to you among others, speaks for itself; it is the one I sent to you.

Respectfully yours,

Idrian N. Resnick
Executive Director

INR:JA
Enclosure
CC: Doug Johnson
Leah Margulies

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CRITICAL COMMENTS ON THE LACTATION REVIEW, VOLUME III, NO. 1 (1978)

BY IDRIAN N. RESNICK

Volume III, No. 1 (1978) of The Lactation Review contains many statements that, at best, lend themselves to misinterpretation, and, at worst, are gross distortions of certain information. Many of the statements in the Review have potential consequences for the positions expected to be presented at the forthcoming hearings of The Senate Sub-Committee on Health. Because of my special knowledge with respect to much of the research that is claimed to be the basis of the positions taken in the Review, I respectfully submit the following critical comments and clarifications. My credentials for doing so are as follows:

> I spent nine years teaching in various universities, including Columbia University, Princeton University and the University of Dar es Salaam, Tanzania;
>
> I was senior economist in the Ministry of Economic Affairs and Development Planning in Tanzania from 1970-72;
>
> I have been the Executive Director of the Economic Development Bureau (a consulting firm for underdeveloped areas) since 1975.

On the basis of the above qualifications, I was hired as a consultant by the Human Lactation Center (Publisher of The Lactation Review) on a part-time basis from February 1976 through June 1976. My duties were to design and write major segments of the research protocol to be used by the researchers in the execution of the contract between USAID and the Human Lactation Center to "study the conditions and patterns of behavior that have brought about a downward trend in the practice of breastfeeding which was suggested as having resulted in impaired infant health." (The Lactation Review, 1977 Vol. II. No. 3, p. 3.)

In February and March 1977 I was again hired as a consultant to read the reports of the researchers and draft a major portion of the final report. I append a copy of the report I wrote. It was only intended to be a part of a larger document. In fact, it was generally disregarded by the Center and was in no way to be found as an integral part of the report they submitted to USAID. (Cf. The Lactation Review, 1977 Vol. II No. 3.)

It is best to quote from the Center's own statement about the objectives and limitations of the research protocol. This may then be used as a basis for examining the contents of the Review in question.

> A Protocol was developed to aid the fieldworker in collecting data on the behavior of the mother, infant and other members of the family during the early stages of reproduction, especially in regard to breastfeeding. The study was aimed at reaching breastfeeding mothers in their normal environment.
>
> Designed as an open-ended guide rather than as a questionnaire, the Protocol format and field instructions encouraged the collection of any and all relevant data by omitting the restrictions and rigidity inherent in a preconceived set of queries. The logic of this approach was to permit the fieldworkers to obtain data beyond the confines of a rigid format.
>
> The Protocol was designed to produce data which is exploratory, insightful and interpretive. The credibility of the work rests in the validity of the Protocol and the methods used by the anthropologists in collecting the ethnographic material. Because of the limited sample, it was not expected that we would come up with results where the reliability was dependent on quantitative data.
>
> We intended to uncover the unique, personal level of experience. We were careful to point out whenever the data were intuitive and not to extrapolate human universalities from these initial studies. (The Lactation Review, 1977 Vol. II No. 3, p. 3.) Emphasis added.

Although eleven anthropologists submitted reports, only seven of the studies were carried out in underdeveloped countries: Egypt, India, St. Kitts, Jamaica, Trinidad, the Philippines and Nigeria. The other four were undertaken in Sardinia, Spain, Dade County Florida, (Puerto Ricans) and Houston Texas (Mexican Americans). With such a limited number of studies, generalizations of a quantitative nature about phenomena in underdeveloped countries have no statistical significance and do not provide much qualitative insight. Since the Protocol was not designed to provide such generalizations, the number of observations does not undermine the findings of the research. This has only become a problem because the Review makes numerous quantitative assertions for which there is little or no basis even within the limited coverage of the seven studies in third world countries. Furthermore, many statistical terms

are used in the Review, giving the false impression that the studies were statistical in a way that they were not. Thus: (emphasis added)

> "Poverty is highly correlated with infant morbidity and mortality as child health is associated with affluence." (p. 2.)
>
> "Areas with the highest incidence of breastfeeding tend to be the poorest and have the highest rates of infant mortality." (Ibid.)
>
> "Women in our sample...." (p. 3.)
>
> "For example, the Indian and Egyptian communities in our project had the highest incidence of breastfeeding. They also had the highest incidence of morbidity and mortality...." (Ibid.)
>
> "Already living at a subsistence level, this added cost to the poor shows up first in an increased rate of infant morbidity and death." (Ibid.)

Such terminology may be taken to indicate that the quantitative statements in the Review are the results of data that were gathered by the studies and statistically evaluated. Such a conclusion would be incorrect. In fact, none of the quantitative statements in this issue of the Review can be verified by the research results of the eleven anthropologists, either for the individual cultures studied or for the seven underdeveloped cultures together. There are three reasons for this: (women interviewed)

(1) the number of observations was extremely small;

(2) the definitions used were not identical;

(3) the field notes did not allow us to verify quantitative statements except in one or two cases.

There is also confusion created by the statement: "Information on maternal behavior and infant/child feeding practices was collected and analyzed from discussions with hundreds of parents, medical personnel, government officials, commercial entrepreneurs and industrial and market workers." (Ibid. p. 3.) The work on the Protocol by the 11 anthropologists did not have such wide coverage of people nor numbers of observations. Specific interviews with individual women and groups of women were undertaken and inte-

grated with the broader ethnographic knowledge of the researchers. These were combined in answering some of the questions in the Protocol; such answers were understood to be "impressionistic" and continually identified as such in the protocol and write-ups of the research. They are not without considerable value but their sources and limitations need to be understood and noted. Additional inputs came from the director and various staff of the Human Lactation Center, through reading and casual conversations with various people. Again, such information has value but needs to be distinguished with respect to source, precision and comparability with other data. This latter group of information in no way should be grouped with the former (the anthropologists') in terms of scientific precision.

The importance of these clarifications to the statements made in the Review lies in the fact that, since they cannot be supported by the research results of the anthropologists, they require some other verification. Alternatively, the Center might wish to submit them as authoritative statements by its internationally renowned director, Dr. Dana Raphael. There are a number of implications for the controversy surrounding the sale and use of infant formula in underdeveloped countries which, to my mind, follow from the statements in the Review that cannot be verified by the antropologists research report. The fact that some observations and interviews produced results consistent with these statements in no way constitutes a scientific basis for the implications. Furthermore, failure to distinguish between actual research results and deductions (no matter how probable it is that they are correct) further reduces the value of the contents of this issue of the Review. For example, the claim that "the preferred additional food for very young children is milk. Most milk used is fresh milk, unprocessed" (p. 2.) is undoubtedly true for the third world as a whole and most likely true for every country in the third world. Nothing in the research of the anthropologists underpins this statement but, since few underdeveloped countries have dairy industries of any significant size and none could afford to import for the needs of all their "very young", it is surely correct. But any conclusion that it follows from this statement or the

research that infant formula is unimportant in underdeveloped countries would be incorrect.

Therefore, it is my conclusion that the following statements in the Review cannot be substantiated by the reports of the eleven anthropologists who worked on the USAID contract. There are two groups of statements listed. The first are too broad in that they are consistent with the findings but the data gathered are so limited that they do not provide a reasonable basis for the wider generalizations made by the statements. The second, are not consistent with the data gathered by the anthropologists, although there may be some among the eleven who did submit such information.

GROUP I (Consistent with research findings but too broad).

1. "Middle class women in the less developed countries, market women, the elite and professional women are moving towards bottle feeding with infant formula in much the same way women turned from breast to bottle feeding in Western countries." (Very few women in these groups were included in the studies.)

2. "Mixed-feeding is an almost universal pattern in traditional cultures; that is, breastfeeding and supplementary feeding from early on and often into the second year." (Supplementary feeding should not be translated as formula or other forms of milk.)

3. "Lack of sufficient food after the infant has passed three months is a major cause of morbidity and mortality whether or not the infant is breastfeeding."

4. "Women, who are isolated, especially the urban poor, lack mothering from a supportive (doula) figure. They find themselves unable to lactate adequately, or lose their milk entirely. Without suitable substitutes, their infants die." (Ibid.)

5. "These women are caught in an extraordinary bind. They are the least able to successfully breastfeed, and yet they are unable to do anything else. They breastfeed and struggle with their limited supply, their lack of resources for extra foods, their own hunger and anger, their desperation, and their starving baby. And, as many as 50% lose the fight. Their offspring die before the first year." (Ibid., p. 3.)

GROUP II (Not supported by the research findings but may have been part of one or two data sets.)

1. "...infants in underdeveloped countries who breastfeed from undernourished mothers require additional food to supplement breast milk by the time they are three months old." (Ibid.)

2. "And, this mixed-feeding pattern - breastfeeding plus additional food - was far more common than either exclusive breastfeeding or exclusive non-breast-milk substituted." (Ibid.) (All that can be said is that the majority of women asked in these studies reported giving their infants something other than breast milk at some time during the first seven months.)

3. "...the majority of health workers in developing countries (and the mothers) told our researchers that three months is the more appropriate time [for introducing supplements]." (Ibid.) (Health workers were not interviewed as part of the study.)

4. "Indian women...lacked resources to buy sufficient supplementary food and their infants were the worst off of any group studied." (Ibid.) (Even for the tiny number of Indian women in the researcher's study, data were not collected that would make this statement legitimate.)

5. "Already living at a subsistence level, this added cost to the poor shows up first in an increased rate of infant morbidity and death." (Ibid.)

6. "However, it is our impression that though processed milk is preferred as a supplement for infants, most purchased milk continues to be unprocessed." (Ibid., p. 4.)

7. "...if processed milk was not readily available....the lack of food could make it even harder for women to breastfeed.... When there are shortages in the developing countries, of the kind that occurred in many areas when the U.S. Congress eliminated the appropriations for the "giveaway" PL 480 milk in 1973, women substitute as best they can.... Though well aware that non-dairy foods will not be as well accepted nor tolerated by young children, when necessary, they use whatever the baby will swallow and hold down." (Ibid.)

8. "Parents who have the means either to buy or own the sources of food give adequate amounts of supplements, and their babies survive." (Ibid.)
(Nothing in the research reports supports this contention.)

9. "In all areas studies, the infants born into the higher socio-economic groups, whether bottle or breastfed, were healthier

than the infants in the lower socio-economic groups." (Ibid.) (No data were collected that would allow a comparison of the health of infants from one group to another within the cultures, let alone between them.)

IMPLICATIONS

My reading of the material in the issue of the Review under discussion leads me to the conclusion that the general tone of the arguments and the statements cited above lend support to a political position regarding infant formula sales and promotion in third world countries. The position may be paraphrazed, in my judgement, as follows:

Infants in underdeveloped countries are given supplementary food at approximately the age of three months. Milk supplements are preferable to solids. Processed milk, especially in the form of infant formula, is generally not available to low income mothers. It is available to middle and upper income mothers, is a superior food and preferred by them. The controversy surrounding the promotion and sale of formula in third world countries, is, therefore, a false one, detracting from the more fundamental causes of infant malnutrition and death - poverty.

I should say that my personal predilections are not totally out of sympathy with such a position, although I do think the controversy real and important. However, the point to be made in this memo is that the research of the anthropologists who worked on the USAID grant to the Human Lactation Center does not provide a basis for this argument. It is not surprising because the research gave little attention to formula intake and almost none to the role and practices of the milk companies.

Respectfully submitted,

Idrian N. Resnick, Executive Director
Economic Development Bureau
New Haven, Connecticut

INTERFAITH CENTER ON CORPORATE RESPONSIBILITY

A Sponsored Related Movement of the National Council of Churches
475 Riverside Drive • Room 566 • New York, NY 10027 (212) 870-2293

July 24, 1978

Mr. Walter Sheridan
Dirksen Senate Office Building Rm. 4228
Washington, D.C. 20510

Dear Walter Sheridan:

Enclosed are two pieces of testimony to be submitted into the record following on the May 23 hearings. The first contains two reports from Edward Baer, Consultant for ICCR. There are photos which accompany his reports. These will be sent as soon as they are developed. The second testimony is submitted by Marcia Furquim de Almeida Baldijao from Brazil.

Thank you.

Sincerely,

Leah Margulies. pr.

Leah Margulies, Director
Infant Formula Program

LM;pr
Enclosures

INFANT FORMULA AND INFANT NUTRITION

IN THE PHILIPPINES

Submitted by Edward Baer, Consultant
Interfaith Center on Corporate Responsibility

July 1, 1978

Testimony submitted to the Subcommittee on Health and Scientific Research of the Committee on Human Resources, related to subcommittee hearings, May 23, 1978.

Infant Formula and Infant Nutrition in the Philippines

Testimony submitted to the Subcommittee on Health and Scientific Research by

Edward Baer, Consultant
Interfaith Center on Corporate Responsibility
July 1, 1978

Introduction

The public controversy over the promotional activities of the manufacturers of infant formula has served to bring to light one of the "modern" world's greatest tragedies: the staggering incidence of infectious diseases, malnutrition, and death among infants. The toll is heaviest, of course, in the less developed countries where a large percentage of the population lives in poverty: low income, inadequate housing, non-existant educational opportunities, horrific sanitary conditions, lack of access to social services (including health care), and very little hope for a brighter future for themselves or their children. Since the preparation of adequate artificial foods for infants requires money, good sanitary conditions and a certain level of education, it should come as no surprise that medical studies from all over the world show that the incidence of infectious disease and malnutrition is higher among bottle fed children than among their breast fed counterparts. This is especially true because of the well-documented superiority of breast milk, which provides an important measure of immunological protection to the young infant.

It has been argued that poverty causes malnutrition. This is certainly true, and anyone who has lived or even visited the slums of a big Third World city or an isolated rural village can attest to this statement. It has also been said that malnutrition is a complex phenomenon, with multiple determining and associated causes. This, too, is indisputable. The analysis, however, must go further to examine each of the factors, and determine the extent to which it contributes to or aggravates the problem.

The purpose of this report is to explore the connections among the promotion and marketing of infant formula, attitudes of health workers, infant feeding practices, and infant health. No data in statistical form were gathered; rather information was ovtained by direct observation and interviews with approximately 25 health workers, of whom 18 were physicians and the others were nurses, midwives, and turtitionists. Additionally, I talked with industry sources and other informed individuals such as owners of stores and pharmacies and community workers. The observations took place between June 17 and July 1, 1978. Pictures and documentary evidence (compant promotional literature and some medical studies) are available to accompany this report.

Wyeth Suaco was the only company that flatly refused to answer any questions.

The Infant Formula Industry

The infant fromula industry is dominated by three multinational firms: Wyeth-Suaco, (the local affiliate of Wyeth Laboratories, a subsidiary of the American based American Home Products), Mead Johnson (subsidiary of American based Bristol Myers) and Nestle (Swiss). Together they account for 98-99% of the market, with Abbott Laboratories selling the remaining 1-2%. Estimates of the market size varied, but a total market of at least U.S. $20-22 million was thought to be "not wrong". This corresponds to approximately 12.5-14 million pounds of formula per year. Wyeth is estimated to control about 40% of the market (unitwise), while Nestle and Mead Johnson share the remainder somewhat equally, although market shares change. Enfamil (Mead Johnson) was said to have been the leading seller in the recent past, but its share appears to have slipped.

A wide variety of infant formula products are available; I counted almost 20 different brands in stores and pharmacies. This total did not include certain sick baby formulas,products which could be used for infants (e.g. Sustagen) or any milk products that carried labels with infant feeding instructions (Nido, Klim, Foremost, etc.) Many products were available in at least two can sizes, and sometimes more. Bonna, a cheaper formula with higher proportions of vegetable oils and cheaper sugars than other formulas, is said to be the leading seller unitwise (Wyeth-Suaco). Pelargon is said to be close in dollar volume (Nestle). The following products are among those available:

Product Name	Manufacturer
Lactogen	Nestle
Lactogen Full Protein	"
Pelargon	"
Nan	"
Nestogen	"
AL 110	"
*Bean Brand Sweetened Powdered Milk	"
Bonna	Wyeth-Suaco
S 26	"
SMA	"
Enfamil	Mead Johnson
Alacta	"
Olac	"
Enfamil with Iron	"
Acidolac	"
Sobee	"
Similac	Abbot
Similac with Iron	"
Isomil	"

*Bear Brand Sweetened Powdered Milk is not an infant formula, but rather merely sweetened, powdered milk. Nevertheless, the label indicates that it is intended primarily for infant use.

Formula Industry cont'

Not all labels carried the message that breast feeding was preferred, despite manufacturers promises to do so. Isomil (primarily for children with Lactose intolerance) carries no such statement. Some cans of Olac, Alacta, Acidolac , Enfamil, and Bonna were also found without such warnings. Some Acidolac labels were in Spanish and English while some Enfamil labels were in French and English. Mead Johnson sources assured that they were merely depleting old can stock, and that new cans would carry even stronger warnings.

Unitwise, the Filipino market is said to be growing at a rate of 8-10%; the saturation point of the market is not in sight. Estimates of profit margin varied from 5% to 15%. Estimates of the promotional budget as a percentage of sales ranged from 4-7%.

All three firms employ medical representatives. For Nestle, a food company, infant formulas are the only products that medical representatives handle. For Wyeth and Mead Johnson, medical representatives are divided into speciality groups; both companies have special forces for which infant formula is the central product area; no estimate was obtained for Mead Johnson. Mead Johnson discontinued its use of mothercraft personnel in May 1978, in accordance with statements made by Frank Sprole of Bristol Myers at Senate hearings of a company-wide policy decision. Eight out of nine mothercraft personnel in the Philippines accepted re-employment as medical representatives for the same company. Mead Johnson medical representatives no longer are authorized to visit patients in their homes as was previously the practice. Sales volume is one of several criteria used to evaluate the job performance of Mead Johnson detail staff, according to Mr. Enrico Enriquez, group General Manager of Bristol Myers.

Nestle medical representatives are said to be all nurses, nutritionists, and medical technologists. They wear dark blue uniforms, a Nestle pin, and an ICIFI badge. They do not have the authority to make home visits, but do conduct "mothercraft" classes in hospitals and clinics.

Wyeth medical representatives are composed of people with both medical and non-medical training. (Some representatives have A.B. degrees in non-medical fields). They wear white uniforms; the one I observed did not appear to wear company identification. A doctor I interviewed reported having been visited at home by a Wyeth representative within the past year.

All doctors reported "frequent" visits by medical representatives.

(Details of promotional practices are given in the body of this report. A few general conclusions and highlights are offered here.)

(1) There has been a reduction in mass media advertising in recent years, where little or no mass media advertising is done at this point in time.

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Formula Industry cont'

One exception is the large neon SIMILAC sign on the Abbott plant in Manila. The Marketing Director of Abbott informed me that the sign was to be taken down "before the end of the year and replaced with a Selsun Blue sign".

(2) Samples of infant formula are donated in substantial quantities to public and private hospitals. Many hospitals rotate among the three major manufacturers. In certain cases, substantial donations of equipment for hospital nurseries were given in exchange for exclusive distribution of one company's (Mead Johnson) products. Samples are routinely given to doctors, nurses and midwives for "discretionary use." Samples are routinely given to the mother to take home. Almost every Filipino baby receives formula while in hospital.

(3) Baby posters, calendars, height charts, are prominently displayed in every hospital visited. Many hospitals lack the resources for any other form of wall decorations.

(4) All three major companies distribute promotional literature to doctors, touting the quality of their products, emphasizing their similarity to breast milk. No analogous information is made available about the advantages of breast feeding. "It all comes down to what things you can make money on and what things you can't make money on," said one source.

(5) All three companies distribute baby care books. Breast feeding is now described as the preferred form of feeding, but the coverage of breast feeding is minimal in comparison to bottle feeding. Baby care books usually carry an explicit promotional message.

(6) Other promotional devices aimed at the consumer include wristlets, name tags, pre-printed feeding instruction cards, diapers, towels, feeding bottles, and the like. Nestle printed weight charts for the governments's national nutrition program.

(7) Small gifts to doctors at Christmas or on birthdays or other occasions are routine. Wyeth, for example, distributes mirrors with S-26 written on them. Other companies give cakes, dresses, etc.

(8) Support for professional societies, conferences, meetings, and continuing education is routinely provided. Often meetings are organized around a meal, also sponsored by the companies. Transportation, accommodations and meals are provided to conference speakers and committee chairman, and sometimes to participants. Medical research prizes are also offered.

The problem of infant malnutrition in the Philippines is of staggering proportions. Thirty-four percent of the under six population is said to be suffering from second and third degree malnutrition. Mortality among those under one year account for 25% of all deaths, while this population group comprises only 3.5% of the total population (1972). Half of the deaths in the under 6 population are attributable to malnutrition. As the Secretary

of Health, Clemente S. Gatmaitan, said in 1974, "The combined efforts of such malnutrition and of infection in the early years of life account for the largest part of mobidity and mortality. An analysis of the causes of illnesses and deaths among infants and children reveal them to be mainly nutritional in nature or due to infections of the respiratory or gastro-intestinal tract. In other words, the majority of the deaths and illnesses among infants and the young are preventable." [1]

Infant Feeding Practices

Both scientific and anecdotal evidence confirms that in the Philippines breast feeding is declining as an increasing number of babies are being artificially fed at earlier and earlier ages. Eminent pediatrician, Dr. del Mundo wrote, "We do not have to go far and wide to prove that breast-feeding has declined. Right in our midst, we miss the size of a baby who is being breastfed.....while in our rural areas this commendable practice has not been lost and babies receive the benefits of mothering, already there are evidences even in remote areas, parents are starting to get "sophisticated" and "modern" through artificial feeding...whereas in 1960 about 64% of infants were breast fed in urban areas of the Philippines, our observations this year show that breast feeding has declined considerably as shown in Tables I and II".[2]

Milk feeding in 205 Filippino Infants 0-1 year old-Low ½ Middle Income Groups, Manila 1974.

Methods	No. of Infants	Percentage
Breast fed	48	23
Artificial	123	60
Mixed	34	17

Other studies point to a similar decline, and almost all health workers interviewed report that in their personal experience the same trends are observable. Preliminary results of the WHO Collaborative Study on Breast feeding indicate that in the Philippines, there is a tremendous problem of breast feeding abandonment among the urban poor, according to Dr. Virginia de Guzman, at the Institute of Public Health (Dept. of Public Health) who coordinated the study. Breast feeding remains the rule in rural areas, while the urban elite presumably has the resources for proper preparation of artificial foods.

That artificial feeding of infants increases infant morbidity and mortality is also confirmed by both scientific and anecdotal evidence. A study at Children's Medical Center (Manila) showed "that the majority of infants under 2 months with diarrhea were artificially fed.[3]

Fifty Infants below 2 months old with diarrhea (1966)

Type of Feeding	Cases	Percentage
Breast feeding	4	8
Artificial feeding	32	64
Mixed feeding	14	28

Feeding Practices cont'

Dr. del Mundo added in our interview, "probably 90-95% of infants treated for diarrhea in the first month of life are not breast fed. The common denominator of infant diarrhea is artificial feeding." A pediatric resident at Philippine General Hospital estimated that 80% of the infants treated in the malnutrition wards were bottlefed. The Chief of Pediatrics at Jose Fabella Memorial Hospital, Dr. Erlinda Fernandez, estimated that only 20-25% of mothers who deliver in that hospital breast feed their infants. "There's an economic problem in continuing adequate bottle feeding," she said, "that's why we treat so much gastro-intestinal infection and malnutrition here." And Dr. Natividad Clavano, chief of Pediatrics at Baguio General Hospital, discussed what she called, "the bottle-diarrhea syndrome. Mostly it's the bottle. Most of the babies admitted to our malnutrition ward are bottle fed." Dr. Alicia Caspellan, of the National Nutrition Service stated, "with breast feeding, we could probably solve 3/4 of the nutritional problems of the young infant."

Dr. Antonio N. Acosta, Executive Assistant and Officer-in-charge of the National Nutrition Service (Department of Health) wrote: "In the Philippines, the gastro enteritis and colitis groups of diseases stagnantly persist as one of the leading causes of malnutrition and infant morbidity and mortality for at least the first six months of life; for, 'how many of these deaths due to gastro-intestinal infections are acquired thru artificial or bottle feeding?' Also, how many of these deaths are indirectly attributable to errors, or inadequate bottle formula, thereby ultimately causing protein-calorie malnutrition....All these could have been avoided if our people have not been contaminated by the 'civilized and more modern' methods of artificial feeding."4

Health Workers' Knowledge and Attitudes

All of the foregoing suggests that the medical profession is well aware of the dangers of bottle feeding and is actively taking steps to prevent the demise of breast feeding. Regrettably, this is not the case. With the exception of a handful of extraordinarily well-informed and dedicated individuals, the health professions appear astonishingly uniformed about the process of breast feeding or the techniques for promoting it. "I am a voice in the wilderness", cried Dr. Guzman.

From the forthcoming WHO study on breast feeding, a portion analyzing the nutritional knowldege among public health Midwives reveals a low level of understanding of breast feeding. "She resorts to the path of least resistance by prescribing artificial milk formula, especially if there are starter cans donated by representatives of the milk companies that she can give to the mother."[5]

Most health workers interviewed said that they advocate breast feeding, but as Dr. Gatmaitan said, "The case for breast feeding, like the case for abstinence from smoke and drink, is easier to preach than to carry out. The discrepancy between theory and practice reminds one of the saying that 'between the cup and the lip, there is many a slip'".[6] In fact, the attitudes and practices of many health workers indicate that they view bottle feeding as a perfectly acceptable alternative to breast feeding. More than a few seemed better informed about the alleged counter indications of breast feeding than about the benefits it confers.

Paradoxically, most of these same people were quite cognizant of the association between bottle feeding and infant disease; nevertheless, they accepted the increasing popularity of bottle feeding as expectable and inevitable. Few realized their own complicity in the problem. Women working was the reason most commonly cited for breast feeding's decline; yet most acknowledged that even among non-working women, bottle feeding is common, and the proportion of poor, urban women working outside the home was estimated "to be 30%". Finally, only a vocal handful objected to the role of the infant formula companies in popularizing bottle feeding, in the minds of health workers as well as mothers.

Health workers are exposed to a permanent, sustained flow of information, reinforced by personal visits, free samples, and other inducements from the infant formula industry. Far from communicating "objective" information on infant nutrition (breast feeding is seldom afforded more than a few lines), the materials distributed by the companies are intended to inculcate positive attitudes towards bottle feeding in general and endorsement of specific company brands, in particular. Company literature goes beyond what might be required to communicate information on product characteristics and dosage instructions. As a pediatrician said in our interview, "I'm almost ready to give up. Obstetricians know nothing about breast feeding. They and nurses are opposed to rooming-in. Expectant mothers have already been convinced to bottle feed. The companies will always win."

Knowledge and Attitudes cont'

Clearly bottle feeding is not synonymous with infant formula feeding. In fact, the use of evaporated and condensed milk is common among the poor, especially the latter because of its low price and better keeping properties in the hot Filipino climate. The high price of infant formula keeps it out of the hands of many poor families; for others, however, price is an impediment to correct use rather than a deterrent. And several medical sources concurred that promotion by formula companies has contributed to the "glamorization of the bottle". Speaking of milk company calendars and posters widely distributed to hospitals and doctors' offices, Dr. Alicia Caspellan said, "All of those pretty pictures of babies on hospital walls appeal especially to the lower classes." Dr. Antonio Dennis Reis has written, "Many milk companies in their efforts to promote their products are guilty of suppressing breast feeding practices by showing good effects of use of their products utilizing public personalities like movie stars in their campaigns. Unfortunately, the effects of this are on the lower classes of people. The irony is that these are the very people who could ill afford the expensive milk products being promoted."[7]

The Medical-Industrial Connection

The training of health workers leaves gaps in knowledge about the importance of breast feeding. Hospital routines actively discourage breast feeding. Medical hierarchies and the inertia generated by tradition render habits and structures resistant to change. The thrust of commercial promotion reinforces and refines attitudes and practices that favor bottle feeding.

Almost every Filipino infant born in a hospital is bottle fed on infant formula for the time (s)he is in the hospital, from one to three days, depending on the hospital and the doctors. Almost every hospital receives free samples of infant formula from one or more of the three major infant formula companies operating in the Philippines: Wyeth-Snaco, Nestle and Mead Johnson. The marketing director of Abbott Labs claims that his company no longer distributes free samples, but I observed SIMILAC samples in two hospitals. In one of these hospitals, the SIMILAC cans bore no mention of the preferability of breast feeding and carried an expiration date of September 1977.

In many hospitals, the three major companies have worked out arrangements with hospital administrations and/or doctors for rotational distribution of free samples. Thus, for a two week or one month period, one company's formula will be exclusively used in the nursery. Each company has its turn. Health workers call this "the flavor of the month" arrangement.

Promotion of infant formula is concentrated on the health professions and health care institutions. The companies are well aware that when a baby is started on an infant formula product in a hospital, two things are likely to happen. First, the mother is likely to interpret the bottle feeding of her infant as "medically endorsed," a powerful influence especially on poor people who view hospital institutions and health workers with both fear and respect. And second, the mother will try buying the same product to provide continuity in feeding her baby. This explains the companies' willingness to provide substantial amounts of free samples to hospitals for nursery use. In addition, free samples are routinely given to doctors, nurses and midwives. When there is a baby in a doctor's family, six months or a year's supply of formula is often provided; for paraprofessionals, three months supply is common.

Several nurses reported receiving free samples every time the company representatives came to deliver the "flavor of the month" in the nursery. One doctor, who confessed of having fallen prey to the "subtle supplementation trick" (she began supplementing her own breast milk with infant formula and and found that by the time her baby was 1½ months old, her own milk had dried up) reported that she would trade the Alacta samples Mead Johnson gave her for ENFAMIL that the nurses were given. She needs the ENFAMIL for her baby while the nurses said that "Alacta tasted better in coffee."

In many hospitals, mothers were given samples to take home; sometimes this depended on the supply of formula the hospital had on hand. In several hospitals, the nurses keep records of how many babies are started on each formula; these records are then inspected by the companies medical representatives.

José Fabella Memorial Hospital

Not all hospitals subscribe religiously to "the flavor of the month" routine however. At José Fabella Memorial Hospital, a frighteningly poor, overcrowded, dingy hospital which is reported to have the largest number of births of any hospital in Southeast Asia (2,500-3,000 deliveries per month!) written hospital rules dictate this arrangement: all medicare babies to receive Nestogen; all premature babies to receive Alacta; all paying patients to receive S-26 or Pelargon and the rest will be rotated, 50 days on Bonna and 28 days on Alacta.

Company advertisements are very much in evidence in this hospital, despite the fact that it caters to the very poor. In overcrowded wards, filled with malnourished children being fed intraveneously, are colorful posters by Nestle and Wyeth (beautiful S-26 baby) while Bonna calendars adorn the nurses' station, and pharmacy annex, and the central formula room. In the nursery are additional posters and baby pictures, including a photograph of a mother bottle feeding her baby with the caption, "Happy , healthy baby and protected with SIMILAC."

Decals provided by Wyeth with messages like "no smoking" or "silence please", and also carrying product brand names were very much in evidence here as in several other hostitals. A hand-made collage composed of baby pictures and company brand names was located just outside the nursery door. In the pockets below the collage were documents that appeared to be copies of sample requisitions. Doctors write down how much formula to use on formula cards provided by the companies. According to health workers interviewed there, company representatives visit mothers on the wards to give out formula, teach correct bottle feeding, and distribute baby books. Health workers record how many babies are fed on which products. The notebooks are then inspected by the formula company representatives.

A pediatric resident noted the increase in malnutrition and gastrointestinal infections because it was the rainy season. Flies and bacteria breed in stagnant water and primitive toilets leach wastes into drinking water. Poor sterilization and overdilution of bottle feeding are common. If babies were breast fed, they wouldn't be exposed to the same level of infections. Bonna is the most popular brand, the resident said.

San Juan de Dios Hospital

At San Juan de Dios Hospital, three locked cabinets in the nursery ante room are marked "Nestle," Wyeth", and Mead Johnson". The samples are kept here and distributed on a 15 day rotation. The nurses write down in notebooks the of babies fed on each product so the agents can check up. SMA posters, Bonna Calendars, and SMA/S-26 decals were visible in the nursery and environs. "We don't allow breast feeding here", a nurse said. We don't allow rooming-in because of the risk of infection."

Off the main waiting room in the hospital, a throng of drug company detailmen (and women) were clustering around doctors and interns. Free samples of formulas and drugs were passed out liberally, in a joyous carnival-like atmosphere. There were 15-20 detailmen with their distinctive sample cases.

Miraculous Medal Hospital

At Miraculous Medal Hospital, a small, private institution, I met a medical respresentative from Wyeth. She was carrying two large net bags filled with cans of S-26. She wore a white uniform (skirt and jacket) with a patterned blouse. I didn't notice any company identification. She told me she was a medical technologist. She distributed free samples to hospitals for use in the nursery; whether take-home samples were given to mothers "depended on hospital policy". She seemed pleased to take my name and organization, as though she knew exactly what my mission would be. In addition to Wyeth decals, there were Enfamil (Mead Johnson) and Nestle posters in the delivery room. According to the hospital director, free samples are provided by all the companies in rotation. The mother takes home whatever is left over. The companies provided bassinettes for the hospital nursery.

Manila Hospital

At Manila Hospital, a large government hospital serving 100% charity cases, the pediatric ward has to accommodate as many cases as are brought in. A pediatrician there said that hospital routine discourages breast feeding by automatically separating mother and child after birth. The baby is given the bottle within six hours. Many families can afford only one or two months of formula use (with stretching); then they switch to condensed milk or rice water. At the nurses' station in the maternity ward were Nestle posters and an Enfamil baby picture. At the bedside of almost every patient in the malnutrition wards are cans of infant formula: NAN, Pelargon, Enfamil, Bonna, etc.

The pediatrician recalled that a few years previously, they allowed company representatives to teach mothercraft classes to expectant and new mothers. They found out, however, that in the course of the instruction, the representatives were advertising their companies' products and the hospital was forced to discontinue this practice. Now they don't allow company representatives to have any patient contact. No rooming-in is practiced.

Philippines General Hospital

At Philippines General Hospital (the "showcase" government hospital), a pediatric resident acknowledged the intensity of formula promotion: "Of course, it's a competitive business". All three companies distribute samples. "They have little gimmicks to win your confidence," the resident said. "I see the representatives at least once a week, and they bring samples every two weeks. Even the nurses and aides get samples, because if a company has influence over the nurse, it has influence over the mother."

The resident acknowledged that overdilution and contamination were common, and that most patients had no refrigeration and only "a rough kitchen". No rooming-in was practiced. The Bonna cans were marked "Courtesy Package. Not for sale." No statement about the preferability of breast feeding was included on the label. Nestle posters on bottle feeding and Nestle baby pictures were hung at the nurses stations.

In the nursery at Philippine General Hospital, there are also formula advertisements. Wyeth stickers and a Bonna Calendar are prominent. Several newborns were being fed out of glass bottles marked "Pelargon". The resident on duty explained that babies rotated not only on the three main companies' formulers, but also on KLIM, a powdered mild manufactured by Borden. When I expressed surprise that newborns were being fed whole milk, the resident chuckled and told me not to worry about it.

The resident went on to explain the causes for the decline in breastfeeding. "It's not only women working. Most mothers in the charity ward are inclined to bottle feed. It's fashionable; it's what the upper classes do. Mothers have been brainwashed into wanting infant formula. It's been inculated into mothers minds that bottlefeeding is nice, it's better. They don't see the advantage of breast feeding. Mothers always ask for the name of the formula the baby was started on in the hospital".

When asked about the impact of the infant formula companies' promotion, this resident replied, "You know it's a good deal for us doctors. We get little presents for our birthdays of Christmas. Nothing expensive, just a cake or a nice dress for the ladies. It's not showy, they don't write on the cake "To Dr. _____ from Wyeth-Suaco They personalize it. It comes with a note saying, "from José. And you know who José is; he's the medical representative. It's a subtle form of persuasion. It's part of the commercialization of the medical profession. It's inevitable in a capitalistic system". "The milk companies know how strongly I support breastfeeding," said a pediatrician, " they're trying to court me. They leave me little gifts her and there, but I won't be moved".

In addition to promotional literature, free samples and personal gifts to doctors, another form of promotion bears mention: The provision of equipment. In most cases, this includes items like bottles, towels, diapers, cribs and bassinettes. In the case of feeding bottles, towels and diapers, brand names are emblazoned on the article. Three doctors noted that companies are always offering nursery equipment. "And when a new nursery is being set up, the companies fall all over themselves with offers of assistance", said one source.

One pediatrician in a private Manila hospital described the arrangement with Mead Johnson. In exchange for provision of incubators, cribs and other nursery equipment, the hospital agreed to distribute Mead Johnson products exclusively for the next three to four years. The doctor mentioned two other private hospitals where similar arrangements had been made. When I confronted the Bristol Myers (Mead Johnson's parent company), Group General Manager, Enrico Enriguez, with these charges, he replied "I don't know who these people are who are making these charges. If these charges are untrue, I'll sue them". Enriguez went on to explain that the donations of equipment are intended as "simple, charitable donations made as a community service". When I repeated the pediatrician's claim that donations are tied to exclusive distribution rights, he replied, "There's no quid pro quo.

That's not company policy". Marketing Director Gregory Sycip added "They have been supporting us in the past for us to support them". But Enriguez denied this, saying that there are no outright exchanges.

Other sources confirmed that quite expensive equipment is also donated by the other companies, including air-conditioning and incubators. Since the Filipino market is so competitive, once one company begins doing something, the other companies either follow suit or risk diminishing market shares. Thus, the most aggressive promoter sets the tone for the entire market.

"You've got to understand the Filipino culture", one pediatrician pleaded. "We Filipinos are very sensitive people. If someone gives us a gift, we can't throw it back in their faces. We don't like to criticize too openly. Our criticisms of the milk industry are very mild, yes, too mild". "The Companies offer free samples", said a hospital director. "Half for the hospital and half for the director. I give it all to the hospital for the charity cases, but only later on when they really need supplementation".

Finally, support of professional societies, scientific conferences, seminars and meetings is commonplace. Wyeth sponsors Intensive Continuing Education Courses in Pediatrics; Mead Johnson sponsors continuing education courses, seminars, symposia, etc. all over the country; Nestle sponsors one day seminars specializing in infant nutrition. The Philippine Pediatric Society annual meeting is "shouldered by the milk companies", said one doctor. "The link is so strong, it cannot be broken. They have a hold on the medical profession. Even with the cooperation of the entire Philippine Medical Society, we couldn't stop the industry. That is why when I go to medical conferences, I create enemies. I can't help myself when it comes to bottle feeding and infections. I really argue with them. It's useless. My colleagues tell me to stop pointing the finger...it's the way I talk when I's excited". Another pediatrician added, "When I'm invited to give a talk at one of these converences, I ask "How do you expect me to talk when the ones sponsoring this are the milk companies?"

The Philippine Pediatric Society research award contests,both for doctors and pediatric residents, offer cash prizes supplied by Abbott and Mead Johnson. Scientific meetings are usually organized around a meal in a first class hotel, provided by the milk companies. Hotel bills, meals and travel expenses are provided to the speakers, committee chairman, and sometimes the participants. Company representatives will often chauffeur doctors to conferences in company cars. Nestle sponsored the annual meeting of the Integrated Midwife Association of the Philippines. "Midwives take care of babies", a pediatrician noted, "there are strings attached".

In 1975, when the National Nutrition Service sponsored a series of seminars on child nutrition, infant goods companies sponsored snacks, luncheons and printing of invitations:

"Breast Feeding" Abbott Laboratories
"Overcoming Problems in Infant and Young Child Feeding Practices" Wyeth Suaco Laboratories
"Rooming-In" Borden International
"Weaning Diets" Gerber Baby Foods

"Something drastic has to be done", cried a pediatrician. "Infant formula promotion is unethical. The company codes of marketing are not strict, they"re not strongly enforced, and most doctors don't even know they exist".

The pattern is clear. The ignorance and indifference of health workers about the advantages of breast feeding is in the financial interests of the infant formula companies who reinforce this situation. The activities of the companies actively legitimize the concept of bottle feeding. Provision of large quantities of free samples facilitate artificial feeding of infants in the hospitals. The alternative rooming-in is extremely rare. Researchers found that in 89 hospitals visited, "there were hardly any practicing rooming-in. A World Health Organization staff member states that in 25 hospitals in which they are supporting maternity-centered family-planning projects, only 2 out of 25 are now practicing rooming-in".8

A significant exception is Baguio General Hospital. "I used to be one of them", states Dr. Natividad Clavano, Head of the Department of Pediatrics. "eight hours after birth, we started feeding the babies on glucose and water, then we introduced formula. There was no rooming-in. Babies were bottle fed for the three days they usually stayed in the hospital. I really didn't realize the problems I was creating. We health workers are at fault and the companies reinforce our bad ways". When Dr. Clavano returned from a year's study at the Institue of Child Health in London, she was convinced that something could be done to bring down the high rates of infant morbidity and mortality, she instituted rooming-in. Two hours after birth, the baby is given to the mother. Breastfeeding starts as soon as mother and baby are ready. The mother provides most of the infant care, thus relieving the nursery staff free to provide direct patient care in the Under-Five Clinic adjacent to the hospital. Instead of requiring more staff, rooming-in requires less staff. As to the risk of infections, both Dr. Clarano and head of obstretics, Dr. Keith Santos dismiss it. The resulting improvements in infant health are dramatic.

On a forthcoming issue of the Journal of Tropical Pediatrics (Fall, 1978), a study supervised by Dr. Clavano compares infant morbidity and mortality over a four year period: 1973-1974 (no rooming-in) and 1975-76 (rooming-in). After rooming-in was instituted, overall morbidity was reduced 58% and mortality by 47.2%. Morbidity by septicemia was reduced 66.6%; mortality by septicemia was reduced by 81.5%. Morbidity by diarrhea was reduced by 79.7%. The secret? Rooming-in encourages breast feeding. The hospital staff supports breast feeding. As Dr. Clavano said "Do you know why my staff are convinced of the value of breast feeding? Because they see for themselves the reductions in morbidity and mortality. They see it works! As a result, whereas in 1973-1974, only 21.6% of babies were being breastfed and morbidity averaged 15.2% (26 sick babies per month), in 1975-76, 83.1% of babies were breastfed and morbidity averaged 6.38% (14 sick babies per month). Consultations in the Under-Five Clinics went up, and admissions to the pediatric ward dropped dramatically. In stark contrast to the congested malnutrition wards of Manila hospitals, there were only five babies in pediatrics wards

and rows upon rows of gratifyingly empty cribs. "They used to be full". No bottle feeding may be given to any infant without explicit approval from a doctor. Dr. Clavano also reported a marked decrease in the number of babies abandoned in the hospital. This she attributes to the special closeness achieved by early rooming-in.

If the baby has to be hospitalized, the mother stays in a special Mother Child room so she can go on breast feeding. Several handmade pictures of a starved baby inside a bottle - the famous baby killer illustration - adorn the walls of wards and clinics. "It's very effective", says Dr. Clarano, "The first thing the mother wants to know is why the bottle is a baby killer. I've noticed other hospitals and clinics have copied our signs". Dr. Santos removed one of remaining two infant formula company pictures in the maternity ward while I was there. He promised to remove the other in a few days. It was advertised a Wyeth product, "The trouble-free formula that breast feeds".

If such dramatic improvements in infant health can be made with such minor changes in hospital routine and attitudes of health workers, why can't this be implemented on a larger scale? There are many obstacles: fear, tradition, inertia. But there can be no doubt that the weight of the infant formula companies lies mightily on the side of the bottle, and thereby on the side of disease and death.

Footnotes

1. Clemente S. Gatmaitan, "Keynote Address of the Honorable Clemente S. Gatmaitan, Secretary of Health, During the Symposium of Breast Feeding, Sponsored by the National Nutrition Service, Depart of Health at the FNRC-NSDB, Manila, November 21, 1974", Proceedings of the Symposium-Forum on Breastfeeding, p.2.

2. Fe Del Mundo, "Breast Feeding, The Challenge of Today - A Pediatrician's Viewpoint. p.18.

3. Ibid., p.23

4. Dr. Antonio N. Acosta, "Introductory Remarks", Proceedings of the Echo Seminar on "Overcoming Problems in Infant and Young Child Feeding Practices, sponsored by National Nutrition Service, Department of Health, February 17, 1975, pp. 2-3.

5. Ann Burgess, of WHO, did a study on health workers' knowledge of breast feeding in Pasay City (Manila) and found disturbingly low knowledge and negative attitudes.

6. Gatmaitan, op.cit., p.5.

7. Dr. Antonio Dennis Reis, Proceedings on Breastfeeding, op.cit. p.39.

8. Dr. Fe del Mundo, "Welcome and Introductory Remarks", Proceedings of the Scientific Conference on Rooming-In, sponsored by National Nutrition Service of the Department of Health, March 21, 1975, p.2.

PHILIPPINES, SUMMER, 1978 WYETH-SUACO PROMOTION

PROMOTIONAL LEAFLET FOR BONNA

Philippines, Summer, 1978. Wyeth-Suaco promotion

BONNA (AHP) face masks, tee-shirts, s-26 diapers
hospital decal.

Samples of Baby Books,

Philippines, 1978

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INFANT FORMULA PROMOTION IN MALAYSIA

Submitted by Edward Baer, Consultant
Interfaith Center on Corporate Responsibility

July 9, 1978

Testimony submitted to the Subcommittee on Health and Scientific Research of the Committee on Human Resources following subcommittee hearings, May 23, 1978.

Infant Formula Promotion in Malaysia

testimony submitted by

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Penang is a small city (± 300,000 population) located on an island west of the Malaysian peninsula.

I spent several days in Penang, during which time I interviewed 13 health workers in public and private practice (seven physicians, 6 nurses/midwives) and several community workers, including representatives of local and international consumers groups. Two points stand out from this experience.

1. Promotion of infant formula is extremely intensive. Not only is Malaysia one of the few remaining countries where mass media advertising remains extensive (radio, T.V., newspapers, magazines, cinemas, delivery vans, etc.), but the use of mothercraft nurses and medical representatives is also extremely widespread.

2. 100% of health professionals interviewed identified industry promotion as a leading - if not dominant - cause for the decline in breast feeding and popularity of bottle feeding. Despite a relatively "enlightened" stand against industry promotion adopted by the Ministry of Health at the national level, local health workers are unanimously convinced that stronger measures are needed.

At least seven companies sell infant formula in Penang, Malaysia. These include Nestle, Dumex (Danish), Wyeth, Mead Johnson, Snow Brand Japanese and Dutch Baby (Freisland). Isomil (Abbott/Ross) is also available, but I didn't see Similac. Very little market size or market share information was available, but Nestle was acknowledged to be the leading seller, with Dumex notably second and Wyeth third in this city.

Nestle, Dumex, Wyeth and Dutch Baby are said to have one or more mothercraft personnel in the Penang area. Mead Johnson formerly had mothercraft personnel, but they are "less in evidence now than formerly", according to one doctor. Accordingly to one nurse (midwife, who reports having been frequently approached with offers of employment by the milk companies, a mothercraft nurse receives significantly better pay and fringe benefits than her counterpart in public service. Pay is better, a car is provided, the work week is five days (rather than six) and nurses for Nestle are offered the right to buy Nestle products at stock prices. "And if you get to be supervisor, you will be among the top paid women in Southeast Asia".

Mothercraft nurses routinely visit hospitals and clinics during pre-natal care instruction periods to talk to expectant mothers and distribute free samples directly to mothers. Mothercraft nurses also visit patients on the

wards of the hospitals, despite a Ministry of Health direc ive expressly forbidding this! As the nurse/midwife explained, "Now they come during visiting hours when anyone is allowed on the wards. How can we stop them; we're not policemen?" Often mothercraft nurses follow mothers into their homes. Previously, lists of mothers with newborns were given by the City Health Department. That practice has since been stopped. "But the mothercraft nurses find ways of obtaining these lists", explained another doctor ,"the junior visiting nurses (public service) are especially influenceable". This doctor also expressed that, "the agressiveness of promotion is most obvious in home visiting. The milk nurses are obliged to show a certain amount of return each month".

Speaking of the mothercraft nurses, a public service nurse complained "We have to work that much harder to counteract their influence. Supposedly they are trained, but just how far, they put their training to use, I don't know. I've never heard a mothercraft nurse give really good instructions on breast feeding or even good instructions on how to prepare feeding bottles safely. The more unscrupulous ones even try to get mothers who are already bottle feeding to switch brands. They visit the homes of newborns before we ever do. Everytime I visit a home, I find that the company nurse has already been there. They give advice contrary to what we want". Finally she added, "Are you trying to stop the company nurses? It would make our work much easier".

A doctor in private practice in a large, poor public housing project confirmed that mothercraft nurses visit in that area despite the fact that the population is overwhelmingly poor. Less than 5% of mothers are breastfeeding, the doctor estimated, despite the fact that the majority are housewives. "A family could easily spend $60 per month on formula feeding. When the family is only making $300 per month, that's a lot". There's a lot of aggressive selling. The mothers are given samples, and they're hooked on the product right from the start". The doctor said that Nestle is the most agressive, followed by Dumex. "But a lot of mothers want S26 because it's the most expensive. They can't believe that something free (breast milk) can be better than something that costs so much". The doctor also reported that Nestle is toning down its promotion through free sampling, but increasing its television exposure. "This a business venture. And to change the situation, we have to think like businessmen. Look where the companies put their money and you'll know how to counteract them". As a parting gesture, the doctor volunteered to take down the Nestle, Wyeth and Mead Johnson posters and baby pictures that adorned the clinic walls.

A community worker who operates in rural villages confirmed that mothercraft personnel penetrate rural areas as well. "They will move in for a month or so in one area, and then move on. They distribute samples in village clinics, go to homes before the delivery and tell mothers how to look after their babies and what the best milk is for the child". The worker reported an increase in infant formula use, especially in the last 2-3 years. "There's also been an increase in infant disease. More babies are going to the clinic for treatment. Diarrhea, Vomiting". Another community worker in the urban areas confirmed that families actually spend as much as 25% up to 40% of family income on infant formula.

The trend towards bottle feeding in the rural areas has also been confirmed by scientific studies. In one area in North Kelantan, researchers reported in 1976 that while 95% of mothers attending clinics were breast feeding, only 18% were totally breast feeding until three months, and only 9% were breastfeeding without added solids until six months. In other words 78% introduced solids before the end of the third month and 76% introduced solids as early as the first month.[1] Bottle feeding in this context should not be equated with infant formula use, since only 5% of mothers in this study used artificial formula).

A doctor in a public hospital also railed against the mothercraft nurses, "We can't stop them. They mix with the mothers at ante-natal clinic. They come to the hospital at visiting hours. It's very difficult to chase them, even though they are not officially allowed on hospital wards". Another doctor in a government hospital acknowledged that bottle feeding had become a habit even among the very poor. Bottlefeeding is seen as far superior. It's an uphill battle for us, especially in the urban areas, even though no more than about 30% of the women are working". This physician also estimated that 9 out of 10 babies admitted to the gastro enteritis ward are bottle fed. "Contamination and overdilution".

(Side Note: Even Nestle is aware of the problem of overdilution. In their free handout advertising Lactogen Full Protein to the medical profession subtitled "Malnutrition a problem? Read how we can help". They say, "Formula stretching is fairly common for a mother who has bought an expensive formula because she wanted to give her baby the best. She may, when she sees it being used up so quickly, try to make it last longer by giving less powder than recommended".)

The doctor went on to explain "that when there is an outbreak of gastro-enteritis on the ward, we have to stop the proliferation of milks. We had to put our foot down and force mothers to breast feed and keep the milk nurses out".

The Wyeth mothercraft nurse was described by three independent sources as being particularly aggressive". She's always ready to tell you how superior S26 is to all other milks, with the implication that it's better than human milk", one nurse said". But they are very careful about letting us know whether they are paid commissions".

Free samples are regularly distributed directly to mothers, and to health workers for their own children (6 months free supply for doctors; 3 months for nurses). One small government clinic reported receiving a regular supply from Nestle of 48 or 72 small cans per month. The other companies are not so regular. At the Adventist Hospital (private) mothercraft nurses are not allowed any patient contact. Instead the hospital rotates use amoung several brands of formula that are donated by the companies. When a mother is discharged, she routinely receives 2 free sample cans. But she has to sign a card giving her name and address. This is for the mothercraft nurse to visit in her home. If she doesn't sign the card, she doesn't get the samples.

1. S. Balakrishman and Hasbullahbin Hajo Hussein, "Breast Feeding in Kelantan", Med. J. Malaysia Vol XXXII,No. 1, September 1977.

Traditionally, the companies justify the use of mothercraft nurses by saying that they provide much needed health care services where existing health resources are already overtaxed. Aside from the obvious and inescapable contradiction between commercial promotion and provision of health care, this argument is completely without foundation in a city such as Penang. The existing city health department nurses provided above average coverage of the urban areas, including home visits to newborns. Even the City Council nurses themselves complain of the unwanted and unwarranted commercial effect of company nurses.

In addition to mothercraft nurses, other promotional methods are also common. Plastic "Lactogen" bags are very much in evidence; I saw at least 2 Dumex delivery vans with promotional messages; Dumex also offers free cookware as an incentive to sales; and radio, T.V., newspaper, magazine, and cinema advertising is reported to be heavy - some sources report an increase in mass media advertising in recent months that may be related to an article in a Malaysia newspaper (Echo) that warned that overfeeding of powdered milks can cause brain damage ("Powdered Milk Shock!"). The use of mass media advertising is roundly condemned by all health workers interviewed. "The government should come out with a code of ethics against mass media advertisements", one senior public health official commented. "The companies are very aggressive". A breast feeding mother complained that advertisements for infant formula conveys an incredible sense of inadequacy for the brease feeding mother. "There's no way we can compete". She also noted that company milk nurses always stress the "convenience" of bottle feeding . "If you're breast feeding you can't go out, we're told".

Another particularly objectionable form of promotion is company sponsored baby shows. Nestle is the acknowledged leader in this although other companies are following suit. Nestle now sponsors such baby contests only in cooperation with some community group. In the attached newspaper clipping (Echo, June 5, 1978) the Lions Club was the ostensible host, but prizes, decorations and Lactogen Crowns for the winners are supplied by Nestle. Nestle advertising and sample cans are featured prominently throughout. One pediatrician noted that he had agreed to serve as a judge for one such show, provided he could lecture about breast feeding at the end. "They may not invite me back", the doctor added. Another doctor exploded, "This disgusting display of commercialism has no place in our society".

The Ministry of Health at the national level has become quite concerned about this problem and has issued two relevant directives. The first is to ban mothercr ft nurses from hospital wards (which has been circumvented by mothercraft personnel in Penang by arriving during visiting hours). The second directive orders that all company names on posters, baby pictures, calendars, etc. found in public hospitals & clinics MUST BE COVERED UP. I did not see any examples of non-compliance. The Ministry also buys all formula for in house use from one company. Yearly bids are entertained with the contract going to lowest bidder. This year it's Dumex. Last year was Nestle.

Despite these efforts, and a national program to promote breast feeding that has not yet been fully implemented, breast feeding continues to decline. The full range of promotional devices are used extensively by the formula companies, apparently with great success. Most health workers described the frightening situation where an increasing percentage of mothers actually believe that infant formula is nutritionally superior to breast feeding. In fact, in a survey conducted by the Consumer's Association of Penang, 39.8% of mothers who have bottle fed their children considered artificial milk more nutritious than mother's milk (April, 1975). Clearly, there is great cause for concern; clearly the infant formula industry is heavily implicated. Clearly no one could agree that the mass media advertising perpetrated in Malaysia serves any but a pure sales function; clearly the aggressive behavior of company mothercraft nurses is not in the best interests of the health of the Malaysian public. Immediate, far-reaching and well-enforced regulation of infant formula promotion is an obvious necessity.

São Paulo, June 28, 1978

Mr. Douglas A. Johnson
ICCR
475 Riverside Dr.
New York, N. York 10027
U.S.A.

Dear Mr. Douglas A. Johnson

I received your letter by June 1th, when I was leaving for a two weeks field work. Then, it was impossible to send the material bay June 10th. I hope that it will be still usefull at this time.

The data and discussion here presented is refering only for the São Paulo State. In this small period of time it was difficult to gatter information about the entire country. It is possible to found different patterns of breast feeding and promotional activities in different regions of Brazil, since the São Paulo State is the most developed region of Brazil.

I will be happy giving you any further information.

Sincerely yours

Marcia F.A. Baldijão
MARCIA FURQUIM DE ALMEIDA BALDIJÃO

COMMENTS ON BREAST FEEDING AND INFANT FORMULA PROMOTIONAL PRACTICES IN SÃO PAULO STATE

I wish to tanks: Keiko Buralli from the Maternal-Child Department of Public Health School of São Paulo State to the contribution in the discussion and organization of this material; Dra. Dirce Sigulen from Preventive Medicine Institute of the Paulista School of Medicine who help me in trying to elucidate the role of infant formula promotional practices; Dr. Berezin from the Pediatryc Department of Santa Casa School of Medicine who gave me unplublished data.

1. Breast-Feeding in São Paulo State

The studies on breast-feeding appear in the 1960's São Paulo State. A great deal of them are concerned to the population of health services.

The meam time of weaning in urban areas is near of 3 months of age and 7 to 12 months of age in rural areas (Table 1,2)

Those studies showed that according to the mother of urban areas the factors related with the weaning are: unssufficient amount of milk, milk weakness, maternal or child pathology. In rural areas it was observed that the factor "new pregnancy" still is the main reason to the weaning.

It is interesting to note that working out of home doesn't constituted an important reason for the weaning, even in a large center like São Paulo city. Although with the increase ofparticipation of womem in the labor force, this factor wil be one of the difficulties to be understood, since doesn't exist real conditions to breast-feeeding practice.

The study "Patterns of Mortality in Childhood" (17) pointed out the role of breast-feeding in the patterns of mortality in childhood. It was observed a high association between the breast-feeding period and deaths caused by malnutrition. Malnutrition as the basic or associated cause of death represented 28.0% deaths in the city of São Paulo, for children less than 1 year of age. In the age group 28 days- 5 months the frequency of deaths by this cause was higher in children breast fed lest than 1 month. The lower frequency of deaths were assigned in those children which were never weaned. In the age group of 6-11 months the higher frequency of deaths by mal nutrition was in those children never breast fed.

This study revealed that São Paulo and Recife (2 brazilian urban centers) showed the higher diarrhea mortality rates of the entire project. It was suggested that this fact could be explained by the lowest period of breast feeding presented in these areas.

Teruel (18) show that the children which presented a small period of breast feeding presents a higher incidence of

diarrhea, Martins (6) show also that the pathologies are more frequent in children with small period of breast-feeding.

2. Infant Formula Promotional Practices

Before receiving this letter, I didn't knew anything about the Code of Marketing Ethics. I tried to get information about it since then, but anyone who I contated had any notice in this issue, this includes public health professionals working direct with the population, pediatrits, health professionals of the Maternal-Child Program of the Health Ministry of Brazil and São Paulo State Health Secretary and researches which are working in breast-feeding projects.

The Nestlé Co. began its activities in Brazil before the World War II, but it presented a large increase in its production soon ofter this period. The brand most widely distributed is "Ninho" - whole powder milk, followed by "Glória" (whole powder milk) - produced by General Foods. The Nestlé Co. is the only company in the market of infant formulas, the brands most widely distributed are: Nestogeno, Semilko and Nanon. The prices of cans of 454 grams in june 1978 in São Paulo city is:

author	study period	study population	local	mean age of weaning
Barbieri,M.A. e col. (7)	1972	Health Center	Ribeirão Preto São Paulo	3 months
Ricco, R.G.(8)	1974	Health Center	Ribeirão Preto São Paulo	2-3 months
Barros Fº,A.A. e col. (9)	1974	Health Center	Ribeirão Preto São Paulo	± 3 months
Rizzato,A.B.P. e col. (10)	1974	Health Center	Botucatu São Paulo	2 months
Oliveira,L.R. e col. (11)	1974	Health Center	Paranapanema São Paulo	6 months
Marques, M.B. (12)	1976	Health Center	Campinas São Paulo	1-2 months
Medina,M.C.G. (13)	1976	Health Center	Barueri São Paulo	3 months

TABLE 1

MEAN AGE OF WEANING IN SEVERAL CITY OF SÃO PAULO STATES

authors	study period	studied population	local	mean age of weaning
Rosenburg,O. (1)	1967-72	hospital	São Paulo (urban)	1 month
Berezin,A. e col. (2)	1968-72	Health Center	São Paulo (urban)	1-2 months
Ulloa,A.G. (3)	1972	Health Center	São Paulo (urban)	3 months
IMPEP/FIPE (4)	1973-74	population sample	São Paulo (urban)	1 month
Ishii, M. e col.. (5)	1974	Health Center	São Paulo Urban)	± 2 months
Martins Fº,J.(6)	1974-76	Maternity Ward	Campinas São Paulo (urban)	3 months

NESTOGENO:	U$ 4.64
SEMILKO:	U$ 1.52
NANON:	U$ 2.22
NINHO:	U$ 1.45
GLORIA:	U$ 1.38

The monthly minimum wage in the city of São Paulo in june 1978 is U$ 87.07. A family will expend the following percentages of the monthy minimum wage to feed a child between 0-6 months of age:

NESTOGENO:	15.1%
SEMILKO:	14.0%
NANON:	20.4%
NINHO:	13.3%
GLORIA:	12.7%

The promotional practices before 1975 include free sample of infant formulas at the maternity wards still 1973, distribution of promotional literature directed to the mother in the maternity wards in 1974. It seems that there wasn't promotional practice directed to the national elite, it was well spread in all socioeconomic groups.

By now doesn't exist direct consumers promotional practices. The habit of artificial infant feeding in the urban areas is already established, as it was shown in the last topic. Probably by this reason and to avoid possible pressure against it, the

promotional to consumers pratices are umnecessary.

Since 1970 the promotional practices of the Nestlé Co. is centered on the health proffessionals, mainly on the physicians and especiàlly the pediatrists. This can be shown by the data provided in the survey "The nutritional status of children of 6-60 months in the city of São Paulo" - Escola Paulista de Medicina e Instituto de Pesquisas Econômicas (4). (Table no. 3 - Table no. 4)

Table 3

Distribution of cases of the better type of milks in the mother's opinion.

type of milk / frequency	breast	fresh whole milk	powder whole milk	infant formula	Total
no.of mothers	185	81	225	9	500
Percentage	37.0	16.2	45.0	1.8	100.0

Source: The nutritional status of children of 0-60 months in the city of São Paulo (4)

8.

Table 4

Distribution of cases by the type of milk which substituted breast milk

type of milk / frequency	fresh whole milk	powder whole milk	infant formula	others	Total
no.of mothers	63	127	153	157	500
Percentage	12.6	25.4	30.6	31.4	100.0

Source: The nutritional status of children 0-60 months in the city of São Paulo (4)

Only a very small percentages (1.4%) of the mothers tought the infant formula was the better food for their children, but a large percentage (30.6%) of them use the infant formulas to feed their children. The infant formulas are generally adopted after a pediatrian prescription.

The results obtained in that survey and Martins (6) show that the period of breast feeding decrease with the increase of pré-natal assistance. The contact with the health proffessionals are influencing the weaning and the use of infant formulas.

A study carried out in 23 maternity wards in the city of São Paulo, in 1976 by Berezin (19) found that in 95.6% of the maternity wards, breast feeding was only cited: 31.8% the only information the mothers was about breast feeding; 65.2% recommend

the use cow's milk and give instruction how to prepare it, and in 30.4% prescribe formulas. An example of these prescriptions is enclosed.

Other evidences of the promotional practices centered pediatrists are: a) the pediatrist's newborn receive the necessary amount of his/her milk's choice during the 1st year of life from the Nestlé Co.; b) courses, congress and scientific literature are sponsored by the Nestlé Co.; c) The Nestlé Co. mantain a monthly scientific publication directed to these proffessionals - Nestlé Pediatric Themes, an annual publication - Nestlé Annals; d) There is a close conection between the Brazilian Pediatric Society and the Nestlé Co. (material inserted).

The promotional of infant formulas are made as the logical alternative in case of unsufficiency of breast milk.Dra. Dirce Sigulen from the Preventive Medicine Institute of the Paulista School of Medicine is now carrying out a study on food practices in infancy, where the promotional practices on infant formulas is included, but the results isn't yet available.

A factor which influences directly the use of formulas or whole powder milk in the large brazilian urban centers is the constant deficit of whole fresh milk.

The deficit of whole fresh milk is caused by the unsufficient milk production and in part by an artificial demand of powder

milk created by the Nestlé Co. The São Paulo State Milk Producer Cooperative, send last year a formal accusation to Agricultural Ministry against the Nestlé Co. This accusation assures that the Nestlé Co. uses its power to eliminate its small concurrent (20).

Others reasons of the fresh milk deficit are: a) higher incentives and credits directed to meat cattle production than to dairy cattle; b) a great deal of the milk produced is directed for dairy products (yogurts, gellified, puddins, etc.)because larger profits are obtained in these products.

3. Breast-feeding promotional activities:

Breast-feeding education is part of the routine of pre-natal care of Maternal-Child Program of the Health Secretary of São Paulo State.

Low weight pregnant womem receive during the pregnancy food supplementation, which is mantained till the weaning. The number of nursing mothers with food supplement was 223.138 in 1977. (21). This food supplement named "Gestal" is produced by the Nestlé Co.

This program furnishes food supplementation to the nursing mothers and it also furnishes powder whole milk when child is

weanned, the larger milk dealer of the program is also the Nestlé Co. The number of children registered in this program was 1.586.309 between 0-18 months and the amount of milk cans distributed was 6.523.860, in 1977 (21)

The Health Secretary of São Paulo sponsored an advertising campaign about breast-feeding in mass-media (daily newspaper, radio and TV) during 1976/77. A promotion of breast feeding practice can also be noted in popular magazines directed to the womem.

The brazilian labor legislation favors the breast-feeding practice. It establishes 2 period of 30 minutes each, to the mothers breast fed their children till 6 months of age, on the day care facilities at local work (22). The problem is that almost any industrie, commerce and government offices do not. accomplish the low, i.e., they do not have the day care facilities.

Courses about the role of brest-feeding directed to health professionals took place in the last 2 year. It is important to mention that the Nestlé Co. was one of the sponsors of these courses. An increasing number of studies on breast-fedding and weaning practices were presented in congress and symposies in the area of biomedical sciences, since 1974. These issues are now part of courses on Nutrition and Public Health at the São Paulo University.

Population Council, Ford Foundation, Renumi and La Leche

in Rio de Janeiro are the organizations which are direct or indirect involved in promoting breast-feeding in Brazil.

The Nestlé Co. doesn't exert any oponent pressure on the efforts of promotional practices of breast-feeding, on the contrary it participates together probably to stay as the logical alternative.

The artificial feeding practice is already established in the brazilian urban areas, it will be difficult a rapid change in this habit. In my opinion a better supplementation program would be the use of fresh whole milk, because it is less expensive and increase the opportunities to local milk producers. The multinational are mainly engaged in the milk industrialization process.

The commercially prepared infant foods are showing an increase trend in the market. This fact can be observed by the large varieties of infant foods available recently, and the enter of Gerber Co. in the market in 1976/77, up to this time the Nestlé Co. was the only company producing these products.

The introdution of commercially prepared weaning foods doesn't give any benefit to the population. The local prepared weaning foods show a great variety of foods are fresh and are less expensive than the industrialized products.

It is difficult to answer the question how would the brazilian government and health stablishment respond to U.S. government initiatives to restrict baby formula promotion of

the U.S. based multinational companies. The Nestlé Co. isn't a company U.S. based and it is the most important in the brazilian market.

In Brazil doesn't exist an accurate legislation on any type of promotional practices. The pharmaceutical and food industries have the freedom to do what they want to. Many drugs and food additives, which are forbiden in their countries of origin are freely introduced and commercialized here. The possible solution would be a change on the brazilian legislation with an efficient inspection.

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(21) Secretaria de Saúde do Estado de São Paulo - dados obtidos no Serviço de teleprocessamento de dados da Secretaria de Economia e Planejamento do Estado de São Paulo.

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SOCIEDADE BRASILEIRA DE PEDIATRIA
Filiada à Associação Médica Brasileira
Av. Franklin Roosevelt, 39 - Grupo 1.112
ZC - 39 - Rio de Janeiro - RJ

São Paulo, 24 de agosto de 1976

TEMÁRIO

14/09 - 09h00 - Influência sobre o desenvolvimento e crescimento do cardápio recebido pelas crianças de 6 a 24 meses - INAN

14h30 - QI e QD segundo o estado nutricional
Dra. Léa Rotemberg

Avaliação do estado nutricional da gestante
Dr. Azor José de Lima

15/09 - 09h00 - Antropometria do recém-nascido
Dr. Roberto Nunes

- Expediente

Nestlé Serviço de Informação Científica

LEGIÃO BRASILEIRA DE ASSISTÊNCIA
Diretoria Estadual de São Paulo

Água fervida	DEXTROGOL (medida do semilko)	SEMILKO – Nestle Co
30 g.	1/2 medida	1 medida
60 g.	1 medida	2 medidas
90 g.	1 1/2 medidas	3 medidas
120 g.	2 medidas	4 medidas
150 g.	2 1/2 medidas	5 medidas

- PREPARO -

Colocar a água fervida, o Dextrocol e o leite em pó na mamadeira, agitar bem, até dissolver completamente.

Conforme for a aceitação da criança, aumentar 10 g. cada dia, porém aos poucos e sem forçar.

1. As mamadeiras e os bicos devem ser limpos e fervidos antes do uso.
2. Não ferver o leite depois de preparado, aquecer somente.
3. Não dê o resto do leite que fica na mamadeira, deve ser desprezado.

TEMAS DE PEDIATRIA Nº 6 - NESTLÉ - Serviço de Informação Científica

Leite Materno: Alimento Natural

Dilson C. Bomfim
Prof. de Nutrição Materno - Infantil do Curso de Pós-Graduação em Nutrologia - UFRJ.
Superintendente do Inst. de Puericultura e Pediatria Martagão Gesteira - UFRJ
Pediatra-Puericultor do Hosp. Municipal Salles Netto.
Membro do Comitê de Pediatria Social da Soc. Brasileira de Pediatria

Apesar do avanço tecnológico ocorrido na indústria de alimentos, permanece o leite materno como o alimento ideal do bebê. À proporção que vamos conhecendo melhor, de um lado o próprio leite materno, de outro a criança com suas peculiaridades fisiológicas e necessidades nutritivas, cada vez mais se impõe a excelência de tal alimento, exigindo, dos produtores de leites industrializados para uso infantil conhecimento sempre atualizado e tecnologia sofisticada, de modo a permitirem oferecer àquelas crianças que porventura não contem com o leite materno, um substituto à altura.

Assistimos, no entanto, com real pesar, ao declínio do aleitamento ao seio, embora, teoricamente, quase todos concordem com as inúmeras vantagens de tal método. Em investigação realizada no Instituto de Puericultura e Pediatria Martagão Gesteira da UFRJ sobre aleitamento materno, verificamos que 81,4% das mães inquiridas acharam ser o leite materno ótimo e bom para a criança, 13,6% foram indiferentes e apenas 5% definiram-no como ruim. Não houve correlação entre o tempo de duração da amamentação das mães com a de seus filhos - aquelas mamando muito mais tempo que estes. O início do aleitamento misto alcançou seu maior nível em torno da segunda semana, surgindo o trigésimo dia em segundo lugar. À partir de então, foi o aleitamento ao seio declinando progressivamente até suspensão total. O fato mais lamentável observado foram os erros cometidos na preparação das fórmulas utilizadas - excesso de hidratos de carbono em detrimento das proteínas e gorduras.

"Por que" indaga Applebaum "são os médicos bem intencionados, conhecedores dos méritos do aleitamento ao seio, os primeiros a recomendar alimentação por mamadeira, quando as coisas se complicam?". Em geral, dispensa-se, no ensino dos alunos de Medicina e Enfermagem, menos tempo ao aleitamento natural que ao artificial, não se permitindo dessa forma uma familiarização maior dos alunos com os problemas da técnica de amamentação, nem se lhes dá oportunidade de conhecer melhor os princípios fundamentais da anatomia e fisiologia das mamas.

ANATOMIA DAS MAMAS. A PRODUÇÃO DE LEITE.

As mamas são glândulas mistas túbulo-alveolares, com 10 a 20 unidades lactíferas envoltas em tecido conjuntivo e

INTERFAITH CENTER ON CORPORATE RESPONSIBILITY

A Sponsored Related Movement of the National Council of Churches
475 Riverside Drive • Room 566 • New York, NY 10027 (212) 870-2293

July 26, 1978

MEMO:

TO: WALTER SHERIDAN

FROM: LEAH MARGULIES

RE: SENATE HEARING TESTIMONY- Infant Formula, May 23, 1978

Enclosed is xerox copy of letter of S. Dayanandan testifying to the presence of two Mead Johnson milk nurses in Singapore along with a copy of the Business Reply Card given to one Mrs. Dayanandan by the milk nurse, Mrs. Lim.

Mr. Edward Baer will follow up with a report of his findings in Singapore.

Thank you.

Enclosures

CONSUMERS' ASSOCIATION OF SINGAPORE
新加坡消費者協會
PERSATUAN PENGGUNA2 SINGAPURA
Trade Union House, Shenton Way, Singapore 1. Telephone: 2224165/2226555 ext. 28/29

20th July 1978

Mr Edward Baer
Interfaith Centre on Corporate Responsibility
National Council of Churches
475 Riverside Drive
New York, N.Y. 10027, U.S.A.

Dear Mr Baer

I wish to inform you that on 17th July, 1978 I rang up Bristol Myers (S'pore) Pte Ltd to enquire if they provide Mothercraft Service to mothers in Singapore. I was informed the company employs two Mothercraft Nurses to promote the sale of Enfamil Infant Formula, to doctors, health workers and mothers. I requested the company to send a Mothercraft Nurse to my house to see my wife who is due to give birth to my second child in mid-August 1978. The company agreed to send a Mothercraft Nurse to see my wife within two days time.

On 19th July at 2.30 p.m. a Mothercraft Nurse from the company who identified as Mrs Lim came to see my wife at my house. She asked my wife (Kim) which brand of infant formula our first child was fed with. My wife told her that our first child was breastfed for 1½ years and after weaning the child was given Lactogen. Mrs Lim said that Lactogen is creamy and fattening and then started talking about the superiority of Enfamil over the other brands of infant formula. Mrs Lim then asked my wife whether she wishes to breastfeed the second child due when my wife replied in the affirmative, Mrs Lim told her that the child needed supplementary feeding as she may not have sufficient breast milk. She told my wife to give the second child one scoop of Enfamil infant formula mixed with 2 ounces of water as supplementary feeding for the first six months. After six months she told her to give the baby Enfamil with iron and after one year she recommended the use of Alacta-NF. She also recommended my wife to buy Natalin at a special offer price and pointed out that her health would be affected if she lack iron and calcium. She recommended my wife to use other Mead Johnson products such as Enfamor baby shampoo and Poly Vi-Soc children's chewable vitamins.

Mrs Lim gave my wife a free sample tin of Enfamil Infant Formula and left the company's Business Reply Card for free Mothercraft Nursing Service. She requested my wife to call her after the birth of the second child. I forward herewith a copy of the Business Reply Card and the Mother & Child Care Book and the free sample of Enfamil Infant Formula.

Yours truthfully

Daya

S Dayananthan
Executive Officer
CASE

Postage
will be
paid by
Licensee

No Postage Stamp
Necessary if
Posted in Singapore
or West Malaysia

Business Reply Card
Licence No. 438

BRISTOL-MYERS (SINGAPORE) PTE. LTD.
Agent for :-
MEAD JOHNSON MOTHERCRAFT SERVICE
P. O. BOX 1572, SINGAPORE.

J № 00040 K-Q
2211655 HA LIM

AS A COURTESY OF **MeadJohnson** INTERNATIONAL A Division of Bristol-Myers

請派美贊臣的護士到下列地址爲嬰孩作免費服務及顧問:—
PLEASE EXTEND YOUR FREE MOTHERCRAFT NURSING SERVICE TO:—

姓名 NAME ..... 電話 TEL: .....

住址 ADDRESS .....

嬰孩出生日預計將在 日 月 年
☐ I AM EXPECTING A BABY ON ..... DAY ..... MTHS ..... YR.

嬰孩出生日期爲 日 月 年
☐ MY BABY WAS BORN ON ..... DAY ..... MTHS ..... YR.

您亦可電2211655詢問有關為嬰孩免費服務詳情
FOR FREE MOTHERCRAFT SERVICE, YOU COULD ALSO RING 2211655

Signature/Date: MCN NAME

INTERFAITH CENTER ON CORPORATE RESPONSIBILITY

A Sponsored Related Movement of the National Council of Churches
475 Riverside Drive • Room 566 • New York, NY 10027 (212) 870-2293

August 2, 1978

MEMO

TO: Walter Sheridan

From: Leah Margulies

Re: Material for Senate Hearings Record

Enclosed is information related to infant feeding legislation, Papua New Guinea.

JUL 18 1978

Papua New Guinea

NATIONAL PLANNING OFFICE

TELEGRAMS: OPAC, PORT MORESBY
PHONE: 276111

POST OFFICE WARDS STRIP
PORT MORESBY

Ms. Leah Margulies,
Director, Infant Formula Programme,
Interfaith Centre on Corporate Responsibility, Room 566, 475 Riverside Drive,
New York NY 10027,
U. S. A.

Date: 12th July 1978
Our Reference: 6-7-7
Action Officer:
Designation:
Your Reference:
Date:

Dear Ms. Margulies,

Thank you for your letter of June 28th concerning our legislation on infant feeding. I am enclosing a copy of the legislation, the Baby Feed Supplies (Control) Bill 1977, for your information. The history of this legislation is as follows.

Following the publication of the Baby Killers by War on Want, and the worldwide publicity given to problems of bottle feeding, concern was expressed by nutritionists and paediatricians in Papua New Guinea about the problem in Papua New Guinea. Due to the relatively brief period of contact with Western influence bottle feeding was comparatively rare in most parts of this country, with the exception of a few major urban centres.

However with the increasing sophistication of the population together with the seductive advertisements of the companies producing infant formulas we felt that urgent action was required to stop or even reverse the growth in use of feeding bottles. A survey carried out in Port Moresby revealed that of 136 infants 48 (35%) were artificially fed. 69% of these children were malnourished (below 80% of the mean Harvard Weight for age) compared with 26% of the breast fed infants. 23% of the artifically fed infants were below 60% weight for age compared with just 3% of the breast fed infants.

A letter signed by the Secretary for Health was sent to all shops in Port Moresby known to be selling infant feeding bottles and teats, pointing out the dangers of bottle feeding and requesting that they stop selling these items. This unfortunately met with a completely negative response so we were compelled to resort to legislation.

In drawing up the legislation, we decided that it was necessary to control the sale of teats and dummies as well as bottles, for cases of teats being used on beer and Coca Cola bottles had been reported. The conditions that must be satisfied before a prescription can be issued are such that 95% of the population will be unable to obtain a bottle.

As you will see from the act any health worker issuing a prescription without satisfying himself or herself that the mother can artificially feed her infant properly will be liable to a fine up to K200 (US$280). A similar penalty applies to shops or pharmacies selling these items without a prescription.

In order to maximise our chances of getting the legislation approved it was presented as a private members bill. Carefull lobbying beforehand resulted in us obtaining support from the Prime Minister, the Deputy Prime Minister, the Leader of the Opposition. We also produced a pidgin brief for all parliamentarians, a copy of which is enclosed.

I am happy to be able to report that since the introduction of this bill bottles and teats have dissappeared from the shelves of trade stores and supermarkets. Next week the Health Department is prosecuting a pharmacy for selling a bottle without a prescription, our first case. In the near future we hope to do another survey to determine the current incidence of bottle feeding and related malnutrition.

If I can be of any further assistance to you please do not hesitate to contact me.

Yours sincerely,

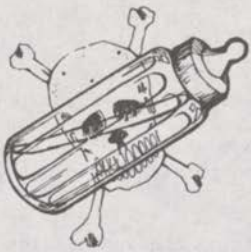
Julian Lambert.

J.N. LAMBERT
Nutrition Planner.

enc.

30-982 O - 78 - 52

JUL 18 1978



DANGER!

Susu wokim insait long botol na givim pikinini i no gutpela tumas na i ken mekim pikinini i painim sik.

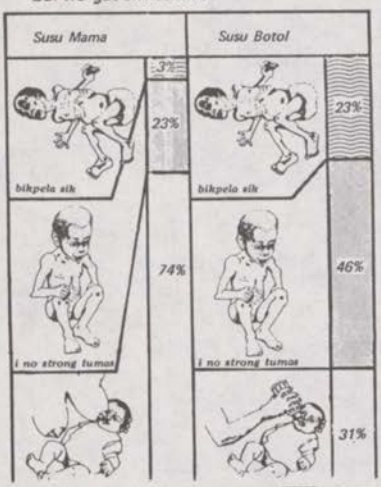
Ol botol o spun i gat doti na ol pot i no wasim klin gut i ken givim sik long ol pikinini taim givim kaikai long ol.

Botol bilong givim susu long pikinini bai lusim moa moni long en.

Wanpela wok painim mekim insait long Port Moresby long lukim kaikai bilong ol pikinini i soim olsem:

1. Ol pikinini i save dringim planti botol susu long tupela, tupela taim na i no bikpela kwik olsem ol i save dringim susu tru bilong mama.

2. Ol pikinini i dring planti botol susu ol i gat bikpela sik (lukim piksa aninit). Sapos i no dringim susu bilong botol olsem dring susu tru bilong mama em bai no gat sik tumas.



Dispela piksa i soim wanpela pikinini i gat bikpela sik ! kamap long i no kisim gutpela kaikai long susu botol.

Nesinol Parliamen bambai lukim wanpela strongpela lo bilong salim ol botol na gumi bilong givim susu long ol pikinini.

Dispela lo bambai helpim ol pikinini bilong Papua Niugini i no kisim sik na i gat strong.

HELPIM DISPELA LO, *Baby Feed Supplies (Control) Bill, 1977.*

Dispela lo bambai helpim pasim ol pipel long salim botol bilong wokim susu.

Ol i ken givim susu long botol tasol sapos mama i mas holim wanpela hap pepa i gat tok orait wanpela dokta i givim long yusim susu bilong botol.

Sapos mama i holim dispela tok orait hap pepa, ol wokman bilong helt o man i gat stua bilong salim marasin i lukim dispela hap pepa na bihain salim botol long baim.

Sapos husat man i brukim dispela lo na salim botol na gumi bilong wokim susu bilong pikinini em bai peim kot long

~~Draft of 24/1/1977.~~

JUL 18 1978

THE INDEPENDENT STATE OF PAPUA NEW GUINEA.

No. of 1977.

Baby Feed Supplies (Control) Bill 1977.

ARRANGEMENT OF CLAUSES.

1. Interpretation -

"advertizement".

"authorization".

"authorized person".

"baby's feed bottle".

"bottle teat".

"dummy".

"inspector".

"nurse".

"pharmacist".

"proscribed advertizement".

"proscribed article".

"publish".

"supply".

2. Supply and use of proscribed articles.

3. Authorization.

4. Proscribed advertizements.

5. Inspectors.

6. Regulations.

Draft of 24/1/1977.

THE INDEPENDENT STATE OF PAPUA NEW GUINEA.

A B I L L

for

A N A C T

entitled

Baby Feed Supplies (Control) Act 1977,

Being an Act to regulate or restrict the right of freedom of expression conferred by Section 46 of the Constitution so as to protect public health from the bad consequences of the unheigenic, inefficient or wrong use of items connected with baby feeding and for related purposes,

MADE by the National Parliament to come into operation in accordance with a notice published in the National Gazette by the Head of State, acting with, and in accordance with, the advice of the Minister.

1. - INTERPRETATION.

In this Act unless the context otherwise requires, or some other meaning is clearly intended -

"advertizement" includes every form of advertizing (whether or not accompanied by or in association with spoken or written words or writing or sound and whether or not contained or issued in a publication) by the display of notices or by means of catalogues, price lists, labels, cards or other documents or material or by the exhibition of cinematograph films or of pictures or photographs, or by means of radio or television, or in any other way, but does not include an advertizement in a

journal, magazine, document or other form originating outside the country and intended for the world at large unless the advertizement is -

(a) specifically sent to or directed at particular persons; or

(b) extracted and used (wholly or in part) as if it were an original publication of that advertizement,

in the country;

"authorization" means a written authorization for a proscribed article signed by the authorized person giving it and containing the following information :-

(a) the name and address of the mother, or other person having the care, of the baby or infact, and

(b) details of the proscribed article; and

(c) the name, address and qualification of the authorized person giving the authorization; and

(d) such other matters as may be prescribed;

"authorized person" means -

(a) a medical practitioner; or

(b) a medical assistant registered or enrolled as under the Medical Services Act 1965; or

(c) a nurse registered as such under the Medical Services Act 1965; or

(d) such as other classes of persons as may be prescribed;

"baby's feed bottle" means a bottle or other container intended to be used as a substitute for a breast

when feeding babies;

"bottle teat" means a teat intended to be used as a nipple on a babies feed bottle;

"dummy" means a teat of any shape and substance intended to be used for soothing babies and infants;

"inspector" means a person appointed under Section 6;

"nurse" means a nurse or nursing aid registered or enrolled as such under the Medical Services Act 1965;

"pharmacist" means a person registered as a pharmacist under the Medical Services Act 1965;

"proscribed advertizement" means an advertizement the intention or likely result of which is to encourage -

(a) the bottle feeding of babies; or

(b) the purchase or use of proscribed articles; or

(c) the purchase or use of milk or other products in connexion with proscribed articles;

"proscribed article" means -

(a) a baby's feed bottle; or

(b) a bottle teat; or

(c) a dummy;

"publish", in relation to an advertizement, means to place the advertizement before the public or a section of the public by any means;

"supply" means to provide to another person whether by means of sale or otherwise and whether or not for reward.

2. - SUPPLY AND USE OF PRESCRIBED ARTICLES.

(1) Subject to Subsections (2), (3) and (4), it is an offence to supply a proscribed article.

Penalty: For a first offence, a fine not exceeding K200.00.

For a second and subsequent offence, a fine not exceeding K500.00.

(2) A pharmacist may supply a proscribed article if the person to whom the article is to be supplied first gives the pharmacist an authorization in respect of that article.

(3) A person may, in the course of his business, supply a proscribed article to a pharmacist, authorized person or nurse for use or supply in accordance with this Act.

(4) It is not an offence under this Act -

(a) for a mother, or other person XXXX for the time being having the care of an infant or baby, to use when feeding or soothing that infant or baby a proscribed article obtained for that infant or baby in accordance with this Act; or

(b) for an authorized person or nurse to use a proscribed article; or

(c) for any person to use a proscribed article to sooth or feed an infant or baby if in the opinion of the person using the proscribed article there exist at that time circumstances in which the infant or baby would suffer harm if such article was not used.

3. - AUTHORIZATION.

(1) No authorization shall be given except -

(a) by an authorized person; and

(b) in accordance with the provisions of Subsection (2).

(2) An authorized person shall not give an authorization -

(a) unless he first satisfies himself that it would be in the ~~HKY~~ baby's or infant's interest to be fed or soothed by a proscribed article; and

(b) unless at the time of giving the authorization the person giving the authorization -

(i) also gives the prescribed instructions; to the person who will be feeding or soothing the infant or baby with the proscribed articles; and

(ii) is satisfied that the person receiving the instructions understands them.

(3) An authorization may be given to no person other than the mother or person for the time being having the care of the infant or baby.

4. - PROSCRIBED ADVERTIZEMENTS.

(1) Subject to Subsections (2) and (3) it is an offence to publish a proscribed advertizement.

Penalty: For a first offence, a fine not exceeding K200.00.

For a second and subsequent offence, a fine not exceeding K500.00.

(2) A pharmacist may display within his pharmacy a proscribed advertizement to the extent necessary to enable

Act to chose those articles.

(3) A person may in the course of his business display to a pharmacist, nurse or authorized person a proscribed advertizement.

5. - INSPECTORS.

The Health Inspector registered or enrolled as such under the Medical Services Act 1965 shall be Inspectors for the purposes of this Act.

6. - REGULATIONS.

The Head of State, acting on advice, may make regulations, not inconsistent with this Act, prescribing all matters that by this Act are required or permitted by this Act to be prescribed or that are necessary or convenient to be prescribed for carrying out or giving effect to this Act and, in particular, for -

(a) prescribing the powers and duties of Inspectors and penalties for hindering Inspectors; and

(b) prescribing the form, content and wording of authorizations; and

(c) prescribing the records to be kept by pharmacists and authorized persons and the returns to be made by them; and

(d) prescribing the form and content of information required to be given under this Act; and

(e) prescribing the form and content of proscribed advertizements; and

(f) prescribing the manner in which proscribed articles may be displayed to the public at large, including total prohibition on any such display; and

(g) prescribing penalties not exceeding K200.00 for

THE HUMAN LACTATION CENTER Ltd.

666 STURGES HIGHWAY
WESTPORT, CONN. 06880
Phone (203) 259-5995

Cable Address:
LACTOCENTR Connecticut

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Curator, American Museum
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Miles Pennbacker
Business Executive
Westport, Connecticut

Dana Raphael
Director, Human Lactation
Center, Ltd

a bit more clarification always helpful - D Raphael

May 5, 1978

Idrian Resnick, Ph.D.
234 Colony Road
New Haven, Connecticut 06511

Dear Idrian,

I was appalled the other day when you told me that you had informed the Subcommittee member, Walter Sheridan, and others of the Church groups that our position paper was invalid because it did not represent the anthropological data which we have collected. I want to respond to this accusation.

First you must admit that a cursory reading of only a part of the massive amounts of anthropological, economic and health data which the anthropologists had turned in is not the same as saying that you studied the data. You remember that you were asked to help write the final report to AID and that you read through this material quickly and within a week also turned in what you considered to be an adequate report. Though you were well paid for that report, we found it full of Marxist fantasy and rhetoric, thus very much a political statement. In fact, it hardly considered the ethnographic data at all. It was completely inadequate and irrelevant for AID so it was shelved. AID is not interested in your tirade against their often referred to "CIA activities".

You disagree with my contention about the need for additional foods after three months. You are not alone here, but then neither am I. The very most that even the dissenters can say is that they suggest four months and that I am off about 30 days. If this is so, children must have additional food when they are about 100 days old. So we have two positions - insights from the data - theirs and mine - no studies to prove either case. I will accept their opinions as a possibility but they must also accept mine. Nonetheless, this difference in no way invalidates my statement that babies at a critically early age, before they can digest fibrous foods, must have some nourishment in addition to mothers milk or they will begin to fade.

You are so obsessed with destroying the multinationals as representatives of all the evils of the world that you forget those in the third world leadership who are just as responsible for the plight of the poor, for holding up governments which will not give priority to even the most basic of their food needs, and for national industry which is equally responsible for maintaining the status quo. We have not been easy on multinationals either, but for different reasons -- factual not rhetorical -- we don't want to destroy them. They will only be invented again in the name of "the people" by governments, and the problems will remain. We think we can get multinationals to change their attitudes about what's needed. So we tell them that the real killers of babies are poverty of families and the lack of ANY foods, and they are implicated.

You say that we misrepresent our data as statistical. We do no such thing. Anthropological data, as represented by our work in this project, makes absolutely no attempt to do statistical analyses of any sort, nor do we say so. We rely primarily on participant observations and unobtrusive measures to support hypotheses. You will remember the meeting here with Lowell Levin where this research approach was made perfectly clear. You, like most people prefer dealing with probability statistics as "truth" (numbers) no matter how big the risk of sampling error. Anthropological insight makes no such claim. Its reliability comes from careful observation, demographics, cultural context, and patterns.

You did not read the paper carfully if you fail to realize that it is a compilation of my 20 years of work in many countries, the input of the anthropologists who worked on the AID project, the contributions of 45 persons who attended our international conference plus innumerable physicians, nutritionists, nurses, midwives, health workers, and most important, the mothers themselves.

Idrian by your own admission you were not able to speak with even one poor Tanzanian woman. How can you pretend to have information equivalent to ours which includes thousands of hours in the field with breast and "bottle/feeding" women.

It is so hard to get the voice of the poor into the public sphere no less those of mothers and infants. The hearing in Washington on this issue is about people who are in no way represented. You have added to this bizarre situation by trying to discredit the Center for we are almost alone in our attempt to represent the plight of the Third World poor woman.

Over many years I have learned there are many paths to Nirvana. I know I'm on one of them.

Dana Raphael, Ph.D.
Director

cc: Howard Schomer
Honey Knopp
Walter Sheridan
Lowell Levin
Bud Hall
Hazel Henderson
Margaret Mead
Jane Vella
David Dodson Grey

INTERFAITH CENTER ON CORPORATE RESPONSIBILITY

A Sponsored Related Movement of the National Council of Churches
475 Riverside Drive • Room 566 • New York, NY 10027 (212) 870-2293

August 4, 1978

Mr. Richard L. Gelb
Chairman, Bristol-Myers Company
345 Park Avenue
New York, N.Y. 10022

Dear Mr. Gelb:

I am troubling you once again with the matter of Bristol-Myers infant formula promotion since we have not yet implemented our on going discussions.

In light of the favorable picture reported by Bristol-Myers regarding mothercraft nurses, I am very disturbed about facts which seem to contradict top managements statements about what is being done in the field.

I recently received the enclosed letter from Singapore. On July 19, 1978, a Mead Johnson milk nurse visited the home of a pregnant mother. This visit took place nearly two months after Mr. Sprole testified in the U.S. Senate,

> "In 1977, our management decided to embark on a program to discontinue mothercraft nurses in an orderly business fashion. The first such service was discontinued in December, 1977, and at this time all our Mothercraft nurses have been discontinued." (My underline.)

Given our past history, I was nervous about repeating this statement. So I asked the National Council of Churches press office to call Bristol-Myers to confirm the statment--especially the words "at this time ..." before we released a press statement to that effect. The facts were confirmed by Bristol-Myers.

In addition to the shocking report from Singapore, I have also been informed that in the Philippines, 8 of 9 former milk nurses were re-hired by the company as promotional sales representatives! Although this technically complies with your stated policy, in our view, it undermines the intent. We had hoped that the termination of milk nurses was a first step--a precedent setting one--towards terminating the intense promotion to medical personnel and institutions.

Please let us know whether these developments are consistent with company policy.

Cordially,

Leah Margulies, Director
Infant Formula Program

LM:pr
cc: Board of Directors
James Tuholski, M.D., Bruce Gelb, Edwin J. Weseley, Esq.
Richard Edmundson, Esq., James S. Bosner, Esq.
Bess Myerson
Senator Edward Kennedy
Sister Florence Seifert

THE HONORABLE EDWARD M. KENNEDY

BRISTOL-MYERS COMPANY
345 PARK AVENUE
NEW YORK, N.Y. 10022
212 644-2777

OFFICE OF THE CHAIRMAN

August 18, 1978

Miss Leah Margulies, Director
Infant Formula Program
Interfaith Center on
Corporate Responsibility
475 Riverside Drive
Room 566
New York, New York 10027

Dear Miss Margulies:

Following receipt of your letter of August 4, 1978, we immediately instituted an investigation into the allegations contained in the letter dated July 20, 1978 from S. Dayanandan, Executive Officer of the Consumers' Association of Singapore, concerning the activities of a Mothercraft nurse employed by our subsidiary company in Singapore.

We have verified that the visit took place substantially as described in Mr. Dayanandan's letter and acknowledge that the visit was in violation of our policy as described by Mr. Frank A. Sprole in his testimony before Senator Kennedy's Subcommittee on Health and Scientific Research of the Senate Human Resources Committee. That portion of the statement submitted to the Subcommittee on May 23, 1978, read as follows:

> "For several years, we provided a Mothercraft nursing service in certain countries for mothers in their homes, to instruct them on proper methods of infant care. Physicians in a number of countries have written us, praising the vital contributions made by these nurses in educating mothers, and copies of the statements made by these physicians have been filed with this Committee.

> "Nevertheless, we have also been mindful of the criticism that the nurses may not have always followed our policies and practices. Therefore, in 1977 our management decided to embark on a program to discontinue Mothercraft nurses in an orderly business fashion. The first such service was discontinued in December 1977, and at this time all of our Mothercraft nurses have been discontinued. I must tell you that we made this decision reluctantly. As you will see from the signed statements by physicians in these countries overseas, many of them consider Mothercraft nurses a valuable adjunct to the services provided by hospitals and doctors. Frankly, we are not sure we made the right decision. We may subsequently find that in discontinuing Mothercraft nurses, we have truly deprived some mothers of a vital service not available to them anywhere else."

We wish to advise that as a result of this violation of policy, two employees have been discharged: the manager of the Singapore business and the manager of the nutritional business who was the direct supervisor of the nurse making the visit. We also plan to communicate this action to all international managers to reinforce our instructions that these policies must be explicitly followed.

I believe that the above demonstrates that we are committed to our policy and are prepared to take corrective action when it is not followed. We employ almost 31,000 people throughout the world and an occasional, isolated and unauthorized action may occur contrary to our announced policies. In the normal course, our audit and review procedures would discover and correct any such situation.

As to our use of nutritional representatives in the Philippines, we believe that nurses trained in baby care are appropriate representatives of our Company to the medical profession. The aforementioned quotation from Mr. Sprole's testimony made it eminently clear that we were discontinuing the practice of visitation to mothers by nurses and made no representations about other

use of nurses. We do not agree that the retention of nurses in the Philippines undermines the intent of our policy. You will recall that in the statement mailed to stockholders in February 1978, we said: "The Company promotes infant formula to physicians and hospitals. We know of no better way to make this useful product available to those mothers who need it or want it, and we don't know anyone more qualified than physicians and hospitals to determine whether or not to recommend it to mothers."

As alluded to in your letter, we had proposed future meetings wherein remaining differences between us might hopefully be resolved. Mr. J. R. Edmondson will write to you in early September to arrange such a meeting.

Sincerely,

Richard L. Gelb

RLG:BBS

The Population Council

International Programs

One Dag Hammarskjold Plaza
New York, New York 10017
Cable: Popcouncil, New York
Telephone (212) 644-1300
Telex: 234722 POCO UR

10 July 1978

Senator Edward M. Kennedy
United States Senate
Washington, D.C. 20510

Dear Senator Kennedy:

Thank you for your letter of June 29 regarding the promotion of infant formula products in developing countries and the letter that was recently co-signed by seven professionals in response to Dana Raphael's previous letter to Representative Harrington. Enclosed please find a copy of our final letter as signed and sent to Representative Harrington. We would be happy to have you make this letter a part of the hearing record. Thank you very much for your continued interest in this very important matter.

Yours sincerely,

Beverly Winikoff, M.D., M.P.H.
Medical Associate

BW:rm
enclosure

The Population Council

International Programs

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May 4, 1978

Representative Michael Harrington
U.S. House of Representatives
Washington, D.C. 20515

Dear Representative Harrington:

We have recently had occasion to read the letter of January 5, 1978, addressed to you from Dana Raphael of the Human Lactation Center. We feel that the assertions made in this letter require a strong response from professionals who share an interest in issues of infant nutrition and health problems in the developing world. Dana Raphael does not document the alleged "grave errors of fact in the amendment" of your sub-committee, yet she herself commits grave errors of interpretation of existing data. The January 5 letter is thus a most misleading document which, unfortunately, purports to serve as technical advice to your committee.

It seems to us that several points require comment:

1. Ms. Raphael cautions against accepting the UNPAG's assertion of "documented adverse nutrition impact" of the substitution of bottle for breastfeeding. She asserts that no studies have proven such an association and that the International Pediatrics Association and the PAG do not conduct research. In fact, these two organizations are in a very strong position to review existing data, which is what they have done. While they have not mounted research programs, the PAG and International Pediatrics Association have performed a very valuable research service to the scientific community by looking at a range of existing evidence and forming sound conclusions based upon many studies, not just one. Raphael may be right that there are no experimental studies in which babies have been deliberately exposed to different types of feeding under controlled conditions, but there are an overwhelming array of studies done throughout the world[1] (using historical as well as contemporary data) which, regardless of methodology, all point in one direction: the best way to feed an infant to insure optimal health is breastfeeding alone for the early part of the first year. There are no

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[1] R.R. Puffer and C.V. Serrano, Patterns of Mortality in Childhood (Pan American Health Organization-World Health Organization, Washington, D.C., 1973); J.B. Wyon and J.E. Gordon, The Khanna Study: Population Problems in the Rural Punjab (Harvard University Press, Cambridge, Mass., 1971); S. Plank and L. Milanesi, "Infant Feeding and Infant Mortality in Rural Chile," WHO Bulletin 48:203-210, 1973; J. Knodel, "Breast-Feeding and Population Growth," Science, 198, pp. 1111-1115, Dec. 16, 1977; also references cited in T.H. Greiner, "Infant Food Advertising and Malnutrition in St. Vincent" (thesis), Cornell University, August 1977.

studies which come to the opposite conclusion, i.e. that bottle-feeding would be a preferable practice from the point of view of the health of babies. A recent 2,000 mother prospective study conducted over two years in the Philippines once again establishes a bottle-milk/infant mortality linkage.[2]

2. It should be noted that the "well-meaning professionals" referred to in page one, paragraph three of Ms. Raphael's letter are also exceptionally well-informed. She herself, on the other hand, does not seem to be quite so well-informed. She noted that there are no studies where the "actual eating patterns of infants prior to hospital admission has been observed." This is misleading. There are many studies which document the "eating patterns of infants prior to admission" although these patterns may not have been observed by a study team in the home environment of the infant before the onset of illness. By this quibble does the author of the letter mean to discount entirely mothers' statements on whether their infants were being bottle-fed or breastfed?

3. In the paragraph that refers to WHO's studies (page 2, paragraph 2) Ms. Raphael states that the data on breast/bottle feeding is "soft evidence." We agree that in some aspects of research on breastfeeding and breastfeeding trends, the evidence is "softer" than in other areas. For example, although it is widely accepted that there has been a decline in breastfeeding in developing countries, the pattern and nature of this trend remains largely unquantified by hard data. All attentive professional observers will agree, however, that a decline exists, albeit with differing patterns and proceeding at different rates in different environments. On the other hand, evidence on the health advantages of breastfeeding is quite firm -- and evidence exists in widely divergent socioeconomic and environmental conditions.[3]

4. In the third paragraph on page 2, Ms. Raphael asserts that there are "unqualified benefits of breast milk over cow's milk in laboratory studies," but that "equivalent studies on human babies have not been made." What does this mean? Laboratory studies have demonstrated the reasons that breastfed

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[2] Barry M. Popkin, personal communication. Study done by Dr. Trinidad Osteria, currently with the Cholera Research Laboratory, Dacca, Bangladesh.

[3] Well-known beneficial aspects of breastfeeding include the provision of immunological protection to the infant, the stimulation of a desirable emotional linkage between the mother and the child, the supply of a low-cost nutritionally adequate diet for the infant, and the prolongation of the period of postpartum amenorrhea. Cunningham, Journal of Pediatrics, 19 May 1977; Goldman, Journal of Pediatrics, 1977; Hambraeus, Pediatric Clinics of North America, 1977; Klaus and Kennell, Maternal-Infant Bonding: The Impact of Early Separation or Loss in Family Development, Mosby, 1976; D.B. Jelliffe and E.F.P. Jelliffe, Human Milk in the Modern World (Oxford University Press, 1978).

babies are immunologically and nutritionally better protected from illness than non-breastfed babies: the immunoglobulins, active lymphocytes and other protective substances in human breast milk are ingested by babies who are breastfed. Scientists believe that these factors help to explain the better resistance to disease demonstrated by breastfed babies. The evidence for the immunologic protection comes from the better health status in the real world -- where mothers and babies exist. What kind of "equivalent" studies in a laboratory does Ms. Raphael propose are necessary using human babies?

5. In the same paragraph, Ms. Raphael asserts that although the Human Lactation Center is doing in-depth studies of breastfeeding in women's home environments,[4] their researchers cannot state that "women are breastfeeding less." Of course! They are studying extremely small numbers of women who are, in fact, breastfeeding. Concerned professionals are worried about societal trends in breastfeeding: many women seem to be abandoning breastfeeding either altogether or very early in their infants' lives. These trends are clear to those who have spent many years working in health programs abroad, and who view with alarm the rapidity of decline in breastfeeding, especially in urban and periurban areas. The serious problem is caused by a change in patterns of behavior in large population groups; one can always find and study individual women who are breastfeeding as extensively and intensively as women in their mother's generation.

6. We agree with Ms. Raphael that a critical nutritional problem exists when infants who need supplemental food are either not given such food or given inappropriate dietary supplements (page 2). This is one of a number of very real and very serious nutritional problems which imperil the health of young children in developing parts of the world. It is not, as Ms. Raphael maintains, the only problem. The problem of inadequate and/or inappropriate supplementation of infants is not the same problem as the problem of decreased breastfeeding. Furthermore, there is no substantiation for Ms. Raphael's assertion that three months should be chosen as the optimum age for commencing supplementation. Khanjanasthiti and Wray[5] showed that Thai women, for example, are perfectly capable of fully nursing their babies for at least six months, with no supplementation needed to maintain adequate growth. Physicians disagree on details as to the exact age at which an infant needs supplementary feeding;

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[4] Incidentally, the Human Lactation Center is not unique in its in-depth studies of women who breastfeed. INCAP (in Guatemala) and Popkin et al. (in the Philippines) have also conducted such research. Other references to breastfeeding studies are cited in W.H. Mosley (ed.), Nutrition and Human Reproduction (Plenum Press: New York, 1978).

[5] P. Khanjanasthiti and J.D. Wray, "Early Protein-Calorie Malnutrition in Bangkok Slums, 1970-1971," J. Med. Assoc. Thailand 57:468-476, 1974.

in fact, the right time for supplementation probably varies somewhat in differing health and nutritional environments. The evidence to date, however, indicates that the age at which supplementation becomes necessary nutritionally is probably later than three months: five or six months are frequently suggested, and this conforms with our knowledge of infant development and maturation. Also, the earlier introduction of supplementary foods increases the risk of often lethal weanling diarrhea. In any event, it is dangerous to confuse the issue of supplementation with the issue of breastfeeding. Even when supplementation becomes necessary, breastfeeding can remain a significant part of the infant's diet and still provide an incomparable source of nutrition for the growing child.

The implication in Ms. Raphael's letter is, of course, that the infant formula feeds marketed by American international corporations stand as optimal supplements when babies are no longer able to derive all their nutrition from the breast. It is clear, however, that these infant formulas are probably less desirable as supplementary feeds than many indigenous products, already part of the family's diet, which could be used by mothers at far less cost and with more safety. Food from the spoon is less likely to be bacteriologically contaminated than milk in a bottle, and the mother may be more likely to continue breastfeeding if she is feeding her child a cereal supplement, instead of another milk product.

7. Ms. Raphael claims to know of a study that shows breastfed infants have a 60% mortality rate (page 2, last paragraph). This sounds, on the face of it, incredible. What study is she citing and how was the evidence compiled? If such a study exists, it must refer to very special population groups under extraordinary conditions of deprivation. Of course, as Raphael notes, the nutritional status of young children is better in more affluent groups -- and so is survival. But affluence implies a host of important advantages aside from supplementary feeding. (In the United States, in fact, it implies a greater likelihood of breastfeeding!) Certainly, it is unscientific to state that the reason that affluence is beneficial to health is that babies in higher socioeconomic groups are supplemented with formula feeds. They also have cleaner environments, better housing, more available medical services, and healthier parents.

8. On page 3, Raphael states that the data of Puffer and Serrano from Latin America show that childhood morbidity and mortality are "directly related to impure water supplies." It is perhaps difficult to understand exactly what Ms. Raphael means by a "direct relation" between death and impure water supply. Clearly, poverty implies less adequate sanitation and less adequate water supply, both of which are potentially noxious to health. But the extent of the health injury imposed by such environmental conditions depends also upon the resistance factors in the host organism (in this case, the baby), and it is quite clear that one of the key determinants of resis-

tance is nutritional status.[6] Good immunological defenses will help to keep to a minimum health problems from a noxious environment. In a very threatening environment, breastfeeding offers the best protection for an infant. This is borne out by the Puffer and Serrano study: the data show a very strong correlation between lack of breastfeeding and early infant mortality.

9. Raphael (page 3, paragraph 3) uses the simplistic and misleading argument that the extreme expense of commercial supplementary products will keep such supplements out of the hands of poor people who are unable to use them properly. Supplementary products, advertised to poverty groups, become desired objects and are used within the economic and environmental constraints of those groups. This means, stated simply, that the products are used, but used improperly, and become real health hazards in themselves. High prices become incentives to use expensive products sparingly -- not to abandon their use.[7]

10. Raphael asserts that the issue of breastfeeding has become politicized, emotional, and unfactual (page 3, paragraph 4). We agree. The issue has become politicized because there are deep, important vested economic interests involved. It is emotional because it involves the lives and deaths of small children. It has become unfactual because of arguments such as Ms. Raphael's. To wit, Raphael makes the incredible argument that because women in the LDC's have been exposed to American donations of dried powdered milk they could not possibly be misusing infant formula. This is illogic at its best. Ms. Raphael must have seen herself, in her travels, the extent to which unclean bottles with over-diluted formula are offered to infants. For Ms. Raphael to deny the serious problem of improper use of formula on the assumption that PL480 aid magically protects against misuse of milk products, casts doubt on the relevance and accuracy of all her other assertions.

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[6] Scrimshaw et al. (N.S. Scrimshaw, M. Behar, M.A. Guzman, and J.E. Gordon, "Nutrition and Infection Field Study in Guatemalan Villages, 1959-1964," Archives of Environmental Health 18:51-62, January 1969) showed that nutritional supplementation was more effective in reducing mortality in a rural Guatemalan village than was a program of environmental sanitation and the provision of medical care.

[7] In fact, it is clear that foods which are expensive per calorie will lower nutritional intake in a poor population, because they displace cheap staple foods. Popkin ("Economics and Nutritional Policy," Arch Latin de Nutr 25:7, 1975) showed this with simulations, and it is discussed by Popkin and Latham ("The Limitations and Dangers of Commerciogenic Nutritious Foods," Amer J Clin Nutr 26:1015, 1973). If the mother uses scarce family cash to supplement breast milk with formula, one bottle a day will cost more than all the extra calories needed to produce breast milk for the baby. The entire family's nutritional status is likely to decline, and the baby is likely to get sicker than ever from a contaminated bottle.

11. At the bottom of page 3, Ms. Raphael asserts that contradictory evidence exists on the claim that bottle-feeding contributes to a rise in infant malnutrition. As stated above, we are not aware of any evidence which contradicts the claim or shows that infant malnutrition has been decreased by an increase in bottle-feeding. All of the data, to the present, seem to point in the same direction: that increased early use of bottle-feeding increases the extent and makes earlier the onset of infant malnutrition.

The fact that, worldwide, infant mortality rates have declined is often put forward in answer to the charge that bottle-feeding has caused infant malnutrition to increase. Yet, this decline in mortality rates is irrelevant to the bottle/breast controversy. Improved standards of living -- better housing, water supplies, food and, in some cases, extension of health services and preventive health measures -- can account for the lowered early mortality. The overall mortality statistics come from a data base very different from the breast/bottle studies and reflect powerful, macro-trends in society. These overall rates cannot separate out the individual effects of many positive and negative influences which, in combination, produce a societal infant mortality statistic. Finally, it is simply not true that infant mortality has declined everywhere. Brazilian data, for example, show that infant mortality has risen in the cities of Sao Paulo and Belo Horizonte, attributable most probably to increased malnutrition in periurban groups.[8]

12. We agree with Ms. Raphael (page 4) that your influential committee should continue to be vigilant in avoiding counterproductive recommendations. "Sentiments of government people about breastfeeding" (page 4) are not the issue, however. Facts are the issue, and the facts which are available point in one direction most strongly: breastfeeding is the optimum way to nourish human newborns and protect them from the ill effects of unhealthy environments; appropriate supplementary food must be introduced somewhere around the middle of the first year of life; and policies designed to promote healthful infant feeding patterns must be developed in concordance with socioeconomic realities in diverse parts of the globe. Sometimes, the choices for health are clear: the superiority of breastfeeding to any other mode of early infant nutrition is demonstrable and trends towards its abandonment should be combatted with vigor.

We hope that your committee will examine the issue of infant feeding carefully, taking into account the considered opinion of the scientific

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8 C.H. Wood, "Tendencias de Mortalidade Infantil e Distribuçao de Renda: Estudo Sobre Belo Horizonte e Sao Paulo" (mimeographed paper), Cedeplar, Faculty of Economics, Federal University of Minas Gerais, Brazil.

community and the weighty evidence on the benefits of breastfeeding in early infancy, as it continues to seek ways of protecting the health of infants in developing countries from deleterious social and economic trends.

Yours truly,

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January 5, 1978

Michael J. Harrington
Chairman, Subcommittee on
International Development
House of Representatives
Washington, D.C. 20515

Dear Michael Harrington:

I returned recently from India, where I chaired a session for the International Pediatrics Congress, to find your letter enclosing the IDFA report to the House.

I hasten to write you because I notice some grave errors of fact in the amendment. You say your report to congress on infant feeding practices is based on the findings of such international nutrition and health organizations as the UN Protein Advisory Group, the World Health Organization and the International Pediatrics Association (which) "documented the adverse nutritional impact upon infant and young children of the widespread substitution of bottle for breast feeding in areas of chronic poverty in developing countries (Page 32)."

I recommend utmost caution in unquestioned acceptance of these data. The UN PAG has never done a study of this phenomenon, nor has the International Pediatrics Association. The PAG convened and reported on a conference where several well-meaning professionals made statements which suggested they thought women were bottle feeding to their infants' detriment. Statements as to the effects and causes of infant illness, marasmic condition, or death were culled from personal observations or questionnaires to mothers of sick infants in a clinical setting. I know of no studies where the actual eating patterns of the infants prior to the hospital admission has

been observed. The International Pediatrics Association has never conducted any studies that I know of. It is a professional association, and does not conduct research. Many who have expressed their opinions about the bottle/breastfeeding controversy may belong to this medical association.

W.H.O. has begun an extensive study of breastfeeding. To my knowledge (we were together in New Delhi last month), they have just completed their first survey. The published reviews of the literature by the director of the W.H.O. Maternal and Child Division, Angel Petros-Barvazian, suggests that the data on the whole breast/bottle issue is what we call "soft" evidence. Researchers in England (Thomson and Black) also reviewed all the material that is easily available on breastfeeding and come to a similar conclusion. The Human Lactation Center made a comprehensive review of the same data and we too have concluded that there are no studies which support (or deny) the claims that bottle feeding is damaging babies or that breastfeeding saves them.

Chemical research of breast milk shows unqualified benefits of breast milk over cow's milk in laboratory studies. Equivalent studies on human babies have not been made. In fact, though we at the Center are the first group to do in depth studies of breastfeeding in the women's home environment, even we cannot make the statement that women are breastfeeding less.

The real problem is that babies in the LDCs born of mothers who are undernourished MUST HAVE SUPPLEMENTARY FOODS BY THREE MONTHS ALONG WITH BREAST MILK or they stop growing. Very soon they weaken and become susceptible to diseases. Only well nourished Western women can feed their infants exclusively on breast milk for five or six months.

It is our fear that this information is not known to those who have the power to withhold export rights of critically necessary food. We therefore continue to offer further evidence.

Our field studies in Egyptian and Indian villages show that where breastfeeding women are too poor to supplement their infants' diet, mortality is highest (up to 60% despite breastfeeding). In more affluent groups everywhere, women have sufficient funds to buy supplementary foods, and the added nutrition is fed along with their breast milk. Most babies survive in such circumstances.

The remarkable research done for PAHO by Puffer and Serrano on the related "causes" of morbidity and mortality in Latin American children bears out this finding. The data show quite clearly that illness and death in children of poverty level parents are directly related to impure water supplies, lack of effective sanitation and an inadequate supply of supplementary food.

Please understand that I am not saying that breast-feeding is no good, nor should be stopped and replaced by bottle feeding. Breast milk is essential for most infants in this world as is supplemental food. They compliment each other.

In your committee's Report to the Congress there is an underlying assumption that children would not die if transnational products were removed from the view of poor women. This is far too simple a solution. For example, officials of the Amul Corporation, the huge Indian dairy cooperative, say only one percent of all the milk used in India to supplement breast-milk is commercial processed milk. They claim to have the major share of these sales. (The other 99% is fresh milk from bullocks, goats and cows.) The current price of each can of milk is about $2., and the average annual income of most Indian families is about $75. So this processed dairy milk is out of the question even though mothers know full well that, next to human milk, the milk of other mammals is by far the best supplementary food. What is feasible, though admittedly only a stopgap measure, is to reinstate or continue shipment of free or subsidized food.

I urge you to consider how much the information on this issue has become politicized, emotional and unfactual. For instance, we are asked to believe that women don't know how to use this Western invention. They don't clean bottles. They dilute the milk because they can't read the labels. Nonsense. How can that be when mothers have been giving their children dry milk for thirty years (P.L. 480)? They know all too well the dangers, the worst of which is not having anything to feed.

Take another example. There is a statement in the Report that "reliance on bottle feeding has contributed to a sharp rise in infant malnutrition (page 32)." Contradictory evidence exists on this claim. Once

again, the data used to substantiate the rise in malnutrition is based on personal conversations or interviews with mothers of sick children in the hospital without proper safe guards to assure the validity of the questions or the reliability of the answers. For three decades during the period when these studies were made, infant mortality actually declined /U.N. Demographic Data/ due in large part to greater availability of food combined with improved health care.

You can see why we urge your Committee to make sure no counter productive measures result from your work which reduce access to any foods, or tie policies about the export of foods to developing countries with the sentiments of government people about breast-feeding. Hunger should leave no room for paternalism, self-interests or lobbying for or against transnational food corporations.

If you are truly interested in protecting the basic human rights of parents to keep their children alive, you should consider amending Section 113 of your Report on Infant Nutrition so that (1) any causal relationships between infant food distribution and infant morbidity are spelled out, not just assumed; (2) any impression that our government's food export policies are tied to acceptance by other nations of breast-feeding as the only alternative must be eliminated; (3) a "strong" invitation is extended to the U.S. multinational food corporations to work cooperatively with government to help reduce the costs and increase the availability of supplemental food; (4) data on changes in feeding behavior are examined within the context of economic, political, health, educational environmental and social norms in these countries.

I would welcome communications with anyone on this issue by phone: 203-259-5995 or in Washington.

Dana Raphael

Dana Raphael, Ph.D.
Director

cc: Don Bonker, Martin Forman, John Gilligan, Benjamin Gilman, Gerry Jefferson, Maureen Lambeth, Stewart McKinney, Steve Nelson, Robert Nix, Donald Pease, Sandy Reinhardt, Abraham Ribicoff, Gerry Studds, Susie Wallerstein, Rogene Waite, Lowell Weicker, Larry Winn.

DR/jmr

1978 Vol. III, No. 1

THE LACTATION REVIEW

Breastfeeding and Weaning Among The Poor

The Human Lactation Center enters the breast/bottle "controversy" between the anti-multinational groups and the infant formula industry in an attempt to clarify some of the issues. The industry has been accused of misguiding women and thus harming infants in developing countries by using improper methods to promote and sell their products. The companies have countered this charge by claiming to provide the safest alternative to breast milk. They say they are responding to the needs of the emerging middle class.

The Center believes the charges and counter charges are grossly over-simplified. The infant formula industry with its vast economic clout is implicated, but they are not solely responsible for the state of the world's children. **We maintain that the effects of poverty — lack of food and safe drinking water, the absence of sanitation and health care, political indifference to mothers in poverty — are the determinants of disease and death of infants in the developing world.**

Our views emerge from field research into the life situation, workload and feeding practices of mothers. This has been the focus of the Center's work. It was accelerated recently by an Agency for International Development (AID) grant to explore what was understood to be a reduction in breastfeeding worldwide.

(continued on page 3)

Second Thoughts

While the Center's personnel may have strong, and oft-expressed, personal opinions on the issues debated by the adversaries for or against the commercial practices of the infant formula industry, we have not studied these various claims and therefore do not take a position in regard to them. We are a scientific research institute, whose aims are to remain objective and to look at data dispassionately and critically even when it disagrees with our opinion.

The Center has not always taken this stance. In 1973, Dana Raphael, its Director, delivered a paper at the Ninth International Anthropological and Ethnological Congress entitled "Warning, The Milk in This Container May Be Lethal for Your Infant."

She states, "....imported powdered milk is improperly used, mixed with impure water and rendered bacteriologically unsafe. It is usually unrefrigerated and so becomes dangerous to the infant gut if it is not consumed within a limited safe period of time. The directions for preparing the milk are described in chemical formula terms, and so they are frequently ignored, not understood, or adjusted and readjusted to fit another set of cultural needs and values. (Raphael 1976)."

In a news conference in Chicago in 1973, Dr. Raphael claimed, "A growing trend away from breastfeeding infants and toward the use of artificial milk or animal milk is resulting in increased malnutrition and death." This was an unscientific and inaccurate statement from an individual assuming an advocate's role based on the statements of others and her own limited impressions. During the intervening years, and only after a thorough and exhaustive review of the available data, Dr. Raphael came to the realization that her statements had been oversimplified and founded more on opinion than on scientifically supportable fact.

The Center now questions the assumptions of any group which would suggest the elimination of any commercial infant foods on the yet unverifiable theory that they harm babies. Poor mothers in the developing countries are greatly confused and frightened when they hear of such ideas. The middle class women are indignant that we should try to impose our values and opinions on them. They are accusing us of interfering with their lives. Pointing to our own practice of bottle feeding, they ask why it wouldn't be just as good for their infants. Physicians who are involved in projects for developing countries are startled by the angry tones clouding the issues. The donor agencies are fearful that food supplies might be reduced further. Our scientific colleagues are concerned about the distortion of facts. Representatives of the transnational companies are confused by what is reported to be the effect of their marketing efforts and the reality that women want their products.

Beyond its nutritional content, food has social and political value and meaning. But in a world where people still go hungry, truth, not rhetoric nor debate, is the only ingredient which should be permitted to accompany any decisions about food. The Center stands on this principle.

SUMMARY OF FINDINGS

Mixed Feeding Keeps Babies Alive

- Infant mortality has decreased in the last three decades partially due to the increased availability of food.
- Most women still breastfeed though many do not. The popular assumption that breastfeeding is being reduced worldwide needs qualification.
- Middle class women in the less developed countries, market women, the elite and professional women are moving towards bottle feeding with infant formula in much the same way women turned from breast to bottle feeding in the Western countries.
- Breast milk is the best infant food but breastfeeding exclusively for most undernourished women in the less developed countries is not possible beyond the baby's third month.
- Mixed-feeding is an almost universal pattern in traditional cultures; that is, breastfeeding and supplementary feeding from early on and often into the second year.
- The preferred additional food for very young children is milk. Most milk used is fresh milk, unprocessed.
- Lack of sufficient food after the infant has passed three months is a major cause of morbidity and mortality whether or not the infant is breastfeeding.
- Poverty is highly correlated with infant morbidity and mortality as child health is associated with affluence.
- Areas with the highest incidence of breastfeeding tend to be the poorest and have the highest rates of infant mortality. In traditional cultures often more than half the infants born do not survive.
- Women, who are isolated, especially the urban poor, lack mothering from a supportive *(doula)* figure. They find themselves unable to lactate adequately, or lose their milk entirely. Without suitable substitutes, their infants die.
- Mothers have a sensitive and remarkable grasp of how best to keep their infants alive. Neither literacy nor what is called "ignorance" determine which infants live and which die except as they are related directly to social class.
- Women with the least amount of resources, time, health care or access to additional weaning foods, have no choice but to breastfeed. They are also the least successful at keeping their children alive.
- The current literature on breastfeeding in the developing countries is meager. Information on mortality, the incidence of breastfeeding, the contents of infant food, the amount of breast milk and other such data must be considered inconclusive and judgments for action made on these preliminary results could be dangerous.
- Much of the information on women in the developing world tends to be from suppositional reports by well-meaning Western or Western-influenced and trained personnel who are often not sensitive to or aware of the real-life situations of these women.
- To answer the problems of infant feeding in the developing world, we must listen to the mothers and involve them in the decisions which will affect their lives.

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THE LACTATION REVIEW

PUBLISHER AND EDITOR: DANA RAPHAEL

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Proposal For Action

The Center proposes using local women in designing community-specific projects which integrate breastfeeding into other related programs such as family planning or health care. It stresses community-wide planning of nutrition projects to enhance the development of indigenous weaning foods. And, it encourages the infant food industry to apply its extensive resources and expertise in food technology and nutrition to this effort.

The Center recommends intensive village-centered research into the value of lactation as a birth spacing "device." It also suggests a plan for using the local women to help develop educational, video, medical and commercial information strategies, to promote breastfeeding as a priority on any national or regional agenda.

The Lactation Review

(continued from page 1)

Eleven anthropologists, all women, looked into the process of infant feeding, especially breastfeeding, in eleven different cultures, ranging from a relatively urbanized Sardinian mountain shepherd community to a most impoverished Egyptian agricultural village. Each researcher had spent at least one and some as many as eight years with her group. The director of the project visited each of these communities, as well as eight others, over a period of two years. Information on maternal behavior and infant/child feeding practices was collected and analyzed from discussions with hundreds of parents, medical personnel, government officials, commercial entrepreneurs and industrial and market workers.

THE THREE MONTH CRISIS

Very early in our work, we became aware that infants in underdeveloped countries who breastfeed from undernourished mothers require additional food to supplement breast milk by the time they are *three months old*. When they do not get it, their development is inhibited. Soon they are undernourished, then malnourished. They weaken, become susceptible to disease or die.

Contrary to the published statements from many medical professionals who seldom advocate supplements before four to six months, the majority of health workers in developing countries (and the mothers) told our researchers that three months is the more appropriate time. And, this *mixed-feeding pattern* — breastfeeding plus additional food — was far more common than either exclusive breastfeeding or exclusive non-breast-milk substitutes.

"Few children born since 1974, have survived."

Providing, in advance, for that critical time when breast milk is not enough, is a common practice in many areas. The lucky mother in the Sudan receives a goat from her family during her pregnancy in anticipation of the weanling's early needs. The unlucky ones get no goat and as many as half of them lose their children.

The average well-nourished Western women, weighing twenty to thirty pounds more than most women in less advantaged groups, cannot feed only breast milk beyond five or six months. After that, the child needs additional food to maintain a steady growth pattern. The claim that Third World women can breastfeed exclusively for one or two years and have healthy, well-developed children is outrageous and dangerous.

MOSTLY BREASTFEEDING

Contrary to popular impressions that breastfeeding is being reduced worldwide, we found little evidence to support this assumption. Most poor women were still breastfeeding for two years or, more often, until they again became pregnant. Even in villages near modern urban centers, we could substantiate no such decline.

We did note, though, that women who were reducing their breastfeeding, though not the majority, were far more visible. They included the affluent women, the elite, professionals and wives of professionals, and the middle class who usually live in cities.

Under different circumstances, and for very different reasons, poor women living in urban slums were also breastfeeding less or not at all. Related to this trend was a changing life style, isolation from the woman's own family, and changes in the source of economic support from several family members to the isolated couple or the single adult female provider. Women in our sample from these hutments (as they are called in India) try to breastfeed but find themselves alone and without that significant supportive person who is so essential to successful lactation. If the person who traditionally helps the mother after childbirth, [usually the mother's mother, called a *doula* (Raphael 1976)], is not present, the woman's milk supply is often reduced and she is forced to give additional food very early.

These women are caught in an extraordinary bind. They are the least able to successfully breastfeed, and yet they are unable to do anything else. They breastfeed and struggle with their limited supply, their lack of resources for extra foods, their own hunger and anger, their desperation, and their starving baby. And, as many as 50% lose the fight. Their offspring die before the first year.

We concluded that for most families in the developing world breast milk is essential for most infants over a long period of time; but, after only three months, so is supplementary food.

REPORTS FROM THE FIELD

Very soon in our field research we began to suspect that the crux of the matter was in the weaning phase. Changes in behavior were found not only in the pattern of breastfeeding but also in weaning practices.

In a recent testimony for a court hearing of the Sisters of the Precious Blood Inc., against Bristol-Myers Company, a witness said: "In 1969, a total of 63% were given both bottle feeding and breast milk during the first month of life, while 10% were maintained by bottle feeding alone. In 1976, these figures are 64% and 10%. There has been no change in the percentage of women who exclusively breastfeed nor in those who never breastfeed during this period (in Trinidad).

"However, there has been a significant change in the contents of bottles. Sago, arrowroot, green tea and flour pap have been replaced by powdered infant formulas and powdered whole milks. An examination of the individual infant feeding histories will confirm the extent to which the use of sago and flour pap is now associated only in poorest households (Johnston 1976)."

A similar pattern was observed in several of the communities even where the larger family unit was still intact as in India. Indian women, though, breastfeed much longer than those in Trinidad, had little or no access to powdered milk, lacked resources to buy sufficient supplementary food and their infants were the worst off of any group studied.

Fieldworkers in the villages and rural slums in India, Egypt, Nigeria, Kenya and Jamaica reported to Center personnel that the consumption of any milks, as well as other foods, is totally inadequate. They suggest this is related to the *trebling of food prices since 1973* in many areas of the world. Talking to a *New York Times* reporter (March 6, 1978) about the effects of the high cost of food, Dr. Adolfo Chávez, head of nutrition in the National Nutrition Institute of Mexico, said,

"In some really depressed rural communities, few children born since 1974, have survived. We have what we call generational holes. But infant mortality is also growing in slum areas of the cities."

Already living at a subsistence level, this added cost to the poor shows up first in an increased rate of infant morbidity and death.

For example, the Indian and Egyptian communities in our project had the highest incidence of breastfeeding. They also had the highest incidence of morbidity and mortality, certainly not because of breastfeeding but despite it.

Our Spanish and Mexican-American mothers lived in much more comfortable circumstances and had the highest incidence of bottle feeding, the lowest number of illnesses and hardly any deaths. They breastfed the least, but they also had refrigeration, bacteriologically safe water and health care. Just as the high rates of illness were due to poverty and lack of sanitation, food and medical care, so the good health of babies was related to improved nutrition and other social, economic and environmental conditions.

What appears to be happening is a switch away from traditional foods to processed milk whenever affordable. But when there is a minimal income and rising food prices, there is a decrease in the amount of all foods given to the weanling.

WHAT ELSE DO BABIES EAT?

What about this extra food? Almost everyone agreed that after breast milk, babies digest the milk of other mammals far better than any other food. *Most milk fed to babies throughout the world is fresh, local milk from bullocks, cows and goats.* For example, officials of the Amul Corporation, the huge Indian dairy cooperative (300,000 families, each with one or more animals, belong to and "own" it), say only one percent of all the milk used in India to supplement breast milk is commercially processed milk. The other 99 percent is fresh milk. They are fully aware that their consumers are only a small portion of the total population, but they can hardly keep up with the demands from that sector, mostly urban.

The current price of each can of milk is about $2 and the average annual income of most Indian families is about $75. One can of such milk would be equivalent to $200 a can for a U.S. family earning $7,500! Obviously, it is out of the question.

As economic conditions in some urban centers improve, as, for example in Africa, the use of additional foods increase. However, it is our impression that though processed milk is preferred as a supplement for infants, most purchased milk continues to be unprocessed.

WHY KEEP BABIES ALIVE?

Many people are convinced that if processed milk was not readily available, more babies would be breastfed and stay alive. On the contrary, there is every indication that this assertion is incorrect and that the lack of food could make it even harder for women to breastfeed, increasing their struggle to keep their children alive. When there are shortages in the developing countries, of the kind that occurred in many areas when the U.S. Congress eliminated the appropriations for the "giveaway" PL 480 milk in 1973, women substitute as best they can. Certainly they cannot increase their supply of milk beyond the normal limits. Though well aware that non-dairy foods will not be as well accepted nor tolerated by young children, when necessary, they use whatever the baby will swallow and hold down.

Another popular stereotype suggests that give-away food programs are wrong because they increase the population by keeping infants alive who would have died. We respond to this by offering evidence that *those parents who lose a child tend to have larger completed families than those whose children live* (WHO 1974).

MAKING WOMEN BREASTFEED

Just as we have underestimated breastfeeding in the past, so we are overestimating it at present. For instance, some policy makers are suggesting that if we do not give away millions of tons of milk to children in the developing world, then women would be forced to breastfeed. This paternalistic assumption harbors the misconception that lactation is automatic like a machine. Not so. Breastfeeding cannot be triggered at will. It is a very sensitive physiological process which works best when the mother has supportive care, what has been described as a mothering-of-the-mother (Raphael 1970). If such care is not present, the ejection reflex, which makes the stored breast milk available to the sucking infant, usually will not be released. He or she then becomes frustrated, hungry, the mother more anxious, and without additional foods, the baby dies.

So, if women are already breastfeeding successfully, they still need supplementary foods after their infants are three months old. If they are not breastfeeding and there is no supplementary food, the child would not survive the weeks it takes to attempt relactation. Finally, in order to breastfeed, some women would have to reorganize their entire lifestyle to accommodate breastfeeding. And, in some cases, it might jeopardize the rest of the family if they depend on her income.

INFANT ILLNESS AND DEATH

Another aspect of the Center's work was the study of international aggregate data. Contrary to popular impressions, we did not find that infant mortality was rising throughout the world. According to U.N. demographic statistics, *infant mortality has fallen during the last three decades.* A cluster of factors are involved, including improved health care, better nutrition and reduced fertility patterns, all of which are part of the general change to "modernization."

The highest incidence of mortality and morbidity beyond the first few weeks (during which illness and death are related to low birth weight, birth trauma, congenital diseases, and not to feeding) occurs after three months of age, usually from lack of food. "The severity of this starvation is inversely related to the amount of supplementary food given.....(Cole 1978)." Parents who have the means either to buy or own the sources of food give adequate amounts of supplements, and their babies survive.

The Center researched the literature which compares the effect of human versus cow's milk. Though there is clear laboratory evidence that breast milk is better attuned to the infant gut than cow's milk, we could not find any data to prove the claim that in real life it prevented diarrhea, illness or malnutrition. While some evidence suggests that certain components of breast milk may be effective against some bacterial and viral disease agents at specific times in the infant's development, it is far from conclusive. *It must be emphasized that breast milk is a food, not a medicine.*

This misunderstanding about the value of breast milk has led to a certain amount of confusion. For example, bottle feeding has been linked with mortality and morbidity, and breast milk with health and survival. As in the Center's field experience, the more reliable findings seem to indicate that the relationship is between poverty and mortality and morbidity. In all areas studied, *the infants born into the higher socio-economic groups, whether bottle or breastfed, were healthier than the infants in the lower socio-economic groups.*

TROUBLES WITH RESEARCH

Much of the available work examining the causes of illness and death during infancy has been called speculative, retrospective and unrepresentative of the population (Thomson and Black 1975, Petros-Barvasian 1975, Cole 1977). The claims of a direct relationship between the presence of U.S. giveaway milk, commercial advertising, illiteracy and marasmic infants has been criticized as over-simplified and unsupported by the data. These studies have not been submitted to others working in this field for peer review or presented in such a manner as to be replicable or verifiable.

Few studies make the distinction between totally breastfed, insufficiently breastfed, or insufficiently supplemented babies, or those who eat contaminated foods. All milk, fresh and processed, is lumped together. The effects of specific types of milk are

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Photo, courtesy of **The Food and Agriculture Organization of the United Nations.**

not documented, nor are the actual sources of infection identified. The studies do not describe the content of the bottles, even when the bottles are brought into the hospital with the infected child. We often are not told if they contain milk or are filled with "bush" tea, crushed crackers, sugar and water, mashed bananas, and so forth. Estimates of the age of children entering the hospital suffering from diarrhea, are often unreliable. "Wizened" children, malnourished and acutely dehydrated, look much younger than their age. Our observation was that most are well over three months of age.

Most surveys ask whether or not the mothers say they breast-fed or bottle fed. Though the most common pattern is to mix-feed, the questionnaires do not usually allow for that option. Even where some of the finest research in these areas has been done, as in India, a colleague questions the methodology and asks for refinements.

"Our appreciation of the ['sources'] of protein-calorie malnutrition, which is of crucial importance from the point of view of prevention and control, has been hitherto based largely on retrospective case histories. Some of the current distortion in our approach to the problem of protein-calorie malnutrition have stemmed from this (Gopalan 1975)."

There is a growing literature which corroborates these same relationships. For example, in Latin America, Puffer and Serrano (1973) studied the status of children. Their data show striking correlations between survival and the parents' higher socio-economic status. Tragically, these are the minority.

COLLECTING DATA IS HARD

Intimate descriptions about women and how they feed their children is time-consuming and difficult to collect. This is a major reason why this information is so meager. Investigators have had to depend on hearsay and retrospective reports by mothers who often second-guess what the person questioning them really wants to hear or offer responses which bring some immediate need to the researcher's attention. Our ethnographic data includes descriptions by informants of the manipulation of physicians for such purpose.

Even the number of American breastfeeders is still unknown. Since hospital records do not necessarily include such information, at best the available statistics represent the number of breastfed babies in the nursery at the time of the inquiry, or are guessed-at estimates by whomever receives the mailed questionnaire. In America today, women leave the hospital after only two or three days and sometimes before the milk comes in (48 hours or so after birth) making such reports even more difficult to obtain. Certainly, we don't know how many women breastfeed after leaving the hospital. But, such information would be easier to collect in this country than anywhere else.

According to the World Health Organization estimates, about *80% of the women in developing countries do not have access to Western style medical care,* no less hospitals. Those who do, usually leave the hospital or clinic within 24 hours after delivery. Thus, it is extremely difficult to verify statements about the reduction, presence or increase of breastfeeding in these areas. We can only report what single observers see, in very limited places, at specific moments in time.

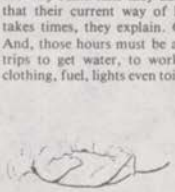
MANY DIFFERENT LIFESTYLES

A majority of women still live in traditional settings and breastfeed usually for two years, mix-feeding from very early on. They often have inadequate additional foods for their babies and they have no access to or cannot afford the exhorbitant cost of processed milk, foreign or local.

Then there are the poor urban and immigrant women who find themselves in a life situation so oppressive that breastfeeding becomes just another burden. They lack the support of the traditional family, and many lose their milk and their infants. Those who continue to breastfeed, add milk and other foods as their economic situation permits.

There are also the urban mothers who participate in the commercial sectors of their culture as professionals, entrepreneurs or market vendors. These women breastfeed less or not at all. However, since they are usually better off financially than are the rural women, their infants are less often ill, and more of them live.

It is this last group of women, who like American mothers during the first few decades of this century, are turning to commercial milk before all the accouterments (pure tap water, refrigeration) which today accompany bottle feeding, are present. At the very same time they admit breast milk is best, they concede that their current way of life makes breastfeeding difficult. It takes times, they explain. One must be available to breastfeed. And, those hours must be added to those spent making essential trips to get water, to work outside the home, to obtain food, clothing, fuel, lights even toilet facilities.



Just as the U.S. pediatricians, Holt, from the turn of the century to 1940, and Spock after that, pleaded with mothers to breastfeed (Raphael 1970), so Third World pediatricians are urging women to do so. But, women act in their own best interests. Within this new setting they balance the scales and do what seems to work best. Most of the babies get by but some are infected and die.

Since we have no evidence showing that middle class mothers in the developing world will act different from Western women, we can expect that, slowly but surely, they will also turn to bottle feeding. Well-intended pleadings to keep them breastfeeding is not the way to reach these women any more than it was in the past.

PRIORITIES AND COMMITMENT

The Center's responsibility is clear. We must help eliminate sentimentality and over-simplification of these extremely complex issues. We must keep clear the differences between scientific fact and political expediency. We must involve the women in those decisions which affect their babies and their lives. We must caution against dictating to them what they should do or how they should do it.

The Center's work contains unique, systematic, first-hand, in-depth, cross-cultural information on breastfeeding and other infant feeding practices, and we feel that it presents these women's views and life situations as realistically as possible. We feel compelled, therefore, to bring these views to the attention of policy makers who have the responsibility for action programs which involve food for women and their children.

Finally, while acknowledging the attempts of many countries for self-sufficiency in food production, we are also realistic and admit it will take time. In the interim people need food, and we at the Center feel it is our moral obligation to do whatever we can to see that they get it.

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Additional Material Submitted on Behalf of the Nestle Co., Inc.

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#1

WORLD COUNCIL OF CHURCHES
Programme Unit on Justice and Service

REPORT OF THE GENEVA CONSULTATION ON A PROPOSED ACTION/REFLECTION PROGRAMME ON TRANSNATIONAL CORPORATIONS

June 14-18, 1977

(including the proposed programme as amended and approved by the Central Committee of the World Council of Churches, August 1977)

I. THEOLOGICAL REFLECTION

Introduction

Historical reality can be understood as the result of interacting forces: God the creator and the redeemer of all things; creation itself with its several processes oriented toward fulfilment; and the forces which oppose God's will, misusing the freedom with which the Creator made reality. History thus becomes a force field in which, through dialogue and confrontation, through cooperation and struggle, peoples move toward human dignity, social justice and liberation. Churches and individual Christians have been and are related to all three forces.

Without any claim of an exhaustive, systematic approach to an understanding of economic, political and social activities, to which transnational corporations are related, we think that there are at least three theological lines which can help us to make an assessment of our involvement in economic life. The first concerns the role of economic activity in God's creation; the second is related to the way in which structures and powers can be theologically understood; and the third deals with the prophetic role which the people of God are called to play in history.

A. Creation and Economic Activity

Our belief in God as the Creator is also a belief that human beings are called to participate in the fulfilment of creation. In this sense the Bible enjoins fruitful economic activity. The original commandment to Adam and Eve was to settle on earth, to cultivate it and to take care of it (Gen. 1:26; 2:15). In this act, God sanctifies work and the economic order of which it is a central aspect. God gives human beings the responsibility for the stewardship of His resources and the development of His creation. These two factors - faithful and responsible stewardship, and loving development - lie at the centre of any discussion of economic matters. The Sabbath Commandment in the Decalogue also says "Six days shall you labour and do all your work". Economic activity is thus to be seen as an aspect of the will of God.

We also find in the New Testament many indications which justify economic activity. For example, Our Lord Jesus Christ made use of illustrations about it in some of his parables. Saint Paul emphatically wrote that he who does not work has no right to eat (2 Thess. 3:10), giving himself as the example of

society but a contributor to it. In the Epistle to the Ephesians, the thief who unjustly appropriates the fruit of other people's labour belongs to the disintegrating Old Adam; whereas the New Man is to do honest work with his hands, so that he may be able to contribute to those in need. The motive for work here is certainly not profit for oneself, but the possibility of contributing to the common good, and through it to the fulfilment of creation.

Because work is so important for the furthering of development and the achievement of God's purpose, it is not possible to accept that injustices be done to workers. The Gospels give testimony that Jesus stated that "the worker deserves his keep" (Mt. 10:10: Luke 10:7; I Tim. 5:18), and James also speaks of the due wages of the labourers (5:4). It could not be otherwise, especially if we have in mind - as was stated previously - that, according to God's will, human beings participate in the creating and recreating work of God. To promote injustice and unevenness through economic activity may well also be a way to participate in forces which move against God's will in creation. These kinds of facts appeal to the churches to exercise their prophetic vocation.

B. The Kingdom and Structures

The realization of the values of the Kingdom of God requires not only the good will of individuals, but also the good organization of the structures of society. The hungry will have no food, the thirsty no drink if the socio-economic system works unjustly. The policies of production, pricing and distribution are intimately linked to the liberation of which Jesus spoke: "I have come to set the captives free, to break the chains of oppression". Today the growth of worldwide interdependence has made the structural relations in society even more significant - for good or evil.

The churches therefore are called to a critical evaluation of the systemic relationship within any society. The wider and deeper these relationships are, the greater the demands of corporate responsibility and accountability. The churches have to participate constructively in the shaping of society's structures in order to satisfy the basic and urgent needs of all. Paul's exhortation to the Romans to be subject to higher powers was given with the assumption that rulers are to be "not a terror to good works, but to evil". When "powers" are detrimental to society, then "powers" have a God-given duty to transform their behaviour. The Gospel imperative of love of neighbour cannot today be fulfilled if we neglect the operations of the social structures. The worsening condition of nearly 2,000,000,000 poor in the world and the widening gap between the rich and the poor make a serious evaluation of our socio-economic structures an essential and urgent responsibility of all people of good will.

One of the central factors in any such evaluation is how wealth is used. While the New Testament enjoins just wages for the labourer (I Tim. 5:18; James 5:4), it also makes the express demand that we abjure the love of money (Heb. 13:5) since that love is the root of all evil (I Tim. 6:10). In

Luke the Pharisees are castigated for being "moneylovers" (16:14). Where the desire for wealth or the possession of it stands in the way of someone's following Jesus, he is asked to renounce it (the rich, young ruler), and where wealth is unjustly acquired, Jesus encourages the return of it to those from whom it was extracted (Zacchaeus). Clearly, the New Testament has a partiality for the poor, insisting that the Kingdom is theirs (Luke 6:20) and condemning the rich in no uncertain terms (Luke 6:24-25; James 5:1-6). Hence there is theological and Biblical justification for attacking economic structures which appear to inhibit the growth of social and economic justice.

C. Struggle and Hope - the Prophetic Vocation

Throughout history, the identity of God with the struggle for human liberty from oppressive power has been a central motif in the perception of the church (often forgotten or buried under the self-interest of the institution, to be sure). The exodus of the people of Israel from Pharaoh's harsh rule established the identity of God with the oppressed and impoverished people, and set a convenant relation for the people of Israel as a sign among the nations - a sign of God's unrelenting demand for right and just relations among people and of hope for the final reconciliation of the peoples and structures of this earth into His Kingdom. The crucifixion and resurrection of Jesus Christ inform us most completely of the suffering and hope found in God's full identification with humanity.

The prophetic role of Israel among the nations and of the prophets in Israel's life was always carried out by means of acts which revealed God's demands and called for response leading toward freedom. The covenant and its related codes were intended for justice. This was perhaps best illustrated in the economic sphere by the concept of the Jubilee Year in which land was returned to its owners, slaves were set free and debts were forgiven. In the Jubilee, the Hebrews sought to deal with injustices in society in the light of Yahweh's call to be with and for the poor and oppressed. While never fully practised, the idea of the Jubilee persisted for centuries. Indeed, in his first sermon recorded in Luke 4, Jesus speaks of "proclaiming the acceptable year of the Lord", a clear reference to the Jubilee tradition. This is relevant to our present effort because the Jubilee was a finite, but significant human action designed to counteract injustices.

The prophetic task to discern structures that oppress and testify to God's demand for justice remains today, in the context of new Pharaohs and new Babylons. Where there is struggle for human liberation, God is present, transforming the structures that oppress into structures that support life. In attempting the prophetic role, the church must always be sensitive to the possibility that, like David, it is condemning injustice without acknowledging that it is itself ensnared in the evil it condemns. It must also look to those streams of theological insight which can guide and direct its action. Today that insight comes largely from the Third World, the theology of liberation from Latin America, Black theology from Africa and Afro-America, theology in action in Asia and the Caribbean. The crucial contribution of these theologies is they draw deeply on social, economic and political perspectives in their societies, and are allied to practical programmes for change.

D: Conclusion

Such a biblical and theological perspective has informed ecumenical discussions on this subject in the past. As early as 1925 in the report of the Stockholm Conference on Christian Life and Work, we read: "In the name of the Gospel we have affirmed that industry should not be based solely on the desire for individual profit, but that it should be intended for the service of the community. Property should be regarded as a stewardship for which an account must be given to God". Nor is an analysis of the responsibility of the politicians and economic managers of society a new effort. In a vision of the Responsible Society, the First Assembly of the WCC in 1948 declared: "Those who hold political authority or economic power are responsible for its exercise to God and the people whose welfare is affected by it". These insights are also found in Populorum Progressio: "A system has been constructed which considers profit as the very motive for economic progress, competition as the supreme law of economics, and private ownership of the means of production as an absolute right that has no limits and carries no corresponding social obligations. ... One cannot condemn such abuses too strongly by solemnly recalling once again that the economy is at the service of people".

In the service of God, the churches are also called to be in the service of people. We can begin this task as it relates to the power of the transnational corporation by:

1) repentance - recognizing that we in the churches stand in judgement for our past and present captivity to unjust economic structures and systems and are first called to repent and then to "bear fruits befitting repentance";

2) reflection - developing a serious theological perspective on the use and abuse of power in our time;

3) demythologizing - extracting the transnationals from their realm of power and presenting them to people as institutions whose precepts have been moulded by humans and can therefore be brought under human control;

4) taking action - joining together with those in every society who are responding to the need for national and international economic and social justice, particularly with respect to the activity of TNCs.

II. HISTORICAL, SOCIAL AND ECONOMIC FOUNDATIONS FOR ACTION

Introduction

The attempt within a Christian framework to evaluate and offer an adequate response to the reality of TNCs must be a radically new approach to the political and economic structures of society and demands liberation from the present unjust international economic system. There is a growing realization that current patterns of so-called 'Development' are totally inadequate. TNCs are major pillars of a Western development that is inappropriate for much of today's world, for it leads to a massive concentration of wealth and power that aggravate the conditions of the poor and oppressed in both so-called 'developed' and 'developing' countries. Inequality, social injustice, massive unemployment, uncontrolled urbanization, repressive

governments and a growing gap between rich and poor are disturbing facts of our own time to which TNCs contribute. Nevertheless, TNCs exist, they have enormous influence, some say control, over the global economy and it is extremely difficult to affect them. Hence an ecumenical programme of action and reflection on the nature and implications of this reality is both timely and necessary.

We need therefore (A) to understand how the present situation has come into being, (B) to note the claims made by TNCs and the questions raised by their operations, (C) to identify current trends and goals for action, based on a re-interpretation of the New International Economic Order (NIEO), and (D) to develop a practical programme.

A. Historical Development

TNCs are by no means new on the world scene. They have their origin in the expansion of trade which began from Europe in the 15th and 16th centuries. Nationally-based companies from Britain, Spain, Portugal, the Netherlands and France, such as the East India Company, Hudsons Bay Company and the Merchant Adventurers, spearheaded the economic penetration of Africa, Asia, the Americas and the Pacific. Their amassing of surplus, from plunder, slaving and unequal exchange, enhanced European wealth and power, and undermined the self-reliance of peripheral economies, paving the way for subsequent colonial expansion.

This section cannot be an exhaustive description of the development of TNCs, but it can present certain facts. The 17th, 18th and 19th centuries saw the primitive accumulation of capital which enabled industrialization first in Europe, then in North America and Japan. The nationally-based companies became the arm of the colonial governments in the territory they controlled. Such companies secured agricultural and mineral resources for the benefit of the colonial power. They controlled investment, shipping and primitive technology, and they even imported slave and indentured labour.

These proto-TNCs developed the main features of contemporary TNCs - the concentration of economic and financial power, the internationalization of production and trade and the international division of labour. After the Second World War there was explosive growth in the developed economies, which led to considerable surplus capital seeking profitable markets in which to invest. This was the period during which nationally-based companies rapidly developed into international entities. Pressures contributing to this included the growing need for raw materials in developing economies, the internal dynamics of companies needing growth, the increasing competition for foreign investment and the parallel development of an international financial system. In a relatively short period of time, a quantitative and even qualitative change occurred in the old nationally-based companies of the first half of the 20th century.

The increasing power of TNCs caused distinct problems. In the ex-colonies rapid change was made easy and smooth by the ready and selfish cooperation extended to the TNCs by the feudal-capitalist classes in many 'developing' countries. In a number of situations, TNCs have actively opposed genuine independence for former colonies. Whilst relinquishing direct control through colonial domination, to adapt to political pressures for national independence, they have consolidated their economic hold on the territories where they operate by their control of investment capital, credit and technology, and have thus established new relations of dependence frequently described as neo-colonialism. Particularly in the earlier part of this process, but also less overtly in the later part, the Western Church participated, often encouraged, and certainly gained financially in the colonialist period. Christian texts were used to provide a moral justification of unequal capitalist development and theology was heavily influenced by the secular imperatives of that system. Thus one of the first reactions by Western Christians to the present international economic order must be repentance.

In the industrialized countries, the international nature of their operations has put them in the position to carry out uncontrolled transfers of capital and production facilities and has given them the power decisively to affect national economies on the basis of TNC needs and priorities. In this way, unprecedented growth of TNCs has been accompanied, in the industrialized countries, by inflation and unemployment, which has crippled the economies of countries such as Britain and Italy, and may similarly affect others in the near future.

The growing production and trade and financial involvement of TNCs in partnership with the governments of centrally planned economies has given them access to new markets, cheap labour and secure production facilities in a stable political context. This development has strengthened the movement toward the interdependence of centrally-planned and market economies. There is a danger that this process may contribute further to the dominance of the TNCs in their role of organizers of world production and trade.

The unprecedented power of the TNCs in the present-day world and its uncontrolled use, frequently in conflict with the needs and priorities of the vast majority of the world's population, has led not only to widespread alarm and concern, but also to widespread resistance.

Such resistance has come from peoples living in colonial or neo-colonial situations, from workers employed and otherwise affected (rendered unemployed) by the TNCs, and from many sectors of public opinion. It has been expressed through liberation movements, trade unions, and national states wherever these are responsive to popular needs or where they represent the interests of elites conflicting with those of the TNCs.

In the face of growing opposition, many TNCs have adopted patterns of conduct calculated to disarm such opposition, present less vulnerable targets and overcome resistance. Such techniques include the extension of franchising arrangements and management contracts which do not involve outright ownership and are therefore not equally vulnerable to expropriation and blur the

lines of responsibility; increasing joint operations in partnership with national governments which place the TNC concerned under government protection; the cooptation of local elites which blunts the edge of nationalist sentiment; the acceptance of certain forms of consultation with labour which create an illusion of participation in decision-making whilst not affecting any basic policy options. Techniques of adaptation for survival should not, however, be confused with the acceptance of social responsibilities or a change of priorities.

The basic issue, in the eyes of a majority of the world's population remains: who shall have the power to make the decisions which affect their lives, that is, the decisions which determine their access to the basic necessities: food, shelter, clothing, education, freedom. Therefore the struggle for new patterns of development, for liberation, for control of decision-making at every level, for self-management, and for a New International Economic Order, has gathered strength.

B. Positive Aspects and Questions

In the light of this theological, ethical and historical analysis, the rise of transnational corporations presents us with a challenge. Despite the self-understanding of the TNCs in terms of

a) their contribution to efficient and large-scale production of wealth,
b) their role in the transfer of capital, technology and skills,
c) their creation of some employment,
d) their transcending of national barriers, and
e) their contributions to education and culture,

the existence and operation of TNCs raise problems in the following ways:

1) They now represent a vast accumulation of wealth and power comparable to that of many nations, without adequate control by and responsibility to the people affected.

2) By virtue of their transnationality these corporations can often escape the regulatory authority of individual nation states.

3) They contribute to uneven development and to the creation of empty consumerism in both developing and developed countries.

4) Their products are sometimes lethal (armaments) and often ill-designed to meet the basic needs of the masses of people; they sometimes create false needs and then cater to them for the sake of their own quick profit.

5) The funds allocated for research and development are not always related to the basic needs of the people; the potentials of scientific knowledge and technology are thus deflected from serving the people, towards the interests of easy profit for a few.

6) They have a preference for capital-intensive technology which aggravates the unemployment problem, whenever it exists.

7) They hold the power and influence to manipulate wage and price structures, and the terms of trade of the countries where they operate. This often leads to further distortion and widening of inequalities.

8) They can exercise undue influence upon the governments of nations and can interfere with the freedom of a people to choose their own form of government.

9) They reinforce patterns of ownership and control cumulatively developed during the period of colonialism and imperialism.

10) Their vast wealth gives them power to influence the mass media, to control the spread of information, to create myths and to obscure the truth, and to remould the culture and its values in the interests of industry and business.

11) They can use their wealth to promote corruption and bribery.

12) They can be indiscriminate, irresponsible and wasteful in the use of scarce resources.

For all these reasons, we cannot be oblivious to the ever-increasing role which TNCs play in the world economy.

C. TNCs and an International Approach to a Just, Participatory and Sustainable Society (JPSS)

The present international economic order tends to aggravate economic injustice, frustrate self-reliance and oppose progress toward a Just, Participatory and Sustainable Society. The goals of such a society, and the radically new process of development and liberation necessary to achieve them, must have the following included in their general thrust:

(a) social justice
(b) desirable forms of economic growth, based firmly on collective self-reliance
(c) sharing rather than competitive economics
(d) the freedom to organize and just returns for labour
(e) the mobilization of the people, less developed countries' greatest resource
(f) the community ownership of resources.

The less developed countries have referred to several of these goals in their search for a genuinely New International Economic Order, but it must be made clear that what the developed countries mean by an NIEO is largely another device to keep the poor hoping, with only minor adjustments to prevent the more outrageous aspects of economic injustice. The JPSS is a preferable description of economic and social goals.

The central concern of the less developed countries is not so much to ensure that the whole system moves ahead faster as it is to ensure that those parts which have so far been left on the periphery are enabled also to move, but in their own way. This implies new 'rules of the game' in which national or international corporate enterprises can make a constructive contribution to the JPSS.

The representatives of TNCs argue that their companies are dynamic and effective new instruments of development: they do research and produce new technology; create employment for large numbers of people who receive comparatively high wages; contribute to culture and education. They also claim that the separation of ownership and management in TNCs today has shifted major control from

individuals and families, and has even shifted the foci of industrial power, decentralizing them to wherever the corporations operate.

However, analysis of the philosophy and activities of TNCs shows that they do concentrate enormous economic, technological and financial power within comparatively few industrial and financial institutions based in the dominant industrialized countries. They exploit the natural resources of many parts of the world in a process in which they, and the countries in which they are based, are the major beneficiaries. They have become increasingly oligopolistic, a process in which a handful of corporations can control a commodity or resource. They have utilized their flexibility to exploit cheap labour and have moved their operations to where they can achieve the greatest profit, regardless of local consequences. Their presence has often led to the underdevelopment and stagnation of Third World economies. They have in fact evolved a new 'transnational identity' which requires a response which is also transnational. The WCC is transnational in membership and therefore should seek to provide part of that response.

D. Basic Considerations for Action

The struggle for a new and just economic order demands an unyielding human spirit which must be itself at the service of the spirit of God who is at work in the world. God's presence both within and beyond this struggle will be the source of our hope. But hope without strategies to incarnate it is an illusion. In this common struggle, the strategy will vary from place to place and situation to situation, but all should be kept within our fellowship of concern. We should have some understanding of the role of those within TNCs called upon to make decisions which affect the lives of millions, but we must be more directly concerned for the victims of TNCs - those who are able to engage in limited dialogue, those who have no choice but confrontation, and those who suffer without a voice. We will experience power in its many manifestations, and we will need to reflect theologically on this, being especially sensitive to what new theologies may contribute to this work. In addition to the necessary theological task and the pastoral concern for those who suffer, we are also being called by God to a prophetic stance vis-à-vis these largest concentrations of economic power in human history. We must be about all these things, if we are to be the Church in the face of this challenge.

1. There is a need for further critique and analysis of the world economic system in which TNCs are a major factor, and from which churches in Western countries continue to benefit a great deal.
2. There should be a seeking for alternative models which incorporate some or all of the elements necessary to create a Just, Participatory and Sustainable Society, and an examination of the future of TNCs in the light of these.
3. It will be necessary to gather information on the actions of TNCs world-wide, the nature of their 'strengths' and 'weaknesses', and any abuses arising from their activities.

4. Crucial is the encouragement and support of movements and organizations, including the churches, which emphasize human dignity, self-reliance and social justice as the values which inform an adequate response to the TNC view of 'development'.

5. Also important is the clear social responsibility of the churches at national and international level to develop and implement a conscientization programme for all those whose lives are affected by TNCs - those who benefit, those who suffer, those who work in management and labour, and those who are attempting to combat their unacceptable effects.

With these considerations in mind, specific issues such as the following require special analysis and action.

a) The extent to which the role and operations of TNCs have inhibited the emergence of a desirable process of development.

b) The role of transnational capital supporting social, economic and political situations in which people's rights are violated, as e.g. the system of apartheid in South Africa.

c) The nature of the transfer of technology to underdeveloped countries by TNCs and the effect which this has on self-reliant development.

d) The reasons for which transnational investment is made, geared primarily to private accumulation and only peripherally concerned with problems such as unemployment, pollution, the production of basic human necessities, and cultural values.

e) The way in which capital reinforces trends that establish uneven growth and development, to which TNCs contribute.

f) The extent to which the churches have contributed to this whole process, and also benefitted from it.

g) The form which an international action-reflection network of communication and action between those critically active on TNCs should take.

The biblical, theological and socio-economic justification for a programme concerning TNCs is therefore quite clear, so is the form needed for a practical response. This matter demands the concern and participation of the whole church, at local, national and international level.

III. THE PROPOSED PROGRAMME

The Central Committee of the World Council of Churches at its meeting in Geneva in August 1977 received the report of the June Consultation and a proposed programme on Transnational Corporations. It "instructed the Executive Committee to review the proposed programme on Transnational Corporations, giving special attention to the broad strategic guidelines".

The Central Committee made the following comments to enlarge and strengthen the programme:

a) The dialogue that the WCC has started with various organizations concerned with the role of transnational corporations in the present world situation (e.g., Urban Industrial Mission groups, transnational corporations, trade union leaders, Christian businessmen, the Council on Religion and International Affairs, small businessmen, Church academies and lay institutes, etc.) should be continued at different levels and widened.

b) The programme should be closely related to and aimed at assisting local, national and regional actions by churches and related groups.

The proposed programme, as amended and approved by the Central Committee, follows.

Introduction

1. The Fifth Assembly in Nairobi called the attention of member churches to the increasing and controversial role played by transnational corporations in today's world. It urged the WCC to study this issue in full consultation with member churches, the United Nations and its related agencies, people involved in TNCs, trade unions, youth, women and all concerned groups.

2. The Central Committee in 1976 instructed the Programme Unit on Justice and Service to prepare a proposed study/action programme on Transnational Corporations for submission to its meeting in 1977. In doing so, the Central Committee decided that the programme should be the responsibility of the Programme Unit on Justice and Service, lodged in the Commission on the Churches' Participation in Development (CCPD) and in cooperation with Church and Society and Urban Industrial Mission (UIM) in the Programme Unit on Faith and Witness.

3. A Staff Task Force was formed, composed of staff members of the Programme to Combat Racism (PCR), CCPD, the Commission on Inter-Church Aid, Refugee and World Service (CICARWS), the Christian Medical Commission (CMC), the Commission of the Churches on International Affairs (CCIA), Church and Society, UIM, Renewal and Congregational Life and the General Secretariat.

4. The Staff Task Force has benefitted from discussions on three special occasions:

   a) the meeting of the Executive Group of the Programme Unit on Justice and Service, Geneva, December 1976;

   b) the meeting of the Executive Committee of the WCC, Geneva, February 1977;

   c) the joint meetings of the sub-units of the Programme Unit on Justice and Service, Egham, England, April 1977.

   At these meetings the programme under way was reported and revised and orientation given.

5. Two consultations have taken place in the process of elaborating the proposed programme which was submitted to the Central Committee. The first in January 1977 in Cartigny, near Geneva, gathered church-related groups and church representatives already involved in a variety of programmes related to TNCs.

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The second, which took place in June 1977 in Geneva, was more complex, with a large variety of participants (theologians, social ethicists, church administrators, representatives of TNCs, trade unionists, action group representatives and experts).

The Programme

A. WCC's programme can be meaningful only if it is integrated with and serves to communicate and catalyze local, national and regional action. The action programme in respect of TNCs must be seen as WCC-wide. It cannot be seen as the exclusive responsibility of any one unit or sub-unit nor as supplanting their ongoing action, but as complementing and adding to as well as building on and supporting the coordination of existing efforts.

B. Reflection and action are inextricably linked. The excluded, oppressed and exploited cannot wait. Reflection, if not paralleled by present action, is not true solidarity with their needs. Thus, realism and credibility require action now. In this context major issues of global concern such as the New International Economic Order, the release of South America from neo-colonialism and the liberation of Southern Africa are important. They provide foci around which to organize education by and of the churches and solidarity among churches, Christian action groups and others committed to change, and they illustrate the interaction between TNCs and other systemic elements, including repressive states, local predatory elites and racism.

C. In the quest for justice in history the basic organizing principle is struggle. Its aim is the transformation of society. Transforming society is a process in which long-term strategy must interact with and be served by short-term tactics and struggle against abuses. These short-term tactics are often built on alliances with those - including ourselves - of imperfect perceptions and concerns. However, entrenched power cannot be defeated or transcended except by a new counter power, based on solidarity.

D. A major role of WCC is to facilitate and support communication regionally and globally by putting churches and action groups in touch among themselves.

The following aspects deserve serious consideration:

1) The elements of paternalism still present in action group programmes are rarely informed by the perceptions of the excluded, exploited and oppressed. The WCC must avoid such paternalism and assist these churches and other groups to recognize and to eliminate it.

2) Often groups in industrialized countries unwittingly abuse the time and energies of the Third World action groups through excessive and uncoordinated visits. Also the flow of visitors has been primarily from the industrialized countries to the Third World, and that of information in the other direction.

3) Groups from industrialized nations must be assisted to understand that they are part of the TNC system. This system oppresses, excludes and exploits in the industrialized nations as well as in the Third World. Solidarity in struggle must take place at home as well as abroad.

E. Action is located within specific contexts, of history, time and place, and is effective according to people's potential and their level of consciousness. It is imperative to listen to the experience of the victims as a basis from which to build a programme. However, action must lead to reflection and to the interaction of experience needed for broader and deeper further stages of action. WCC should seek to provide, and to encourage and assist regional Christian councils in providing channels and fora aimed at producing more understanding of causative economic structures, with the goal of organizing for action. An integral part of such reflection and action is the building up of a more genuinely global theology of liberating change (not defence of order) centred on the challenging of the present secular order and therefore in conflict with it rather than domesticating Christians and churches into that order.

F. WCC's programme should include:

1) raising consciousness, including theological, economic and political awareness that leads to action. Consciousness-raising has multiple dimensions, among them: deepening church and individual Christian awareness that political economic issues are of integral concern to them as churches and as Christians, building perceptions of churches, Christian action groups and other bodies committed to liberation that they share common concerns logically requiring joint action, continued dialogue with and challenge to Christians who are in leadership positions in TNCs.

2) aiding in channelling resources in response to requests for support of action consistent with the broad strategic guidelines outlined above.

3) facilitating the flow of information and human communication regarding TNCs.

4) strengthening communications systems outside the domination of the present TNC-based global news and information systems.

G. The following types of supportive, initiatory or catalytic action are stated as examples:

1) support for organizing efforts of workers, unions, peasants, youth, women, slum dwellers, business people and other groups, by means of dissemination of information, including statements to relevant power bodies (e.g., United Nations, TNCs, governments), support of legal reform and protest movements.

2) use of public hearings to mobilize potential supporters, raise public consciousness, build up countervailing power.

3) response to requests from groups to strengthen their programmes of mobilization and information, e.g., furnishing material support as the PCR has done in its relation with liberation movements and the CMC has done with groups opposing drug and baby formula abuses.

4) promotion of responsible use of invested church funds by means which might include shareholder resolutions, pressure on corporate managers or the decision to withdraw or alter patterns of investment.

5) provision for exchange of experience as a means to inform and strengthen churches and other groups and national and international action. Of particular importance is the exchange of experiences by women affected by TNCs in the context of both industrialized countries and the third world.

6) assistance to churches in developing programmes of consciousness-raising for their members leading to a greater breadth of Christian concern with the impact of TNCs and the nature of the TNC system.

7) initiation of action in respect of issues perceived as critical but unlikely to result in locally-based programmes without catalytic work by the WCC.

H. To implement and articulate the ongoing programme over an initial period of five years, we recommend that:

1) The Staff Task Force continue and be expanded to include the Communication Department and the sub-units on Women and Youth thereby providing a coordinating focus. The Task Force should seek guidance from a small Advisory Group composed primarily of persons who are excluded, oppressed, exploited and secondarily of those who have demonstrated their solidarity with them. This Advisory Group is perceived as a group of persons capable of helping to deepen, develop and provide expertise on the struggle for justice.

2) Budgetary support for new programme elements be supplied by CCPD.

3. Member churches of the WCC be asked to express their concern and commitment through adequate means.

Transnational Corporations

An address to the World Council of Churches
Consultation on Transnational Corporations
Geneva, 13–18 June 1977

by Geoffrey Chandler

Director, The Shell Petroleum Company Limited
Director, Shell Petroleum N.V.

Transnational Corporations

Address by Geoffrey Chandler

[Note: The World Council of Churches invited Geoffrey Chandler to participate in its June Consultation on Transnational Corporations. In the following text of his remarks, he refers to the record of two earlier meetings: First Exploratory Consultation on Transnational Corporations, held at Cartigny in January 1977, and the Fifth Assembly of the World Council of Churches, held at Nairobi in November-December 1975.]*

My name is Geoffrey Chandler. I have worked for Shell for some twenty years. Perhaps some additional personal details are also relevant. I am a doctor's son and was brought up in a household where the Hippocratic Oath and the belief that one should attempt to leave the world a better place than one found it, whatever one's occupation, were a basic part of family philosophy. After war service and completing a degree at the university I became a journalist. Journalism has its own professional integrity which lies in not reaching judgments before evidence has been weighed and all points of view heard. But it is a solitary – in some way perhaps selfish – occupation, and I left it to join Shell since I believed that in such a company one would be working with and through people and also that such a company could contribute to human welfare on an international plane. These beliefs have been fully justified by my subsequent experience.

Two further details: a great part of my working life has been spent working in or in relation to developing countries; therefore the witness I bear comes from direct experience. Secondly, my wife and I had the good fortune to live and bring up our four daughters at the most impressionable age of their lives in a multiracial society in the West Indies which has left us as a family with an abiding belief that discrimination in whatever shape it occurs is an evil to be fought.

For all these reasons I read the Minutes of the First Exploratory Consultation on Transnational Corporations held at Cartigny with growing anger. My anger arose from the prejudice, ignorance, and intellectual dishonesty which are displayed there. I am asked to believe that I and my colleagues – who range from people in simple jobs to distinguished scientists of international repute – are parties to a cheap conspiracy to defraud the poorer nations of the world.

Companies are people, not things. And we are all uniformly accused – whether we are European, African, American, West Indian, or Asian, since all of these are members of Shell companies.

* The term 'transnational corporation' has recently been used by the United Nations and other international bodies to describe groups of companies more commonly known as 'multinational enterprises'.

Yet not one accusation is accompanied by a shred of evidence or analysis, except perhaps by the familiar technique of taking the exceptional case of bad conduct in order to damn the whole – in much the same way as the atheist points to the unfrocked priest in order to justify his rejection of the whole of religion and the Church.

Anger is a legitimate emotion, but should not be used for analysis. I therefore went on to seek the cause for this suspension of reason and suspension of justice and charity.

Was it political ideology? It clearly is in part, because the language of political ideology readily betrays itself. But I do not believe that this is the full answer.

Was it that the Cartigny meeting feared to analyse, because analysis would give the lie to what had been said? You cannot easily maintain that companies which have contributed to the control of bilharzia, a disease which is in no way élitist – to use that foolish but fashionable word – are wholly bad. You cannot easily maintain that companies which have increased the output of crops a hungry world needs are wholly bad. You cannot easily maintain that companies which have created wealth for a country by assisting the development of its resources and which have trained its people to do the job themselves are 'agents of underdevelopment'. Was it that the Cartigny participants therefore preferred to ignore these facts?

Or is it because all of us are shocked and dismayed by the poverty that rules in so much of the world, and because we cannot solve it speedily, and because development has always been a slow and difficult process which we do not yet fully understand, that the meeting at Cartigny therefore sought scapegoats? There is nothing new in this: witches were burnt because of phenomena which could not be understood. And within more recent history we have seen the Nazis treat the Jews as scapegoats.

Indeed, not only is there no analysis in the Cartigny Minutes, there is a call for the rejection of analysis and for action without it. I would remind you that injustice is frequently characterized by haste; the lynch mob moves fast in order to forestall justice. It surely cannot be that the participants at Cartigny prefer to hang a man before he speaks, lest he prove himself innocent.

To those who hold this view I would say that you have a clear decision to make – which is whether or not you want to join the witch-burners. You have also to decide what your aims are: Are these aims the abolition of poverty, the removal of hunger, and the fulfilment of the potential of the individual? Or are they the destruction of something you do not like and do not wish to understand – with nothing to put in its place if you happen to be wrong? If, as all my experience leads me to believe and as the evidence indicates, transnational corporations, though as imperfect as any other part of society, in general assist development and the removal of poverty, your whole endeavour must be seen as wantonly destructive if you do not bother to discover first if you are right.

I make no apology for the strength of my words. But I would now like to turn to a more positive and constructive description of my understanding of the role that these groups of companies, known as transnational corporations, can play. But before doing so, it may be as well to clear the air by dealing briefly with some of the accusations levelled at transnationals in the Report of the Fifth Assembly of the World Council of Churches in Nairobi.

'Their aim', says this Report, 'is to take advantage of cheap labour'. In my own industry, oil, the opposite is the case. A high degree of skill is in general required and wages and salaries – in part resulting from the bargaining power of trade unions whose growth has accompanied the growth of the oil industry – tends to be well above national wage and salary levels. This can be verified from any independent authority. However, we should also beware of denying countries the comparative advantage their lower labour cost may offer them in other industries since it may be their only resource. So long as conditions of work are humane, in the broadest implications of that word, it could well militate against development and employment to deny them that advantage.

Transnationals, states the Report, 'exercise immense control over world trade and prices'. The price of a barrel of crude oil is today $12-13. Of that the host country takes on average over 95 per cent in revenue, or over $11; the companies on average take 25 cents. That too can be verified from any independent authority. Of the final price to the consumer of a representative barrel of refined oil products, let us say on the European market, which is about $27, the host producing government takes around $11 (the figure I have already cited), the European government takes some $10.50 in excise duties. The companies' profit is on average some 50 cents and the rest is cost. These facts too are verifiable. If this is 'control', it is exercised with remarkable absence of self-interest.

'The type of goods they produce is meant invariably to satisfy the needs of an élite class' says the Report. Oil is a basic commodity the whole world requires. So is food. So it is not difficult to destroy so crude a generalization. But it continues to leave me uneasy in its underlying philosophy. If people cannot *choose* what they want, who is going to *dictate* to them what they are thought to need, and on what criteria?

'The technology they use', says the Nairobi Report, 'is ill suited for the needs of poorer countries'. This is indeed a problem. But it is again a crude generalization. A distinction must be made between industries. In certain industries, such as oil, the technology is highly specific for reasons both of doing the job effectively and of human safety. It is an industry which basically creates revenue from which other employment can be derived. Recognizing this, however, we try to assist employment in other ways in the countries in which Shell companies operate. And Shell is incidentally a significant contributor to the development of intermediate technology through its support of the Intermediate Technology Development Group in the United Kingdom.

Do I need to go on? Accusations of this kind have been the subject of debate, discussion, and examination for ten years or more. They have been examined by

the United Nations, by the OECD*, by the ILO†, by academics in many countries. The Nairobi accusations and the Cartigny Minutes appear oblivious to all that had been said and done.

From now on I believe that we should avoid generalizations that cannot be supported by evidence. And I would propose that there are certain key questions that need to be answered before we can sensibly turn to any action:

These are:

1. What is a transnational company and how does it come into being? And we should bear in mind that while the publicly-owned, so-called 'private', transnational company is the norm, there are also state-owned transnationals, transnationals based in Communist countries, and now in some developing countries.
2. What are the powers of the transnational relative to government, since a clarification of this balance of power may indicate where our efforts should be made?
3. What is the role of the transnational and what does it contribute?
4. What are its advantages and disadvantages?

Let me as a start give a few brief answers to these questions arising from my own experience and perceptions.

1. The United Nations has defined a transnational as any company that has invested in another country in addition to its own. It is thus foreign investment or foreign investment writ large. Any company which has a useful skill, or a desired service or product to offer is today likely to be a transnational; and there are tens of thousands of them by the UN definition. Such investment can only be made with the consent of the host government. It can only be maintained with the consent of the host government. Thus governments are in reality one of the parents of transnationals.

2. What is the power of the transnational?
   I have already answered this in part. But if further evidence is required that the power of the sovereign state is paramount and that no company has any similar power, you have only to look at the long record of nationalizations by small countries of the affiliates of large groups of companies, often with inadequate compensation. No country need have investment it does not want.

3. What does the transnational contribute?
   I speak here for my own industry. It creates wealth by the development of latent resources and it creates and transfers skills.

   Venezuela provides a classic example. At the beginning of this century Venezuela was a poor, underpopulated country with an almost static population whose life was subject to the uncertainties of the traditional agricultural crops of

* Organization for Economic Cooperation and Development

† International Labour Organization

coffee and cocoa and to the endemic diseases of malaria and yellow fever. The development of oil by foreign companies and the revenues arising from this transformed the country as the following figures show:

	Population (Millions)	National Budget (Million Bolivars)	Oil Revenues (Million Bolivars)
1900	2.4	45	–
1940	3.8	330	98
1960	7.4	4,968	3,000
1970 (Est.)	10.0	10,000	6,000

More important was the transfer of skills and technology which accompanied this development. I say 'more important' deliberately: you may be aware of the saying 'Give a man a fish, and you give him a meal. Teach him *how* to fish, and you give him a livelihood'. When Shell started in Venezuela some 60 years ago there were virtually no industrial skills available and they had to be imported. By the provision over the years of formal courses in arithmetic and basic artisan skills; by training in skills such as welding, drilling, construction techniques, data processing, supervisory and managerial techniques; by scholarships to both domestic and foreign universities; by cross-postings to give experience in other countries, a domestic capability was provided. When Compania Shell de Venezuela was nationalized with other foreign oil companies at the end of 1975, the greatest compliment that could be paid us was that Venezuelans were able to run the industry themselves. A further compliment was that the Venezuelans sought to maintain a relationship with Shell because they believe that we can continue to be of service to them. Moreover by 1970 some 80 Venezuelans who had enjoyed Shell scholarships were serving in universities as faculty members or school directors. All this is a matter of record and has been published.

In addition, since agricultural methods in Venezuela were primitive and inadequate to meet the needs of a growing population, a Shell Foundation was created to assist in increasing the quality and quantity of Venezuelan agricultural production by the use of modern methods, the improvement of existing crops, and the introduction of new crops. Over a 10-year period to 1970, 12,000 farmers received training; assistance through investigations, visits or advice was provided to some 82,000 farms. I could elaborate, for there is much more to it. But this too is a matter of record if you care to read it.

Does this mean that Venezuela is without its problems, without its slums? Of course not. But it does mean that a significant contribution has been made by transnational companies to the quality of life and to providing the means through which these still unsolved problems may eventually be solved. The application of our skills is a *means* to an end, not an end in itself, and the same is true of doctors or teachers.

I could describe a similar pattern from my own experience in Trinidad and Tobago and for many developing countries in which Shell companies work. And any responsible company can tell a comparable story.

We see our prime social responsibility to be to conduct efficiently the activity for which a country has invited us – in our case principally the finding, production, refining, and marketing of oil.

We regard this social responsibility and efficiency as covering a wide spectrum of obligations:

- To treat employees humanely and equitably and to develop their potential. (This I have described in the example of Venezuela.)
- To produce good products which can be safely used by our customers.
- To perform in a manner generally acceptable to society, for example by having a proper care for the environment.
- To conduct our affairs with integrity.
- To provide a return to those whose money we are using.

All these we regard as indivisible. And if we fail in any one of them or fail to remedy our conduct when it does fall short of these principles we would not expect to survive.

We have learnt much over the years; and we are still learning: to encourage local contractors and small businesses to do things we once did for ourselves; to go faster in the training and development of people; to help imaginatively outside our prime area of social responsibility.

I wonder how many people here are aware that Shell companies pioneered a technique of small-scale rural development which is familiar to all who work in this field. It was started in one of the poorer rural areas of Italy by Shell Italiana and was adopted by Shell companies in Venezuela, Thailand, Nigeria, and Trinidad and Tobago, and we have tried to extend knowledge and encourage practice of it through the literature.

4. My fourth question was what are the advantages and disadvantages of transnationals?
The advantages I have described in the example of Venezuela. In brief, investment of this kind provides an instrument for development which has never before existed. Countries which are now developed had to build up their own store of skills and wealth over generations – or even centuries – through their own painful efforts, with little or no external help. The need today is for *more* such investment, not less. You must remember that of the whole of transnational investment only some 25 per cent goes to developing countries and of this the greater part goes to the more economically advanced.

But nothing is without its problems. The whole process of industrialization of course brings problems in its wake: the movement from the country into the town with its resulting urban unemployment and the stagnation of agriculture which can accompany this; the problem of income distribution, though it should be noted that historically changes in the pattern of income distribution have been a characteristic of development – perhaps a contributor to that development.

The problem of wage levels in the oil industry is, as I have said, the problem of an upward pull which other sectors of the economy or government, usually the largest employer, cannot match. This also brings problems of employment levels, as higher wage costs make automation more economic than manual operation. But you will note that all these problems are problems of industrialization, however carried out, and are nothing to do with transnationals as such.

In trying to separate out what is unique to the transnationals, I believe that the major disadvantage is foreignness. It is governments of course which have the power to choose whether or not this disadvantage is outweighed by the advantages of foreign investment. But we too in the companies can help to make our foreignness more palatable by the manner in which we behave. And this is where I believe we have made the greatest advances over the years, but where we still seek to learn more and seek help from whomever will give it to us. I believe that the development of codes of conduct – by the International Chamber of Commerce, the OECD, the ILO, and shortly perhaps the United Nations Commission on Transnationals – have a useful role to play. And so do the far more stringent rules and principles of conduct that responsible companies already apply internally without any prompting from without. There is no lack of activity and no lack of scrutiny, both internal and external, in this field.

But finally the comment is likely to be made that we do it all for money. Let us examine this. I am indeed paid for my job, as I imagine are most people here, and the labourer is worthy of his hire. But I am no more nor less motivated by money than anyone else, and my motivations are probably as complex an amalgam of needs, beliefs, and imperatives as all of yours. In a world in which the managerial revolution – the separation of management and ownership – is virtually complete, the profit motive in its old sense has ceased to exist for most people. Profit today is a criterion of efficiency in a competitive business; it is an indicator of social utility in that it reflects people's needs or desire for a skill or product or service a company offers. And it is the condition of continuance – since without profit there would be no further investment and the employment that goes with it. An efficient investment of course earns a surplus, but the wealth created for the host country is infinitely greater. And lest anyone generalize that companies take an unfair proprotion of the economic rent created, let me remind you that I have already illustrated the fact that in the oil business by far the biggest proportion of that rent goes to governments.

I am almost at an end. To those who are not prepared to take into account the facts that I have tried to describe – and which can be multiplied by a hundred examples of other companies – I would say that there is little point in further dialogue, because I do not know how to debate with those who will not listen. But I would also add that such people will have nothing to contribute to the problem, and that it is they who will prove the perpetuators of poverty.

Those who remain open to debate and conviction have the more difficult task. It is the more difficult because if you believe anything of what I have said – and if you do not, you must give some proof of refutation – you can no longer generalize about the so-called evils of transnational corporations. You will have to apply the

integrity of analysis that I hope you once applied to your own studies to this new area of study. This debate has gone on for many years, and if a contribution is to be made by the Church it will need to take into account what has already been done. What is the special role that the Church sees for itself? Does it wish simply to regard the many Christians who work in transnational companies and who hold positions of responsibility in them as second-class Christians?

To those who will listen I would say please help us. Criticize, yes. But do so with knowledge of what is already being done and of the complexity of the problems. We will always listen and we will always discuss. We believe we have made and can continue to make a significant contribution. There will always be the exceptional cases of bad conduct, as in any walk of life, and we in international business are attempting to put our own house in order so that even these exceptional cases can be avoided insofar as is humanly possible. If the messages of Nairobi and Cartigny win, then investment will undoubtedly wither and development of the poorer countries suffer.

The World Council of Churches comes to this issue late in the day and the path is already well-trodden. What is your specific contribution and role consistent with your character? Are you prepared to join in discussion of the codes of conduct currently being debated? Are you prepared to grapple, not just with the condemnation of bad practice – which is easy to do – but with the more complex problems, some of which I have touched upon? What is your view of foreign investment – that is, investing a surplus earned in one country in another? Are you prepared to distinguish between good and bad investment? What is your view of the movement of industry to areas of lower wage cost? If it is true that the availability of a lower labour cost is one of the few advantages a poor country may have to offer to solve its unemployment problem – and I do not mean cheap labour operating under unacceptable conditions – how would you advise the industrialized nations and their companies and trade unions to react? Are you prepared to define what are acceptable conditions of employment? And to do this for all companies, not just transnationals? What is your view of the internationalization of the economy? Do you regard foreignness as bad? All this would be a programme of commitment. Cartigny implies a programme for evasion and escape.

Let me end by saying that I believe that the transnationals, in their great variety of activity and growing spread of nationality, have a vitally useful role to play in what I hope may indeed prove a new international economic order. But let us be perfectly clear: it does not lie in the power of the transnationals to ensure their own survival; it lies in the hands of governments and in the climate of opinion to which governments respond. It lies in *your* hands either to assist in shaping these forces constructively, or in helping simply to destroy.

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#3

INFANT FORMULA IN DEVELOPING COUNTRIES:

A PERSPECTIVE

"BOTTLE BABIES"

Activist leaders have called this film produced by Peter Krieg the "cornerstone" of the anti-Nestlé movement. The film is a gross oversimplification of the infant nutrition problem and attempts to arouse the emotions of the viewer against infant formula companies in general, and Nestlé in particular.

Dr. Nimrod Bwibo of Kenya appeared in that film. Peter Krieg told Dr. Bwibo that the purpose of the film was to educate mothers on the proper methods of supplementary feeding. However it turned out to be an anti-Nestlé propaganda piece.

Dr. Bwibo was recently asked to comment on the accuracy of the film. Attached is a copy of Dr. Bwibo's April 14, 1978 response to an activist supporter. We believe the letter speaks for itself.

ULTERIOR MOTIVES?

Activist leaders have challenged Nestlé's credibility throughout this controversy by pointing out that Nestlé is a corporation engaged in business for a profit.

It is true that Nestlé is a member of the free enterprise system and that it manufactures products for profit. Nestlé will not apologize for being a part of the capitalistic system but does recognize its responsibility to the society which its products serve. That responsibility includes making high quality products, informing the public about their proper use, creating employment, safeguarding the environment and complying with government regulations.

Nestlé has acknowledged this responsibility in its numerous meetings with activist leaders, but those leaders continue their negative criticism claiming that only they can be genuinely concerned about the health of third world infants.

Is that the sole motive of the activist leaders? Here is who they are and what they say:

Mike Muller - leader of the British charity, War on Want, which published an anti-Nestlé attack entitled "The Baby Killer".

> "War on Want's advertising, its analysis of the relationship between the rich and poor countries, and its calls for a

'fundamental change in the world's political, economic, and social structures' are thoroughly ideological. They offer no objective analysis - only slogans: the 'disease of affluence', the villainous 'multinational corporations', the 'rich and powerful' who allegedly exploit the 'poor and powerless'. The Daily Telegragh (London) April 12, 1978

Frances Moore Lappé - co-author of Food First, the activists' main sourcebook:

"The heaviest constraint on food production and distribution turns out to be the inequality generated by our type of economic system ... to accept the challenge of Food First is to accept the challenge of confronting the basic assumptions of our present system".

Leah Margulies of the Interfaith Center of Corporate Responsibility (a department of the National Council of Churches):

"I was hired with the general assignment to develop the relationship between multinational corporations and world hunger - agribusiness, cash cropping, you know. But it is very difficult to make it graphic that the world is starving, not because of drought, or floods, but because of economic dependency".
Mother Jones Magazine, December 1977

World Council of Churches (parent organization of the National Council of Churches) in its Report of the Geneva Consultation on Transnational Corporations, June 1977:

"The attempt within a Christian framework to evaluate and offer an adequate response to the reality of transnational corporations must be a radically new approach to the political and economic structures of society and demands liberation from the present unjust international economic system".

"The goals of such a (new) society ... must have the following included in their general thrust ... the community ownership of resources".

"Christian texts were used to provide a moral justification of unequal capitalist development and theology was heavily influenced by the secular imperatives of that system. Thus one of the first reactions by Western Christians to the present international order must be repentance".

OFFICE OF CORPORATE RESPONSIBILITY

THE NESTLÉ COMPANY, INC.

UNIVERSITY OF NAIROBI
FACULTY OF MEDICINE
DEPARTMENT OF PAEDIATRICS

File :
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Kenyatta National Hospital
P. O. Box 30588
NAIROBI
KENYA

14th April, 1978

Miss June Noranka,
644 Summit Avenue
St. Paul
Minnesota 55105

Dear Miss Noronah,

Following your visit to Kenya and my office I write to inform you, your group, your colleagues and any other person interested that the film Peter Krieg filmed in this department and the associated teaching areas, did not represent the right aspects of what we participated in during the filming.

The film which was intended to be a Scientific and educational film turned out to be an emotional, biased and exaggerated film - and failed to be a teaching film. It arouses emotions in people who have little chance to check these facts. No wonder it has heated the emotions of the Activists groups in America and I understand now spreading to Europe. I wish I was in an opportunity to be with your groups and we view the film together and I comment.

Peter Krieg came here and we discussed the useful scenes to be included, the doctors and nurses to participate in the programme. He also promised to give us a copy of the film.

The film was done and we never heard from him up to now. We wrote requesting for the promised copy, it never came. Being in the dilemma we requested the organisers the World Conference of Churches that took place in Nairobi to get us a copy through the Faculty of Medicine. We were surprised by its contents and the exclusion of our comments, and in particular lack of education on hygiene of the bottle, cup and spoon feeding and lack of inclusion of reconstruction of milk formular. The comments are narrated by somebody else our voices and our words do not appear much.

...../2..

The Secretary of Kenya Paediatric Association then, Dr. Elizabeth Hillman wrote to Peter Krieg expressing our disatisfaction in the generalisations, the politics of bottle feeding and the bad social connotations of bottles on the Children's graves in Lusaka, Zambia but Peter Krieg chose not to acknowledge her letter.

I am sorry we have changed offices and filing system so much and also Secretarial staff that I am unable to get the letters we wrote to Peter Krieg which I would have liked to photocopy and include in this letter.

We saw the film once and have no copy. It is difficult to recollect clearly where it was right.

One is bewildered where to begin and make corrections. I will start somewhere. If your group have specific questions, since you see the film frequently, you could ask me to comment on specific points.

Kenya, as you know, is an Agricultural country. We have dairy industry and plenty of fresh milk, especially in urban areas. Our mothers therefore use not only commercialised milk but our fresh milk. It would be against our own Agricultural industry if we say "Do not drink milk" or "Do not give milk to children" So the best thing is to educate the mothers in the best hygienic way of feeding the child, if breast milk fails, and we know at times it fails or a mother choses not to breast feed.

As a Paediatrician, I would like to put on record that I have not seen the Commercial baby Food Companies pressurise anybody to use their brands of milk. As for Nestle, we have discussed with their Managing Directors, starting much earlier than the time of the film in 1971, as to the best way of approaching baby feeding and discussed extensively advertisement especially the material to be included. The directors have followed our advice and we are happy with their working conditions.

We are interested in the well being of our children and we are Medical Scientists. So anything of Scientific value we will promote but we will avoid imagined exaggerated and distorted views.

I am taking the liberty to copy this letter to Mr. Jones Managing Director of Food Speciality in Nairobi who produce and makes Nestles' products here for his information.

Yours sincerely,

NOB Bwibo

NIMROD O. BWIBO
Professor & Chairman
DEPARTMENT OF PAEDIATRICS.

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#4 1. ~~CAR~~

"Structural Analysis, Theology of Liberation and Scripture" - An Evaluation

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Thesis:

In two brief writings a Maryknoll father has presented an analysis of the structure of capitalism as he sees it through the eyes of what he calls "structural analysis". It is, he says, "a 20th century adaptation of some of the insights of Karl Marx." The goal of such analysis is action which "will overcome capitalism and lead toward the establishment of a more just society." And that society is to be "a liberating and humanistic socialism."

In succinct form he tells us that capitalism is "inherently unstable because of the contradiction between Social production and private accumulation." In a workshop the participants will become aware of a dialectic between the base (the bourgeoisie or dominant class of owners of production; and the workers whose labor produces) AND the superstructure (which is the capitalistic State that maintains the dominant class in power with its profit motive.

To overcome this oppressive structure in modern society, the Christian is advised that he must engage in a "communal action" that will "literate" the masses. And so he mu-st engage in "theological reflection" that will produce a "faith response". This reflection will be merged with a "socio-political analysis"; make us aware of "social sin"; and so generate action that will bring humanistic socialism.

For a proper formation to this end, we are advised to read Gustavo Gutierrez' Theology of Liberation (Orbis, 1973) and José P. Miranda's Marx and the Bible (Orbis, 1974).

The Marxist Reality:

Marxism contemplates the disappearance of the State, a classless society, and a liberation of man from all "alienations" by a revolt of the "workers of the world". Marxism-Leninism has produced an absolutist State, a single & repressive dictatorship, and a denial of man's supernatural life & destiny.

Karl Marx learned from Feuerbach (+1872) that God is reduced to the being of man, of theology to anthropology. In this atheistic humanism, God is a product of the human imagination; and so Christianity must be reduced to the religion of humanity. He held that it is "man who makes religion, not religion that makes man." So all transcendence is to be eliminated as tyranny. Lenin, in accord, held:"Marxism is materialism. Consequently, it is as implacably hostile to religion as the materialism of the Encyclopedists of the 18th century." Engels opposed the French socialists who tried to prove that "Christianity is Communism". He said:

> "They try to prove this from the Bible, mentioning the close community life of the first Christians, etc. But this only proves that they are not really the best Christians, although they apparently think they are. If they really were so, they would know the Bible better and would discover that while a few passages in the Bible may be favorable to communism, the general nature of Biblical teaching is nevertheless totally opposed to it."

Asserting his desire to liberate man, Marx - because of his philosophy of materialism - effectively enslaves man to the tyranny of Nature which is interpreted by the Society, i.e. the collectivity under the absolute control of the Party. This is substituted for the Christian God. It should become obvious that any form of Christian Marxism is intrinsically a contradiction, because Marxism is an atheism which "looks for man's autonomy through his economic and social emancipation." (cf. Gaudium et Spes, #20). In the encyclical Divini Redemptoris (1937), Pope Pius XI declared that Communism is "intrinsically perverse", the "struggle against everything divine."

In the light of much testing, the Marxist doctrine in socio-economics is obsolete; it is of no scientific value; it is simplistic in asserting that man's fundamental social relationship is economic. It had an emotional suggestiveness because it partially analyzed the condition of injustice, and it erroneously suggested the solution to man's problems through revolution in the hands of the Party's dictatorship. Where it has been tried, it has produced an immense loss of life and an enslavement of man. It created the reign of terror in the USSR, 1934-53, only one instance of institutionalized injustice. In so-called "Marxist democracy", the individual and the State serve the purpose of constructing the Communist society of the future; and are subordinate to this end. There are no God-given natural rights; law and rights are variables, with no absolute right of the human person. All are in subjection to the collectivity.

An attempt to build a better society on the basis of Marxism is impossible; and, as Paul VI warns us, in Octogesima Adveniens, "All Communist parties have not officially disavowed the Marxist-Leninist ideology." Consequently, it is either an utopian velleity or a great ignorance to imagine that theology can be built through an adaptation of Marxism. In dealing with the relation between faith and the world, theology can ever use certain non-theological frameworks. A perfect example is the scholastic philosophy which is one of the greatest reasonings of man in his search for God and in love of his fellow man. But, Marxism denies God and builds a class hatred between men, urging a use of violence to its ends.

The Historical Method:

In espousing the historical interpretation of Scripture, the writer from Maryknoll contrasts it to the traditional. The latter, he tells us, "owes more to Greek philosophy and western European political economy than to the biblical experience." Leaning on Miranda's Marx and the Bible, he rejects the New Testament God, as "an eternal idea, an absolute ethical principle." Instead, He is the "active God, the political God;" and to know this God we must "experience His acts in the concrete affairs and relationships of people." And so a whole series of unproved propositions are presented to us:

- the Old Testament presents the God of "social justice".
- the New Testament is no new teaching; but an Old Testament vision of social justice, becoming an historical reality in Jesus' announcing of the kingdom.
- God's entrance into history is to liberate (from socio-economic & political oppression) a people. Exodus, we are told, is such a reality.
- The law of the Old Testament is basically legislation

of social justice.
- social justice forms the center of the prophetic hope for God's future intervention in history.

Critique:

In this series of generalizations, we note an ease of assertion, a selective quoting from the Bible, and weak transition of ideas in the Old to the New Testament. The author is uncritically a captive of the Miranda errors. Scholars, such as are found in the Buena Prensa (Mexico) publication of 1973, We Evaluate 'Marx & the Bible', underline the errors:

- the prophets of the Old Testament & the Gospel cannot be converted into a political theology of ultra-Marxism. Miranda's exegesis of the Biblical tests is prejudiced by his sociological ideas. Essential differences exist between Biblical and Marxist ideas.

- there is no exposition of the errors of atheistic and collectivistic Marxism.

- the Bible does not reduce all sin to injustice, nor incarnate all evil in social structures.

- knowledge of God by means of historical immanentism is both philosophical & theological error. Nor is it the Bible's explanation of how man must restore justice to the social order. Miranda, having rejected the metaphysics of the Church, has fallen into the relativism of his own metaphysics, i.e. a dialectic of contradictions. This evolution allows for no absolutes; all is dissolved in the new historical experience, an ever-changing process. And so theology must look to the world and change with it.

As the profound scholar of Marxism, Fr. Gustav A. Wetter, S.J., points out, Miranda denies a natural order of things, whereas - in consistency with the Church's teaching - the Fathers of Vatican II seek an order in justice. Whereas Miranda looks to an intra-human evolution and denies original sin, Christianity insists on personal sin and the need of redemptive graces from Christ for the conversion of man. Then, and only then, is man able to change the social order.

Miranda's enthusiasm for his thesis has produced his exaggerated criticism of Western civilization, of its laws, culture and morality. His generalizations are absolutist, lacking in scientific sobriety and fecund in demagogic rhetoric.

It is unfortunate that the writer from Maryknoll has read Miranda without seeing the errors in his theology and philosophy; and so has not presented him in completeness. His writing is a collection of quotations from the Bible, interlarded with a few generalizations that stand unproven. In the midst of all this, there is interjected an attack on the U.S. policy in the use of food, as "a tool in the kit of American diplomacy." To the perceptive reader this quotation (pp.5-6), without explanatory transition, is as meaningful as the intention of the speaker. This is left un-developed. But, to the unwary, it has an insinuating implication. It is the usual Marxist trick of the bold assertion and of the fact distorted.

Man's True Liberation:
the Church's Teaching:

After so many official teachings of the Church - in Papal encyclicals and apostolic exhortations - have been given us, it is unfortunate that the Maryknoll author has not been guided by their clarity and authentic expression of justice.

In Evangelii Nuntiandi (1975) Pope Paul VI teaches us the true role of the Church's evangelization, in the light of changing circumstances and with fidelity to the essential content of the message. Evangelization has at its center the truth that Jesus Christ - through His death and resurrection - has offered salvation to all men. It is transcendent, beginning in this life and fulfilled in eternity. It "is not an immanent salvation... restricted to the framework of temporal existence and completely identified with temporal desires, hopes..."(#27).

This evangelization entails "hope in the promises made by God in the new Covenant in Jesus Christ". It includes love of God and of one's neighbor. It requires prayer of adoration and thanksgiving; but also "through communion with the visible sign of the encounter with God which is the Church of Jesus Christ." It demands communion with the Sacraments. (#28).

Such an evangelization takes into account the "uncasing interplay of the Gospel and of man's concrete life" (#29) It is concerned with the millions of people who suffer famine, chronic disease...situations of economic and cultural neo-colonialism. The Church:

> has the duty to proclaim the liberation of millions of human beings...the duty of assisting the birth of this liberation, of giving witness to it, of ensuring that it is complete.

"This is not foreign to evangelization." (#30) Between development and liberation there are both anthropological and theological links, "since one cannot dissociate the plan of creation from the plan of Redemption." In this plan, injustice is to be combated and justice to be restored. Love of one's neighbor who is suffering and in need demands this. (#31)

But, the Pontiff warns us, there are those who would "reduce the Church's mission to the dimensions of a simply temporal project." They would make of the Church's activity the "initiatives of the political or social order, forgetful of all spiritual and religious preoccupation." And so the Church would "lose her fundamental meaning; would "easily open to monopolization and manipulation by ideological systems and political parties."(#32) The Church, moreover, "links human liberation and salvation in Jesus Christ, but she never identifies them." She is of the conviction that "all political liberation...carries within itself the germ of its own negation and fails to reach the ideal that it proposes for itself whenever its profound motives are not those of justice in charity." (#35) Lastly, the Church "cannot accept violence...and indiscriminate death as the path to liberation, because she knows that violence always provokes violence, and irresistibly engenders new forms of oppression and enslavement which are often harder to bear than those from which they claimed to bring freedom ...Violence is not in accord with the Gospel...it is not Christian." (#37)

This most recent writing of the Holy Father reminds us of his warning in the Apostolic Letter, Octogesima Adveniens (1971); After listing various levels of expression in Marxism, the Pope adds:

> it would be illusory and dangerous to reach a point of forgetting the intimate link which radically binds them together, to accept the elements of MARXIST ANALYSIS without recognizing their relationships with IDEOLOGY, and to enter into the practice of class struggle and its Marxist interpretations, while failing to note the kind of totalitarian and violent society to which this process leads. (#34)

We are well aware that it is the role of the laity"to renew the temporal order...to infuse a Christian spirit into the mentality, customs, laws and structures of the community in which they live" (Populorum Progressio, 1967). But the role of the Hierarchy is to "teach and to interpret authentically the norms of morality to be followed," and not to "interfere in any way in the politics of the States."

Bibliography:

- Papal encyclicals & apostolic letters: Leo XIII, Rerum Novarum; Pius XI, Quadragesimo Anno; Pius XI, Divini Redemptoris & Ubi Arcano; Paul VI, Populorum Progressio, Octogesima Adveniens & Evangelii Nuntiandi.
- Henri Chambre, S.J.: From Karl Marx to Mao Tse-Tung, N.Y., 1963,
- Edward J. Berbusse, S.J.: Gustavo Gutierrez: Utopian Theologian of Liberation, in FAITH & REASON, Spring, 1975
- Carl F.H. Henry: God, Revolution & Authority.
- L'Osservatore Romano (English edition): during the past two years many excellent articles have been written by scholars on the errors of the Christian Marxists & their false interpretations of the Bible and the Church's teaching.
- In the recent Synod (1977), many bishops have adverted to the dangers of the teachings of so-called Christian Marxists.

- Fr. Edward J. Berbusse, S.J.
Assoc. Professor of Constitutional History & of U.S. Foreign Relations.

Nov. 10, 1977
St. Leo the Great

May 17, 1978

Fondren/Miller Advertising Agency, Inc.
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Mr. David E. Guerrant
President
THE NESTLE COMPANY, INC.
100 Bloomingdale Road
White Plains, NY 10605

Dear Mr. Guerrant:

I would greatly appreciate your passing this letter along to one of your Public Relations people who might help us correct what we believe is a misconception about the Nestle Company.

Recently a high school teacher in our area used the Nestle Co. as an example of why our free enterprise system does not work. The teacher pointed out that Nestle had saturated all domestic markets for a "baby formula" and had gone into foreign countries where the product was sold to un-educated mothers who did not use the product properly and many children died. This, supposedly, was used to illustrate why a capitalistic system such as ours must rely on constant expansion. The inference was that a socialistic or communistic system does not need this"unbridled growth" to perpetuate itself.

If your Public Relations people can give me the real facts that surround this incident, I'd very much like to clear up the misunderstanding with the teacher involved.

Thank you for your help.

Sincerely,

FONDREN/MILLER ADVERTISING AGENCY, INC.

Howard J. Miller, Jr.

Howard J. Miller, Jr.
President

#6

NESTLÉ INFANT FOOD POLICY

INTRODUCTION

From its very earliest days, Nestlé has devoted particular attention to the subject of infant feeding. In close co-operation with leading clinicians, especially pediatricians, constant review and development of policy in this field takes place in line with the evolution of scientific knowledge.

In view of the increasing interest shown in these questions by medical and public opinion, Nestlé believes that it will be helpful to publish the essential elements of its infant food policy as summarized below.

BASIC PHILOSOPHY

Breast milk is the best food for babies during the first months of life and Nestlé encourages efforts aimed at promoting breast feeding. Therefore Nestlé infant foods do not set out to compete with breast milk, but they are intended to:

supplement
breast milk (when breast milk alone is insufficient to cover the baby's needs);

follow-up
successful breast feeding;

replace
breast milk only when mothers cannot, or elect not to, breast feed.

PRODUCT DEFINITIONS

In line with the above philosophy, Nestlé manufactures and sells a wide range of infant foods designed for the above purposes. These fall into the following groups:

"Starter" milk formulae:

Intended to supplement or replace breast milk during the first few months of life. Most are modelled on the composition of breast milk and they include modern low-solute ("humanized") milks which are the product of many years of scientific research.

"Follow-up" milk formulae:

Principally intended to follow or supplement successful breast feeding from about the 4th month of life onwards. In order to provide an adequate safety-margin in case of "formula-stretching" or the use of inadequate weaning foods, "follow-up" milks are not patterned after the composition of breast milk.

Weaning foods:

Based on cereals or other locally-available food sources and designed to provide a valuable nutritional supplement from the moment the baby needs more than milk alone to cover his dietary needs.

Efforts are made to adapt products, packaging, distribution and price to the needs of different social groups.

COMMUNICATION POLICY

Nestlé recognizes that even the best products will fail to produce satisfactory results if they are not prepared carefully in accordance with the instructions of the health services or the manufacturer.

Nestlé also believes it is the duty of manufacturers to present accurate and objective information about the quality of its infant feeding specialities to those capable of making informed judgements about their use, and to co-operate fully in education efforts aimed at preventing the misuse of these products.

In line with the above considerations, Nestlé subscribes to the Code of Ethics adopted by The International Council of Infant Food Industries (ICIFI) in November 1975. In applying and expanding on this code, strict guidelines have been issued to all Nestlé personnel concerned with the distribution of infant foods. These include the following provisions:

HEALTH SERVICES

The health services are recognized as the main intermediary between the manufacturer and the mother. Assistance must therefore be given to the medical and paramedical professions, as well as to the health authorities in their work connected with nutrition and general health education.

This assistance is given by medical representatives (who may include qualified nurses, midwives and dieticians) who have received specialized training in order to enable them to render a genuine service and give scientific and objective information on Nestlé product characteristics and utilization.

Advertising to the health services must be as informative as possible and no claims must be made which cannot be substantiated.

MOTHERS

Nestlé recognizes its obligation to co-operate with the health services in giving the fullest possible guidance to mothers in order to ensure that our products make the optimum contribution to child health. This is done in the following ways:

Superiority of breast feeding

This is to be clearly featured on all product labels, educational material and advertising for infant milks, with the use of our products defined in a supporting role.

Instructions/educational material

Detailed instructions are included on product labels. To facilitate understanding, supplementary details in the major vernacular languages together with step by step illustrations, are supplied either together with the product or distributed separately through the health services.

Educational material must make clear reference to the precautions to be observed in use.

Mothers are recommended to seek the advice of the health services before giving any milk other than breast milk, as well as at all times when there is any doubt about the use of our products or about the health of the baby.

No suggestion is to be made that implies that the product concerned is in any way superior to breast milk, or that it should replace breast milk when breast feeding is possible.

If approved by local health authorities, use of mass media may be made for educational purposes to reinforce awareness of the main precautions to be observed when feeding infants.

Communications

If media advertising is used for infant milks, the following conditions must be fulfilled:

– The general economic, cultural and intellectual level of mothers in the audience addressed by the specific media used is such that they are in a position to take a responsible decision in consultation with a doctor, nurse or health worker as to the form of infant feeding to be adopted.

– The message is predominantly educational, with clear emphasis on the importance of breast feeding as the preferred method of feeding during the first months of life.

– Use of the media concerned is approved by the local health authorities.

Promotion

Infant milk samples may only be given to mothers by official health personnel.

Nestlé will contribute to all efforts made towards controlling the distribution of samples both to avoid abuse, and to avoid samples reaching mothers who do not need them.

NESTLÉ PERSONNEL

As mentioned earlier, the main duty of Nestlé medical representatives is to assist the health services. In keeping with this concept, appropriately qualified personnel (e.g. nurses, dieticians, health educators) may assist in nutrition and health education work if requested to do so by the appropriate health authorities.

In order to avoid any possible confusion with public health service personnel, Nestlé personnel will not wear official uniforms even when their qualifications entitle them to do so.

In order to underline their educational function in accordance with the philosophy outlined earlier, the salary paid to Nestlé representatives is not related to sales and they are not permitted to sell our products to mothers.

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Nestlé Products Technical Assistance Co. Ltd., Switzerland
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#7

INTERNATIONAL COUNCIL OF INFANT FOOD INDUSTRIES

A REVIEW OF ITS OBJECTIVES AND ACTIVITIES

SEPTEMBER 1977

#7

INTERNATIONAL COUNCIL OF INFANT FOOD INDUSTRIES (ICIFI)

CODE OF ETHICS AND PROFESSIONAL STANDARDS FOR ADVERTISING, PRODUCT INFORMATION AND ADVISORY SERVICES FOR BREAST-MILK SUBSTITUTES

In recognition that sound nutrition during infancy is essential for normal growth and development, the members of the INTERNATIONAL COUNCIL OF INFANT FOOD INDUSTRIES subscribe to the principles and the primacy of the medical and paramedical professions' roles in supervising the dietary intake of infants. These principles affirm that breast milk is the preferred form of nutrition for infants not needing special diets for metabolic purposes, and support the recommendations of the United Nations Protein-Calorie Advisory Group and of the World Health Organization.

Breast-milk substitutes meet essential needs when used appropriately in the feeding of infants. Breast-milk substitutes are intended to supplement breast milk and for use when mothers cannot or elect not to breast-feed for medical or other reasons.

Therefore, the members of the INTERNATIONAL COUNCIL OF INFANT FOOD INDUSTRIES hereby pledge that:

1) As providers of essential supplies for infant nutrition, the members of ICIFI accept responsibility for the diffusion of information which supports sound infant feeding practices and for services consistent with the application of this Code.
2) Product information for the public will always recognize that breast milk is the feeding of choice with the recommendation to seek professional advice when a supplement or alternative may be required.
3) Product labeling will affirm breast-feeding as the first choice for the nutrition of infants.
4) Product claims will reflect scientific integrity without implication that any product is superior to breast milk.
5) To insure optimal nutritional intake, explicitly worded instructions and demonstrations for product use will be provided for the hygienic and correctly measured preparation of breast-milk substitutes.

6) In cooperation with health authorities, professional communications and educational materials will be provided to caution against misuse and to inform mothers on the importance of and methods for obtaining safe water for the preparation of breast-milk substitutes.

7) Members' personnel will observe professional ethics and established rules of conduct in medical/nursing centres, maternities, and physicians' offices and in all contacts.

8) Members will employ nurses, nutritionists and midwives whenever possible to perform mothercraft services. When professionally trained personnel are not available, high educational standards and experience commensurate with prevailing conditions will be required. Training of these staffs will be in keeping with scientific standards for infant nutrition to emphasize the importance of breast-feeding and the appropriate use of breast-milk substitutes.

9) Individual contacts by mothercraft personnel and issuance of complimentary supplies of breast-milk substitutes will be in consultation with medical or nursing personnel in the institution or the area.

10) Mothercraft personnel will support doctors' and nurses' prerogatives in counselling mothers on infant feeding and will not discourage mothers from establishing or continuing breast-feeding.

11) Nurses' uniforms will be worn only by persons who are professionally entitled to their use. The attire worn by mothercraft personnel will bear the identification of the respective ICIFI member. It is recommended that an ICIFI emblem be worn.

12) Compensation of mothercraft personnel will be on a basis of quality and level of services performed and without relationship to sales.

13) Adherence to this Code will be obligatory on all members of ICIFI except when precluded by the laws or regulations of a given country.

The Code is prepared in recognition of the responsibilities shared by all who guard the health and welfare of the world's children and who play a role in their feeding.

20 November 1975, amended 14 September 1976

ICIFI Member Companies as of March 1977

Dumex Ltd., Denmark; Meiji Milk Products Co., Ltd., Japan; Morinaga Milk Industry Co., Ltd., Japan; Nestlé Products Technical Assistance Co., Ltd., Switzerland; Snow Brand Milk Products Co., Ltd., Japan; Unigate Foods, Ltd., Great Britain; Wakodo Co., Ltd., Japan; Wyeth International Limited, U.S.A.

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MEMBERS OF ICIFI

January 1978

BSN Gervais Danone S.A., France
Cow & Gate Ltd., Great Britain
Dumex Ltd., Denmark
Coöp. Condensfabriek Friesland, Netherlands
B.V. Lijempf, Netherlands
Meiji Milk Products Co., Ltd., Japan
Morinaga Milk Industry Co., Ltd., Japan
Nestlé Products Technical Assistance Co., Ltd., Switzerland
Nutricia Nederland B.V., Netherlands
Snow Brand Milk Products Co., Ltd., Japan
Wakodo Co., Ltd., Japan
Wyeth International Limited, USA

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INTRODUCTION

The aim of this booklet is to provide the reader with background information about ICIFI, and its role.

ICIFI welcomes constructive dialogue with professionals working in the field of mother and child care on all aspects of infant nutrition. If you have further questions about ICIFI, or any suggestions to make about its future activities, please do not hesitate to write to the ICIFI secretariat at the following address:

Nordstrasse 15
CH–8035 Zurich
Switzerland

HISTORY

Since the beginning of this Century, there has been a remarkable improvement in child health in the industrialized countries. Similar trends have been observed in many developing countries in the past 2 or 3 decades.

Coinciding with these improvements there has been a marked decline in breast feeding — especially in the industrialized countries — and some observers have related this decline to the growth of the infant food industry. Although it is true that the industry has succeeded in developing safe and dependable infant formulae for feeding babies whose mothers (for whatever reason) do not breast feed exclusively during the first months of life, there is general agreement that the reasons for the decline in breast feeding are multi-factorial.

Nevertheless, new knowledge about the protective nature of breast feeding (assuming the mother has sufficient milk) and concern about the decline of breast feeding in poor communities — where misuse of powdered milks can occur — led to a series of contacts between the infant food manufacturers on the one hand, and international organizations concerned with Maternal and Child Health on the other. One objective of these meetings was to reach agreement on the rational promotion of weaning foods, and more specifically breast milk supplements, in "vulnerable" populations.

These contacts began at Bogota in 1970 when a meeting of pediatricians and the infant food industry was sponsored by the Pan American Health Organisation and UNICEF. In 1972, the Protein Advisory Group of the United Nations (PAG) organized a conference in Paris at which representatives of UNICEF, FAO, WHO, World Bank, International Pediatric Association (IPA) and industry participated.

The outcome of this conference was the PAG Recommendations for the Promotion of Processed Protein Foods for Vulnerable Groups[1]. This was the first official statement containing recommendations directed to professional groups, governments and governmental organisations, as well as to industry. In the same year, a

[1] PAG Statement No. 23, July 1972.

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PAG working party held a session in Geneva and they worked out the "PAG Recommendations on Feeding the Preschool Child". The following year, in 1973, a symposium was organized in New York with the participation of PAG, WHO, IPA, UNICEF and the industry. However, it was not until November 1974 when a regional meeting was held in Singapore under the auspices of the PAG bringing together representatives of national authorities, pediatrics and the industry, that an understanding was reached among the industry representatives present which led to the formal establishment of an industry council.

In spring 1975, a working party consisting of industry representatives met in Zurich in order to prepare the setting up of a formal organization and to review the draft of an "Ethical Code" developed from PAG Statement 23 – referred to above. This work proved to be successful and the International Council of Infant Food Industries (ICIFI) was formed in Zurich in November 1975.

The Articles of Constitution were approved on 20 November 1975. An Executive Committee was formed consisting of a President, two Vice-Presidents, a Secretary, and four members.

Together with the Constitution of the organization, the members accepted the Code of Ethics and Professional Standards for advertising, product information and advisory service for infant milk formulae.

It might be thought that the period of 5 years from the initiation of discussions between industry and the health professions, and the actual formation of ICIFI and publication of this Code of Ethics, was much too long. This is to ignore the difficulties involved, some of which remain unresolved today – as demonstrated by the absence of a number of national and international infant food manufacturers from the Council. As Professor Stapleton (Secretary-Treasurer of the International Pediatric Association and formerly member of the PAG) pointed out recently[1]:

"If the doctors, the ministers of health, and the civil servants are not prepared to set up standards, it is not surprising that it has taken a long time before the infant food industries have done so themselves".

[1] Stapleton, T., Med., J. Austr., 1977, 1: 665-669.

OBJECTIVES OF ICIFI

– To obtain recognition as a self regulatory body, representative of the infant food industry throughout the world.

– To act as spokesman for the industry whether at national or international level in all matters where the industry can contribute to the improvement of infant feeding practices.

– To work in close collaboration with leading scientists to improve knowledge related to the feeding of young infants, with particular reference to human lactation.

– To propose, or assist in, the development and testing of new techniques which may contribute towards greater safety before and during the weaning period.

A REVIEW OF ICIFI ACTIVITIES

The Executive Committee held its first meeting on the day that ICIFI was constituted (20th November 1975) in order to establish a working programme. The discussions covered a wide range of subjects including:

– practical measures to implement the Code of Ethics;
– widening the membership of ICIFI;
– defining infant milk formulae and supplements;
– the role and operation of mothercraft services;
– the standardisation of feeding instructions.

Of special importance was the question of developing relations with United Nations agencies like WHO and PAG, and other governmental and non-governmental organisations.

This initial meeting, and subsequent meetings held in the United States, Tokyo and Zurich led to the creation of specialized working groups to conduct studies in the following main areas:

- Scientific and Technical Questions
- Communications
- Business Practices

The role of the working groups is to screen projects submitted to the ICIFI secretariat by member companies and to make recommendations to the Executive Committee with respect to feasibility, priority, etc. If the recommendations are accepted by the Executive Committee, the Working Groups then proceed with the study or development concerned.

The Working Groups are formed by experts in the respective fields from a representative cross section of the member companies.

The following brief notes attempt to give a glimpse of the work being undertaken by each group.

Scientific Working Group:

Establish basic data about the extent to which breast milk alone can cover the needs of infants, so that the timing and type of supplementation necessary can be identified in different groups of the population

— Research is being sponsored into new methods for measuring the quantity and quality of lactation in order to resolve the manifold contradictions in the literature and to provide a meaningful basis on which industry, with the understanding of international agencies influential in the child health area, can plan how to reduce or fill the gap between what breast milk can supply and what the child needs during the first year of life.

It should be particularly noted that every effort will be made to avoid duplication with current work being done in this field — notably by the WHO.

Standardisation of feeding tables

— The intention is to eliminate the confusion caused by differing recommendations between manufacturers. Once the scientific basis for the standardized feeding tables is agreed, the presentation of the instructions can be incorporated into the work being conducted by the Communications Work Group (see below).

Development of an Easy to Clean Feeding Utensil

— Much confusion has been caused by the division of opinion among experts about the use of the traditional feeding bottle or the so-called "cup and spoon" method for feeding milk to young babies.

It is hoped that the new feeding device now under development will help to eliminate such confusion in the future, and at the same time, substantially reduce the problem of dirty feeding utensils.

Recommendations are also being prepared to define quality standards for feeding utensils.

Participation in the work of Codex Alimentarius

– An ongoing activity in which industry representatives co-operate with international agencies and governmental experts on standardisation and legislation in the infant formula area.

Communications Working Group:

Development of clear, unambiguous, feeding instructions

– This is a direct response to the recommendations contained in PAG Statement 23 (para.3.5). Preliminary work has resulted in the development of two basic documents: A product statement, under the title "Important Advice to be given to Mothers on the Feeding of Babies" and detailed preparation and feeding instructions, under the title "Instructions for using Baby Milk".

The Product Statement defines the conditions under which the products marketed by ICIFI members are to be used – insisting in particular on the importance of breast feeding and the need to seek professional advice before giving foods other than breast milk. The Feeding Instructions give a clear, step by step, explanation of the procedures and precautions necessary for the safe use of infant formulae.

These two documents, translated into the main languages, are intended for wide distribution through the Health Services.

Development of visual "Translation" of the ICIFI Product Statement and Instructions

– As a follow-up to the above work, the Communications Group have commissioned an internationally recognized Graphic Arts Consultant to devise a series of visual symbols to be used as teaching and recall aids for the Product Statement and Instructions. These are specifically intended to facilitate comprehension by semi-literate or illiterate mothers.

This work will be carried out in close consultation with relevant international Health Education experts. If field testing proves satisfactory, it is intended that the Feeding Instructions and "visual code" will be adopted by all ICIFI member companies as well as by the health services.

Information

– In addition to the communications tasks directed towards the users of infant formulae, the Group will also monitor and analyse information about infant nutrition and about the industry, for the benefit of all member companies. They will also be responsible for preparing information about ICIFI for the Health professions and, the general public.

Business Practices Working Group:

The main objectives of the group, as the name implies, will be to monitor business practices within the infant food industry (including non-members of ICIFI) and to recommend appropriate steps towards eliminating practices which are in conflict with the spirit and the letter of the ICIFI Code.

It should be noted that the work of ICIFI and the Business Practices Group specifically precludes any subject matter that would have the effect of restricting free and open competition in international trade.

CONCLUSIONS

The companies adhering to ICIFI at the time of writing are shown on the first page. Together they represent over two thirds of the infant formula business conducted by private enterprise.

ICIFI regards it as a matter of prime importance to convince all infant formula manufacturers, whether active locally or internationally, to become members. To this end, special arrangements have been made to share the burden of costs equitably among the smaller and larger manufacturers concerned.

At the PAG Regional Seminar in Singapore, held in November 1974 (which, as mentioned earlier, was an important step in the creation of ICIFI), Dr. Venkatachalam who was then deputy scientific secretary to the PAG made the following comment:

"To successfully implement the policies and practices recommended, it is essential that the medical and health professions, appropriate Government Officials and the representatives of all industries operating in this part of the world, come together with mutual trust, respect and confidence to work in coordination and full cooperation with constant consultation"[1].

ICIFI believes that it is only through the efforts of a truly representative industry council that a real spirit of cooperation and mutual trust can be achieved.

[1] Venkatachalam, P.S., PAG Document, 1.26/2, November 1974.

THE LANCET, JULY 2, 1977

MARKETING INFANT FOODS

SIR,—You compare (May 14, p. 1067) the code of ethics issued by the International Council of Infant Food Industries (I.C.I.F.I.) with that published by the Swedish Pædiatric Association and suggest that the industry's code "falls short" of the Swedish one.

It is easy to find loopholes in any code of ethics, including the Swedish code. Your Parliamentary correspondent's remarks on a code of practice for the British drug industry (May 7, p. 1016) shows the difficulties inherent in establishing and implementing such codes even when the products concerned are promoted only to the medical profession.

I.C.I.F.I. recognises that the standards for marketing of infant foods in Sweden are well suited to the needs and desires of the Swedish population. But there are only two major infant-food manufacturers in Sweden who market virtually identical products, and it is relatively unusual for foods not specifically prepared for infant feeding to be used during the first months of life. Maternity legislation for working mothers in Sweden favours breast feeding in the first months of life.

The situation in most developing countries is different. A wide variety of foods is used for infant feeding, legislation to encourage working mothers to breast feed their infants is rare, and instead of two manufacturers sharing the market under the guidance of influential medical advisers there are often eight or nine manufacturers of infant foods, let alone dairy products not specifically intended but nevertheless used to feed infants. It is in this context that the I.C.I.F.I. code should be seen as a significant step towards self-regulation by the industry.

At the same time critics should note that the I.C.I.F.I. code is a minimum standard. It is subscribed to by companies who market their products throughout the world, and it lays down basic rules about what member companies may say in their promotional materials and how they say it—but it does not dictate advertising or marketing policy. The members of I.C.I.F.I. are obliged to observe laws which preclude any agreements that would have the effect of restricting free and open competition in international trade. For these reasons, the I.C.I.F.I. code addresses itself to matters of ethics and professional standards but not to commercial matters, which remain the duties and obligations of individual member companies.

The founder members of I.C.I.F.I. formed a body which can be truly representative of the entire infant-food industry and which can work in close collaboration with the specialised United Nations agencies, national governments, and medical research and academic institutions. Together we can then address the real problems of infant nutrition throughout the world, always placing clear emphasis on the importance of breast feeding and the judicious use of infant formulæ to supplement or replace breast milk when necessary.

I.C.I.F.I. acknowledges the encouragement which these efforts (they started as long ago as 1970) have been given from many quarters, and welcomes constructive criticism and advice from all interested parties.

I.C.I.F.I.,
P.O.B. 328,
CH-8035 Zurich, Switzerland

E. STEVEN BAUER

VOLUME VII, NUMBERS 3-4, SEPTEMBER-DECEMBER 19
PAG
BULLETIN
Protein-Calorie Advisory Group
of the United Nations System

THE INFANT FEEDING ISSUE

In line with its long-established interest on the issue of infant feeding, and conscious of the strong controversy that has developed in recent years around this topic, the PAG Secretariat solicited the preparation of two articles in order to illustrate the different perspectives in this controversy: One paper has been prepared by the International Council of Infant Food Industries, and the other by Ms. Leah Leah Margulies, of the Interfaith Center on Corporate Responsibility and Program Director of the ICCR Infant Formula Campaign.

The PAG Secretariat is grateful to the authors of these articles, which are presented below. We believe that they will contribute to a wider awareness and better understanding of the major issues involved and of the different positions surrounding infant feeding.

INFANT FEEDING IN THE LESS DEVELOPED COUNTRIES: AN INDUSTRY VIEWPOINT

Statement by the International Council of
Infant Food Industries (ICIFI)

The tragic triad of poverty, ignorance, and disease continues to impose its spectrum of problems on the developing countries of the world. These problems take many different forms. Infant malnutrition is one of the most tragic among them.

In the course of many efforts to alleviate infant malnutrition and its ravages, the activities of infant food manufacturers in the developing countries have also been subject to close scrutiny and controversy. This in turn led to various recommendations for changes in the role and policies of the infant food industry in the LDC's.[1, 2]

The seriousness of some allegations made against the industry have been highlighted in well-publicized reports[1, 2, 4, 5] and have led those responsible for policy decisions within the industry to take a critical look at the evidence. This has been undertaken by the International Council of Infant Food Industries (ICIFI) since its formation in November 1975. The work continues to receive careful and constant attention of senior executives throughout the Council's international membership.

It is hoped that this review of the present state of knowledge and the brief descriptions of some of the work now undertaken will contribute to a better understanding of the issues related to infant nutrition while at the same time providing information on the objectives and functions of ICIFI.

Aims of ICIFI

Let it be quite clear from the outset that ICIFI firmly believes in and accepts the superiority of breast feeding during the first months of life. The products of ICIFI members are intended to supplement or replace breast milk only when the needs of the child cannot be met entirely by breast feeding, whether for physiological or other reasons.

With this in mind, the first action taken by ICIFI was to consider the ethical and professional obligations of the industry and to adopt clear and legally uncompromising standards. These were written into a Code of Ethics[6] and accepted by all member companies. Today it is the task of one of the ICIFI Working Groups to monitor the application of the Code throughout the world. Regional meetings between representatives of ICIFI and local authorities have been held to discuss implementation of the Code by all companies marketing foods recommended for infant feeding, whether or not they are members of ICIFI.

The ICIFI Code of Ethics is a significant step toward self-regulation by the industry, but it is far from being the only preoccupation of ICIFI. The International Council of Infant Food Industries is dedicated to the task of contributing to the improvement of infant feeding practices. This is to be achieved not only through regulation of the industry's promotional activities, but also by working in close collaboration with eminent scientists to seek answers to the following general questions:

-- To what extent is formula feeding (with breast milk substitutes or supplements) necessary and justified in the developing countries - whether due to inadequacy of lactation or other reasons?

-- How can the needs for appropriate infant formulae be satisfied in different population groups, taking into account varying levels of environmental hygiene, education, and income?

ICIFI takes careful heed of the freedoms of actions of governments and health authorities in the developing countries. The same goes for the growing determination of women to make their own decisions on matters directly affecting their lives such as childbearing or child feeding as well as the opportunities for work participation in their communities.

ICIFI is keenly aware that neither the industry nor other external groups of religious, political, or other compositions may assume the right to dictate to the peoples of the LDC's what they may or may not have access to in feeding their own infants. Nor is it assured that the suggested restriction on the distribution of infant foods in the developing countries will effectively reduce infections, incidence of malnutrition, or infant mortality as has been so readily suggested by well-meaning observers from afar.

Who Uses Infant Formulae and Why?

It is necessary to distinguish between different categories of consumers in order to assess what the effects of restricting distribution might be. Many parameters can be applied, but the following groups are probably the most significant for the purposes of this discussion:

1. Affluent mothers from the elite and salaried middle classes.

2. Mothers who work to help support the family, and whose work entails separation from the baby during the day.

3. Urban and rural mothers, living in poor communities, whose activities do not entail separation from the baby, but whose lactation may be inadequate.

Although precise statistics are not available, mothers in the first group are believed to be the main volume users of infant formulae. It is in this group that exclusive breast feeding is often carried out for only a short period, and tends to be replaced for several weeks or months by formula feeding. These mothers are in a position to afford adequate quantities of formula and have both the education and the facilities necessary to use the products correctly.

Restrictions in infant formula distribution for this group of mothers would have little more than nuisance value. These mothers can afford the time and money involved in overcoming the inconvenience.

Working mothers are in a different situation. Bottle feeding is not a luxury for them, because they must often choose between breast feeding and work and the decision must be made in the best interest of the whole family[7]. More often than not, facilities for breast feeding at the place of work are not available, and even if time away from work is allowed for breast feeding, the distance from the mother's home can make it impossible.[8, 9]

By restricting the distribution of infant formulae, many of these mothers would be faced with serious difficulties. The result would almost certainly be a switch to less suitable foods for their babies, such as sweetened condensed milk and evaporated milk, whose use for infant feeding has declined in recent years. At the lower end of the income scale, wider-spread use of local starchy gruels and paps would follow. These are not only nutritionally inadequate but also may carry as great or greater risks of contamination than industrially-produced infant formulae.

Jelliffe has argued that the percentage of mothers in developing countries who are going out to work away from home "varies considerably but is often rather small"[10]. This may be right in terms of total populations, but in terms of current infant formula users it is not right. Many reports have pointed to a mother's work as a major, if not the major reason for adopting bottle feeding[8, 11, 12, 13]. Until such time as legislation is introduced enforcing employers everywhere to provide both facilities (such as day-nurseries) and time for breast feeding, restrictions on the distribution of infant formulae will not benefit working mothers--rather the contrary.

To what extent are infant formulae used by the third group--poor urban and rural mothers, whose activities do not preclude breast feeding during the day? And to what extent has breast feeding declined as a result? Little data are available to answer either question reliably although, on the basis of sales alone, the breast milk displacement effect of infant formula to this group must be very small indeed once the needs of the other two groups have been satisfied. This is borne out by a widely quoted study carried out in Ibadan, Nigeria[14]--the market which has one of the highest per capita consumption rates for infant formula in Black Africa. The study showed that only 1% of mothers used infant formula as a total replacement for breast feeding. The vast majority of mothers who breast fed first and then bottle fed did not give up breast feeding. Indeed most mothers were found to give up bottle feeding by the time the child was 12 months old, but continued to breast feed for up to a further six months.

Would restrictions on the availability of infant formulae increase breast feeding in this group? It appears highly doubtful. Comparison with rural communities where commercial infant foods are not available shows that supplementation of scanty breast milk nevertheless starts at an early age[15, 16] the difference being that the mothers in rural communities tend to use thin,

watery gruels made from local starchy staples, whereas an urban mother may have access to high quality, well-balanced infant foods and give small but nutritionally significant amounts to supplement her breast milk. Whatever the hazards of such supplementation, they are almost certainly less than those entailed by the use of the locally-available alternatives.

The effect of restrictions on infant formulae would simply be to make it more difficult and more costly for these mothers to give nutritious supplements, when their breast milk can no longer meet the needs of the baby. In a country like Nigeria, the most widely used supplementary food, given between the ages of two to six months, is a pap made from fermented maize starch (ogi),[17] which has a very low nutritional value when wet-milled with pestle and mortar in the traditional way,[18] and especially after diluting for baby feeding.

A recent study of 50 unselected consecutive cases of protein-energy malnutrition in Nigeria showed that all the infants received maize-starch gruel (with no supplementation of proteins or vitamins) as their only weaning food. All but one had been breast fed up to at least nine months, and it appeared that the children presenting with marasmus (20) had been undernourished virtually from birth.[19] Since this is the country in Black Africa with the highest per capita consumption of infant formula, it would seem that the case for restricting the use of infant formulae cannot be substantiated.

Aykroyd[20] proposed that one solution requiring study alongside the promotion of breast feeding would be the possibility of producing processed cow's milk preparations or cheap milk substitutes on such a scale that artificial feeding could be extended throughout the world. Habicht et al.[21] and Hakim[22] suggest that more effort should be made to develop cheaper and safer artificial feeding methods and to teach mothers how to use them. This is also the view of ICIFI. But before considering the ways in which these recommendations can be applied, it is necessary to consider some of the objections.

The Implications of Infant Formula Distribution

Some objections to general infant formula distribution are based on the simple and undeniable concept, "breast is better than bottle". To repeat, as far as members of ICIFI are concerned, there is no argument on this issue. Therefore ICIFI's attention is concentrated on those objections which relate to the supplementation or substitution of an inadequate or unavailable breast milk supply. The main issues can be summarized as follows:

-- Adequacy of Human Lactation

-- Feed the Mother and Thereby the Child

-- Breast Feeding and Child Spacing

-- The Decline in Breast Feeding

-- The Effect of Bottle Feeding on Lactation

-- The Cost of Infant Formulae

-- Early Supplementation and the Risk of Infections

Each will be reviewed in turn:

"Adequacy of Human Lactation"

It is assumed by some commentators that human lactation would be adequate if it were not for the activities of the industry. Such assumptions seem to disregard reports of early supplementation of breast feeding or the need for it in both rural and poor urban communities.[15, 16, 19] Other workers have confirmed inadequate lactation in many mothers, especially those on a sub-optimal diet[23, 24, 25] and a recent review article pointed out that a diet of breast milk alone should be sufficient for babies up to about three months of age, after which supplementation is likely to become increasingly necessary if the energy needs of the baby are to be fully met.[26] In spite of this scientific evidence, recommendations are still being made that breast feeding should not be supplemented before the age of six months.[27, 28] A recent editorial[29] endorses this recommendation with the rider that breast feeding should be "reasonably satisfactory".

In the face of conflicting opinions and a lack of hard data in many communities, the extent to which breast milk alone can cover the needs of the child is uncertain. Without this knowledge, the timing and type of supplementation necessary in different population groups cannot be identified. ICIFI is supporting an independent group of experts who have devised a study designed to clarify this question. As a first priority, the experts decided to concentrate on the methodology for measuring the quantity and quality of breast milk. Past and present methods are fraught with difficulty, are time consuming and unreliable, and rarely yield comparable results.[23, 30]

The measuring processes are also liable to influence normal lactational behavior.[31] Aided by a research grant from ICIFI, independent studies are planned to develop new methods which will permit meaningful and comparable measurements with the minimum of interference to the mother. If successful, it is hoped to apply these methods to field studies throughout the world, and especially the developing countries. By relating breast milk intake to growth, it is hoped to obtain data hitherto unavailable, which is vitally necessary to determine future nutrition policies and the correct role for infant formulae.

"Feed the Mother and Thereby the Child"

It can be argued that if there is inadequate lactation, the main reason may be the poor nutritional state of the mothers and therefore industry should turn its attention to producing food supplements for lactating and pregnant women.[2] It has indeed been demonstrated that caloric supplementation during pregnancy can reduce the incidence of Low Birth Weight babies and hence reduce the infant mortality rate[32] although the effect of supplementation on lactation performance is less clear-cut.[33] A spectacular increase in milk production has been reported in one severely malnourished mother by supplementing her diet until her intake reached 2200 kcal/day, but the cost of feeding this mother was the same as the cost of buying powdered milk.[34] Lechtig and co-workers[32] emphasize that the technique of food supplementation they implemented was a research procedure, and programs of the type are inappropriate for large populations over long periods of time. Their conclusions were that the most effective way of improving nutritional status and reducing developmental retardation and infant mortality is to eliminate poverty.

ICIFI certainly accepts the concept of feeding the mother, but in the light of the fundamental socio-economic problems involved, it is unrealistic to assume that the need for infant formula will disappear.

"Breast Feeding and Child Spacing"

Emphasis on the contraceptive, child-spacing effect of unsupplemented breast feeding[35] is probably largely responsible for recommendations that no supplementation should be given before the age of six months, even if the child is mildly undernourished at the breast.[29] However the efficiency of breast feeding as a means of contraception is being questioned, and has little validity for the individual.[36] It is likely that malnutrition of the nursing women is largely responsible for lengthening the anovulatory period. The importance of other factors, including intercourse taboos during lactation cannot be underestimated, and it may well be that improving the nutrition of the mother (a primary objective) could have the effect of reducing the contraceptive effect of breast feeding.[16]

We conclude that short-term priority should be on feeding the child and ensuring the quality of survival. Family planning and child spacing are receiving expert attention elsewhere.

"Decline in Breast Feeding"

The availability of safe substitutes for breast milk has been widely accepted by mothers in Western countries and has certainly contributed to the decline in the incidence and duration of breast feeding. The reasons for the adoption of formula feeding in the poor communities of the developing countries are not necessarily the same. Critics are not always careful to recognize differences between their own and other societies in drawing their conclusions. The extent of the decline has almost certainly been exaggerated in vulnerable communities.

An example is the figures frequently quoted for the decline in breast feeding in Chile.[37] It is asserted that 20 years ago, 95% of Chilean mothers breast fed their children beyond the first year, but that by 1969 only 6% did so, and only 20% of the babies were being nursed for as long as two months. The milk of 32,000 Chilean cows is said to be necessary to compensate for the loss.[38] Less publicity has been given to a recent report quoting a survey carried out in Santiago in 1942, which found that fewer than 40% of the mothers interviewed were breast feeding after three months, and a study carried out in 1970 showing that the figure had declined to 30%.[39]

In view of the massive distribution of milk under the Chilean government milk scheme during this period, it can be concluded that the availability of a cheap substitute/supplement for breast milk had remarkably little effect on the incidence of breast feeding.

"The Effect of Bottle Feeding on Lactation"

This question links with the preceding one and supports the claim that the availability of supplements hastens the decline in breast feeding. According to Latham[40] "once a mother is trapped on bottle feeding, her milk will dry up and there will be no chance to go back to full lactation with that infant." Very little evidence has been produced to demonstrate this effect. There are grounds for believing that this factor, as a cause for the decline in breast feeding, has been exaggerated.

It is necessary to distinguish between three quite separate situations:

1. Introduction of the bottle before lactation is fully established.

2. Introduction of the bottle when lactation is fully established and adequate for the child's needs.

3. Introduction of the bottle as a supplement to inadequate breast feeding.

In the first case, the let-down reflex might well be inhibited and the mother's ability to breast feed affected. In general, the responsibility for ensuring that bottle feeds are not offered before lactation is fully established lies with medical personnel.

In the second case, it seems quite unreasonable to suggest that a mother would endure the discomfort of distended breasts, or even express and throw away her own milk, in order to be able to use a substitute she cannot afford. We suggest that her motivation would need to be far stronger than that induced by commercial promotion. The need to work would certainly be a strong motivation. Ransome-Kuti[17] describes what probably happens when mothers who do not need to supplement their breast feeding introduce the bottle:

> In the case of mothers who had adequate breast milk, artificial milk was usually started half-heartedly around the second week of life and stopped as soon as the first tin was finished. It was not started again until the baby was between five-six months. By this age, breast milk alone proved inadequate to meet the child's needs.

The third case (where lactation is inadequate) is the most important with respect to any policy which advocates the wide availability of infant formula for use as supplementary foods. Here, the evidence suggests that the supplementation per se does not lead to a reduction in the secretion of milk. Orwell and Murray[14] reported that mixed breast and bottle feeding continued until the age of 12 months after which the bottle was abandoned and breast feeding continued. In Jamaica, it was found that most mothers gave their babies combined bottle and breast milk for long periods gradually stopping the breast.[11] Chavez et alia[35] found that the introduction of a supplementary diet caused no change in the pattern of suckling, and at the age of six months when all the children were already receiving formula and purées, they continued to suckle for more than two hours per day.

From the above findings, it seems unlikely that in poor communities the use of powdered infant formulae alone has led to significant abandoning of breast feeding by mothers capable of doing so.

"Cost of Infant Formulae"

One of the most frequently heard objections to the widespread distribution of infant formulae is that "there is no possibility of such formulae being purchasable in adequate quantities".[10] This appears to be based on theoretical calculations estimating the cost of totally replacing breast milk.[38] As pointed out earlier, such evidence as exists[14] shows that very few poor mothers use infant formula in this way. Statistics reflecting the real cost of current feeding practices in different communities are urgently needed.

"Early Supplementation and The Risk of Infections"

Perhaps the most important objection raised to the introduction of supplementation of breast milk before the age of six months is the risk of infection due to an unhygienic environment and polluted water. It is considered by some that it is better for the child to be exposed to a period of slight undernutrition at the breast than to run the risk of infections and diarrhoeal diseases following administration of formulae.[29] This is a key issue. Quite apart from wondering how health workers will interpret "slight undernutrition", it is difficult to accept that the under-nourished child at six months will be better able to resist the onslaught of infections when

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supplementation (be in infant formula or other foods) is finally introduced.

This issue also highlights the problem exposed by Whitehead when he pointed out that it is a common misconception to imagine that breast-fed babies do not suffer from malnutrition. Although it is true that frank clinical malnutrition has its greatest incidence in the second year of life, the growth retardation which precedes it begins in some communities as early as three months.[15]

Finally, it is necessary to remember that in many traditional societies outside the reach of commercial influence, mothers nevertheless supplement inadequate breast milk with available foods. There is no basis for the assumption that the risk of contamination is less with local foods than with commercial preparation. The opposite is probably nearer the truth. Indeed, the fact that babies in typical African rural communities are offered porridge or gruel which is heavily contaminated, has recently been well documented.[42]

If there is a need for supplementary feeding, surely the onus on those responsible for infant welfare is not to deny food to the infant but to place priority on methods for ensuring that safe supplementary feeding can take place. This will not be achieved by saying that it is impossible, but by undertaking inter-disciplinary efforts to make it possible.

ICIFI Support for Studies

Reference has been made above to the two main areas of study supported by ICIFI, and to efforts being undertaken to obtain satisfactory data about breast feeding performance in different population groups.

At the same time, however, one aim is to reduce misuse of infant formulae, especially in poor communities. Of course, even the most nutritious products will not give the best results if used incorrectly. Hence, emphasis must be placed on improving education and information and minimizing confusion particularly for semi-literate or illiterate persons.

The development of clear, unambiguous feeding instructions is among the first tasks. This is a direct response to the recommendations contained in PAG Statement 23.[43] Work includes the development of two basic documents:

The first document is a briefing for health workers on advice about the conditions under which mothers should use infant formula and reads as follows:

1. Breast milk is best for your baby.

2. If you believe you have not enough breast milk, ask a doctor, nurse, or other health worker for advice before giving other foods.

3. Continue to breast feed your baby as often and as long as you can, even if you have to leave your baby at home when going out to work or for other reasons.

4. If you cannot breast feed because you have to leave your baby at home, make sure you give exact instructions to the person who feeds him in your absence.

5. If you have to supplement your breast milk, make sure that you follow the instructions very carefully, especially about the water to use.

6. A doctor, nurse, or other health worker may recommend you to use a baby milk. You must follow the instructions carefully; if you do not, your baby may become ill.

7. If you find you cannot afford to buy sufficient quantity of baby milk, ask a doctor, nurse, or other health worker to recommend a suitable alternative.

8. Whenever you have any doubt about your baby's health or about the food to give, ask a doctor, nurse, or other health worker for advice.

A further document under development is a series of consistent and clear instructions for the preparation of infant formula.

The first document defines the conditions under which ICIFI members suggest their products be used--insisting in particular on the importance of breast feeding and the need to seek professional advice before giving foods other than breast milk. Comments and criticism of this proposal will be welcomed. The instructions will give a clear, step-by-step explanation of the procedures and precautions necessary for the safe use of infant formulae.

The two documents will be translated into local languages and, together with a standard feeding table, are designed to eliminate any confusion that may exist because of the differing presentation of instructions published by different manufacturers. It is hoped that health services everywhere will cooperate in adopting these recommendations.

To follow up this work, a series of visual symbols which highlight the main points in the Instructions is being devised to be used as teaching and recall aids. This work is being conducted in close consultation with relevant international health education experts. It is hoped that if field testing demonstrates usefulness of these symbols, the "visual code" will be offered for adoption as standard teaching material throughout the world.

Another important study concerns the development of an easy-to-clean feeding utensil which it is hoped will eliminate the inherent disadvantages both of the bottle feeder and the cup and spoon feeding method in current use. This study is linked with a study of the materials used in the manufacture of feeding utensils, which will lead to recommendations for standards in this area.

However, the obvious and fundamental problems of raising living standards in poor communities, providing clean drinking water, and making adequate food supplies available are not capable of resolution by the infant food industry. These and other questions involving the industry can only be tackled by close cooperation with health professions and the health authorities of governments.

Much of ICIFI's work has been inspired by encouragement from PAG. Their recommendations to governments, health workers, and industry[43] were welcomed by most manufacturers as a significant and constructive contribution towards the resolution of the problems.

It was to create a body capable of representing the infant food industry throughout the world that ICIFI was founded. The atmosphere of mistrust and positive hostility engendered by recent attacks against the industry[1, 3, 4, 5] has done nothing to facilitate this work and testifies to a most unhealthy situation.[15] We hope that present trends away from an atmosphere of confrontation will accelerate and lead to positive cooperation, and that it will not be long before ICIFI counts among its members all manufacturers who supply infant foods. Together, we can then intensify the search for practical solutions aimed at improving infant nutrition throughout the world, especially in the developing countries.

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1978 Vol. III, No. 1

THE LACTATION REVIEW

Breastfeeding and Weaning Among The Poor

The Human Lactation Center enters the breast/bottle "controversy" between the anti-multinational groups and the infant formula industry in an attempt to clarify some of the issues. The industry has been accused of misguiding women and thus harming infants in developing countries by using improper methods to promote and sell their products. The companies have countered this charge by claiming to provide the safest alternative to breast milk. They say they are responding to the needs of the emerging middle class.

The Center believes the charges and counter charges are grossly over-simplified. The infant formula industry with its vast economic clout is implicated, but they are not solely responsible for the state of the world's children. **We maintain that the effects of poverty — lack of food and safe drinking water, the absence of sanitation and health care, political indifference to mothers in poverty — are the determinants of disease and death of infants in the developing world.**

Our views emerge from field research into the life situation, workload and feeding practices of mothers. This has been the focus of the Center's work. It was accelerated recently by an Agency for International Development (AID) grant to explore what was understood to be a reduction in breastfeeding worldwide.

(continued on page 3)

Second Thoughts

While the Center's personnel may have strong, and oft-expressed, personal opinions on the issues debated by the adversaries for or against the commercial practices of the infant formula industry, we have not studied these various claims and therefore do not take a position in regard to them. We are a scientific research institute, whose aims are to remain objective and to look at data dispassionately and critically even when it disagrees with our opinion.

The Center has not always taken this stance, In 1973, Dana Raphael, its Director, delivered a paper at the Ninth International Anthropological and Ethnological Congress entitled "Warning, The Milk in This Container May Be Lethal for Your Infant."

She states, "....imported powdered milk is improperly used, mixed with impure water and rendered bacteriologically unsafe. It is usually unrefrigerated and so becomes dangerous to the infant gut if it is not consumed within a limited safe period of time. The directions for preparing the milk are described in chemical formula terms, and so they are frequently ignored, not understood, or adjusted and readjusted to fit another set of cultural needs and values. (Raphael 1976)."

In a news conference in Chicago in 1973, Dr. Raphael claimed, "A growing trend away from breastfeeding infants and toward the use of artificial milk or animal milk is resulting in increased malnutrition and death." This was an unscientific and inaccurate statement from an individual assuming an advocate's role based on the statements of others and her own limited impressions. During the intervening years, and only after a thorough and exhaustive review of the available data, Dr. Raphael came to the realization that her statements had been oversimplified and founded more on opinion than on scientifically supportable fact.

The Center now questions the assumptions of any group which would suggest the elimination of any commercial infant foods on the yet unverifiable theory that they harm babies. Poor mothers in the developing countries are greatly confused and frightened when they hear of such ideas. The middle class women are indignant that we should try to impose our values and opinions on them. They are accusing us of interfering with their lives. Pointing to our own practice of bottle feeding, they ask why it wouldn't be just as good for their infants. Physicians who are involved in projects for developing countries are startled by the angry tones clouding the issues. The donor agencies are fearful that food supplies might be reduced further. Our scientific colleagues are concerned about the distortion of facts. Representatives of the transnational companies are confused by what is reported to be the effect of their marketing efforts and the reality that women want their products.

Beyond its nutritional content, food has social and political value and meaning. But in a world where people still go hungry, truth, not rhetoric nor debate, is the only ingredient which should be permitted to accompany any decisions about food. The Center stands on this principle.

Mixed Feeding Keeps Babies Alive

SUMMARY OF FINDINGS

- Δ Poverty is correlated with infant morbidity and mortality as child health is associated with affluence.
- Δ Infant mortality had decreased in the three decades prior to 1973 when food prices began to escalate.
- Δ Breast milk is the best infant food but breastfeeding exclusively for most undernourished women in the less developed countries is inadequate beyond the baby's third month. Lack of sufficient food after this time is a major cause of morbidity and mortality whether or not the infant is breastfed.
- Δ Mixed-feeding is an almost universal pattern in traditional cultures; that is, breastfeeding and supplementary feeding from early on and often into the second year.
- Δ The preferred additional food for the very young child is milk. Most milk used is fresh milk, unprocessed.
- Δ Most women still breastfeed though many do not. The popular assumption that breastfeeding is being reduced worldwide has not been verified.
- Δ Third World women with the least amount of resources, time or access to health care and weaning foods, have no choice but to breastfeed. More than half the infants they bear do not survive due to lack of food for themselves and their children.
- Δ Women who are separated from close kin, especially the urban poor, lack mothering from a supportive (doula) figure. They find themselves unable to lactate adequately, or lose their milk entirely. Without suitable substitutes, their infants die.
- Δ Middle class women in the less developed countries, market women, the elite and professional women are moving towards bottle feeding with infant formula in much the same way women turned from breast to bottle feeding in the Western countries.
- Δ The current literature on breastfeeding in the developing countries is meager. Information on mortality, the incidence of breastfeeding, the content of infant food, and the amount of breast milk, tend to be impressionistic reports by well-meaning Western or Western trained persons often unaware of the complexities of feeding practices and insensitive to the real-life situation of the mothers. Judgements for action based on these inconclusive data could be dangerous.
- Δ Mothers have a sensitive and remarkable grasp of how best to keep their infants alive. Neither literacy nor what has been called "ignorance" determine which infants live and which die except as they are related directly to social class.
- Δ In seeking solutions to the problems of infant well-being in the developing world, we must listen to the mothers and involve them in the decisions which will affect their lives.

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Proposal For Action

The Center proposes using local women in designing community-specific projects which integrate breastfeeding into other related programs such as family planning or health care. It stresses community-wide planning of nutrition projects to enhance the development of indigenous weaning foods. And, it encourages the infant food industry to supply its extensive resources and expertise in food technology and nutrition to this effort.

The Center recommends intensive village-centered research into the value of lactation as a birth spacing "device." It also suggests a plan for using the local women to help develop educational, video, medical and commercial information strategies to promote breastfeeding as a priority on any national or regional agenda.

(continued from page 1)

Eleven anthropologists, all women, looked into the process of infant feeding, especially breastfeeding, in eleven different cultures, ranging from a relatively urbanized Sardinian mountain shepherd community to a most impoverished Egyptian agricultural village. Each researcher had spent at least one and some as many as eight years with her group. The director of the project visited each of these communities, as well as eight others, over a period of two years. Information on maternal behavior and infant/child feeding practices was collected and analyzed from discussions with hundreds of parents, medical personnel, government officials, commercial entrepreneurs and industrial and market workers.

THE THREE MONTH CRISIS

Very early in our work, we became aware that infants in underdeveloped countries who breastfeed from undernourished mothers require additional food to supplement breast milk by the time they are *three months old*. When they do not get it, their development is inhibited. Soon they are undernourished, then malnourished. They weaken, become susceptible to disease or die.

Contrary to the published statements from many medical professionals who seldom advocate supplements before four to six months, the majority of health workers in developing countries (and the mothers) told our researchers that three months is the more appropriate time. And, this *mixed-feeding pattern* — breastfeeding plus additional food — was far more common than either exclusive breastfeeding or exclusive non-breast-milk substitutes.

"Few children born since 1974, have survived."

Providing, in advance, for that critical time when breast milk is not enough, is a common practice in many areas. The lucky mother in the Sudan receives a goat from her family during her pregnancy in anticipation of the weanling's early needs. The unlucky ones get no goat and as many as half of them lose their children.

The average well-nourished Western woman, weighing twenty to thirty pounds more than most women in less advantaged groups, cannot feed only breast milk beyond five or six months. After that, the child needs additional food to maintain a steady growth pattern. The claim that Third World women can breastfeed exclusively for one or two years and have healthy, well-developed children is outrageous and dangerous.

MOSTLY BREASTFEEDING

Contrary to popular impressions that breastfeeding is being reduced worldwide, we found little evidence to support this assumption. Most poor women were still breastfeeding for two years or, more often, until they again became pregnant. Even in villages near modern urban centers, we could substantiate no such decline.

We did note, though, that women who were reducing their breastfeeding, though not the majority, were far more visible. They included the affluent women, the elite, professionals and wives of professionals, and the middle class who usually live in cities.

Under different circumstances, and for very different reasons, poor women living in urban slums were also breastfeeding less or not at all. Related to this trend was a changing life style, isolation from the woman's own family, and changes in the source of economic support from several family members to the isolated couple or the single adult female provider. Women in our sample from these hutments (as they are called in India) try to breastfeed but find themselves alone and without that significant supportive person who is so essential to successful lactation. If the person who traditionally helps the mother after childbirth, [usually the mother's mother, called a *doula* (Raphael 1976)], is not present, the woman's milk supply is often reduced and she is forced to give additional food very early.

These women are caught in an extraordinary bind. They are the least able to successfully breastfeed, and yet they are unable to do anything else. They breastfeed and struggle with their limited supply, their lack of resources for extra foods, their own hunger and anger, their desperation, and their starving baby. And, as many as 50% lose the fight. Their offspring die before the first year.

We concluded that for most families in the developing world breast milk is essential for most infants over a long period of time; but, after only three months, so is supplementary food.

REPORTS FROM THE FIELD

Very soon in our field research we began to suspect that the crux of the matter was in the weaning phase. Changes in behavior were found not only in the pattern of breastfeeding but also in weaning practices.

In a recent testimony for a court hearing of the Sisters of the Precious Blood Inc., against Bristol-Myers Company, a witness said, "In 1969, a total of 63% were given both bottle feeding and breast milk during the first month of life, while 10% were maintained by bottle feeding alone. In 1976, these figures are 64% and 10%. There has been no change in the percentage of women who exclusively breastfeed nor in those who never breastfeed during this period (in Trinidad).

"However, there has been a significant change in the contents of bottles. Sago, arrowroot, green tea and flour pap have been replaced by powdered infant formulas and powdered whole milks. An examination of the individual infant feeding histories will confirm the extent to which the use of sago and flour pap is now associated only in poorest households (Johnston 1976)."

A similar pattern was observed in several of the communities even where the larger family unit was still intact as in India. Indian women, though, breastfeed much longer than those in Trinidad, had little or no access to powdered milk, lacked resources to buy sufficient supplementary food and their infants were the worst off of any group studied.

Fieldworkers in the villages and rural slums in India, Egypt, Nigeria, Kenya and Jamaica reported to Center personnel that the consumption of any milks, as well as other foods, is totally inadequate. They suggest this is related to the *trebling of food prices since 1973* in many areas of the world. Talking to a *New York Times* reporter (March 6, 1978) about the effects of the high cost of food, Dr. Adolfo Chávez, head of nutrition in the National Nutrition Institute of Mexico, said,

"In some really depressed rural communities, few children born since 1974, have survived. We have what we call generational holes. But infant mortality is also growing in slum areas of the cities."

Already living at a subsistence level, this added cost to the poor shows up first in an increased rate of infant morbidity and death.

For example, the Indian and Egyptian communities in our project had the highest incidence of breastfeeding. They also had the highest incidence of morbidity and mortality, certainly not because of breastfeeding but despite it.

Our Spanish and Mexican-American mothers lived in much more comfortable circumstances and had the highest incidence of bottle feeding, the lowest number of illnesses and hardly any deaths. They breastfed the least, but they also had refrigeration, bacteriologically safe water and health care. Just as the high rates of illness were due to poverty and lack of sanitation, food and medical care, so the good health of babies was related to improved nutrition and other social, economic and environmental conditions.

What appears to be happening is a switch away from traditional foods to processed milk whenever affordable. But when there is a minimal income and rising food prices, there is a decrease in the amount of all foods given to the weanling.

WHAT ELSE DO BABIES EAT?

What about this extra food? Almost everyone agreed that after breast milk, babies digest the milk of other mammals far better than any other food. *Most milk fed to babies throughout the world is fresh, local milk from bullocks, cows and goats.* For example, officials of the Amul Corporation, the huge Indian dairy cooperative (300,000 families, each with one or more animals, belong to and "own" it), say only one percent of all the milk used in India to supplement breast milk is commercially processed milk. The other 99 percent is fresh milk. They are fully aware that their consumers are only a small portion of the total population, but they can hardly keep up with the demands from that sector, mostly urban.

The current price of each can of milk is about $2 and the average annual income of most Indian families is about $75. One can of such milk would be equivalent to $200 a can for a U.S. family earning $7,500! Obviously, it is out of the question.

As economic conditions in some urban centers improve, as, for example in Africa, the use of additional foods increase. However, it is our impression that though processed milk is preferred as a supplement for infants, most purchased milk continues to be unprocessed.

WHY KEEP BABIES ALIVE?

Many people are convinced that if processed milk was not readily available, more babies would be breastfed and stay alive. On the contrary, there is every indication that this assertion is incorrect and that the lack of food could make it even harder for women to breastfeed, increasing their struggle to keep their children alive. When there are shortages in the developing countries, of the kind that occurred in many areas when the U.S. Congress eliminated the appropriations for the "giveaway" PL 480 milk in 1973, women substitute as best they can. Certainly they cannot increase their supply of milk beyond the normal limits. Though well aware that non-dairy foods will not be as well accepted nor tolerated by young children, when necessary, they use whatever the baby will swallow and hold down.

Another popular stereotype suggests that give-away food programs are wrong because they increase the population by keeping infants alive who would have died. We respond to this by offering evidence that *those parents who lose a child tend to have larger completed families than those whose children live* (WHO 1974).

MAKING WOMEN BREASTFEED

Just as we have underestimated breastfeeding in the past, so we are overestimating it at present. For instance, some policy makers are suggesting that if we do not give away millions of tons of milk to children in the developing world, then women would be forced to breastfeed. This paternalistic assumption harbors the misconception that lactation is automatic like a machine. Not so. Breastfeeding cannot be triggered at will. It is a very sensitive physiological process which works best when the mother has supportive care, what has been described as a mothering-of-the-mother (Raphael 1970). If such care is not present, the ejection reflex, which makes the stored breast milk available to the sucking infant, usually will not be released. He or she then becomes frustrated, hungry, the mother more anxious, and without additional foods, the baby dies.

So, if women are already breastfeeding successfully, they still need supplementary foods after their infants are three months old. If they are not breastfeeding and there is no supplementary food, the child would not survive the weeks it takes to attempt relactation. Finally, in order to breastfeed, some women would have to reorganize their entire lifestyle to accommodate breastfeeding. And, in some cases, it might jeopardize the rest of the family if they depend on her income.

INFANT ILLNESS AND DEATH

Another aspect of the Center's work was the study of international aggregate data. Contrary to popular impressions, we did not find that infant mortality was rising throughout the world. According to U.N. demographic statistics, *infant mortality has fallen during the last three decades.* A cluster of factors are involved, including improved health care, better nutrition and reduced fertility patterns, all of which are part of the general change to "modernization."

The highest incidence of mortality and morbidity beyond the first few weeks (during which illness and death are related to low birth weight, birth trauma, congenital diseases, and not to feeding) occurs after three months of age, usually from lack of food. "The severity of this starvation is inversely related to the amount of supplementary food given....(Cole 1978)." Parents who have the means either to buy or own the sources of food give adequate amounts of supplements, and their babies survive.

The Center researched the literature which compares the effect of human versus cow's milk. Though there is clear laboratory evidence that breast milk is better attuned to the infant gut than cow's milk, we could not find any data to prove the claim that in real life it prevented diarrhea, illness or malnutrition. While some evidence suggests that certain components of breast milk may be effective against some bacterial and viral disease agents at specific times in the infant's development, it is far from conclusive. *It must be emphasized that breast milk is a food, not a medicine.*

This misunderstanding about the value of breast milk has led to a certain amount of confusion. For example, bottle feeding has been linked with mortality and morbidity, and breast milk with health and survival. As in the Center's field experience, the more reliable findings seem to indicate that the relationship is between poverty and mortality and morbidity. In all areas studied, *the infants born into the higher socio-economic groups, whether bottle or breastfed, were healthier than the infants in the lower socio-economic groups.*

TROUBLES WITH RESEARCH

Much of the available work examining the causes of illness and death during infancy has been called speculative, retrospective and unrepresentative of the population (Thomson and Black 1975, Petros-Barvasian 1975, Cole 1977). The claims of a direct relationship between the presence of U.S. giveaway milk, commercial advertising, illiteracy and marasmic infants has been criticized as over-simplified and unsupported by the data. These studies have not been submitted to others working in this field for peer review or presented in such a manner as to be replicable or verifiable.

Few studies make the distinction between totally breastfed, insufficiently breastfed, or insufficiently supplemented babies, or those who eat contaminated foods. All milk, fresh and processed, is lumped together. The effects of specific types of milk are

Photo, courtesy of **The Food and Agriculture Organization of the United Nations.**

not documented, nor are the actual sources of infection identified. The studies do not describe the content of the bottles, even when the bottles are brought into the hospital with the infected child. We often are not told if they contain milk or are filled with "bush" tea, crushed crackers, sugar and water, mashed bananas, and so forth. Estimates of the age of children entering the hospital suffering from diarrhea, are often unreliable. "Wizened" children, malnourished and acutely dehydrated, look much younger than their age. Our observation was that most are well over three months of age.

Most surveys ask whether or not the mothers say they breast-fed or bottle fed. Though the most common pattern is to mix-feed, the questionnaires do not usually allow for that option. Even where some of the finest research in these areas has been done, as in India, a colleague questions the methodology and asks for refinements.

"Our appreciation of the ['sources'] of protein-calorie malnutrition, which is of crucial importance from the point of view of prevention and control, has been hitherto based largely on retrospective case histories. Some of the current distortion in our approach to the problem of protein-calorie malnutrition have stemmed from this (Gopalan 1975)."

There is a growing literature which corroborates these same relationships. For example, in Latin America, Puffer and Serrano (1973) studied the status of children. Their data show striking correlations between survival and the parents' higher socio-economic status. Tragically, these are the minority.

COLLECTING DATA IS HARD

Intimate descriptions about women and how they feed their children is time-consuming and difficult to collect. This is a major reason why this information is so meager. Investigators have had to depend on hearsay and retrospective reports by mothers who often second-guess what the person questioning them really wants to hear or offer responses which bring some immediate need to the researcher's attention. Our ethnographic data includes descriptions by informants of the manipulation of physicians for such purpose.

Even the number of American breastfeeders is still unknown. Since hospital records do not necessarily include such information, at best the available statistics represent the number of breastfed babies in the nursery at the time of the inquiry, or are guessed-at estimates by whomever receives the mailed questionnaire. In America today, women leave the hospital after only two or three days and sometimes before the milk comes in (48 hours or so after birth) making such reports even more difficult to obtain. Certainly, we don't know how many women breastfeed after leaving the hospital. But, such information would be easier to collect in this country than anywhere else.

According to the World Health Organization estimates, about *80% of the women in developing countries do not have access to Western style medical care,* no less hospitals. Those who do, usually leave the hospital or clinic within 24 hours after delivery. Thus, it is extremely difficult to verify statements about the reduction, presence or increase of breastfeeding in these areas. We can only report what single observers see, in very limited places, at specific moments in time.

MANY DIFFERENT LIFESTYLES

A majority of women still live in traditional settings and breastfeed usually for two years, but at the same time also use supplementary foods from very early on. They often have inadequate additional foods for their babies and they have no access to or cannot afford the exhorbitant cost of processed milk, foreign or local.

Then there are the poor urban and immigrant women who find themselves in a life situation so oppressive that breastfeeding becomes just another burden. They lack the support of the traditional family, and many lose their milk and their infants. Those who continue to breastfeed, add milk and other foods as their economic situation permits.

There are also the urban mothers who participate in the commercial sectors of their culture as professionals, entrepreneurs or market vendors. These women breastfeed less or not at all. However, since they are usually better off financially than are the rural women, their infants are less often ill, and more of them live.

It is this last group of women, who like American mothers during the first few decades of this century, are turning to commercial milk before all the accouterments (pure tap water, refrigeration) which today accompany bottle feeding, are present. At the very same time they admit breast milk is best, they concede that their current way of life makes breastfeeding difficult. It takes times, they explain. One must be available to breastfeed. And, those hours must be added to those spent making essential trips to get water, to work outside the home, to obtain food, clothing, fuel, lights even toilet facilities.

Just as the U.S. pediatricians, Holt, from the turn of the century to 1940, and Spock after that, pleaded with mothers to breastfeed (Raphael 1970), so Third World pediatricians are urging women to do so. But, women act in their own best interests. Within this new setting they balance the scales and do what seems to work best. Most of the babies get by but some are infected and die.

Since we have no evidence showing that middle class mothers in the developing world will act different from Western women, we can expect that, slowly but surely, they will also turn to bottle feeding. Well-intended pleadings to keep them breastfeeding is not the way to reach these women any more than it was in the past.

PRIORITIES AND COMMITMENT

The Center's responsibility is clear. We must help eliminate sentimentality and over-simplification of these extremely complex issues. We must keep clear the differences between scientific fact and political expediency. We must involve the women in those decisions which affect their babies and their lives. We must caution against dictating to them what they should do or how they should do it.

The Center's work contains unique, systematic, first-hand, in-depth, cross-cultural information on breastfeeding and other infant feeding practices, and we feel that it presents these women's views and life situations as realistically as possible. We feel compelled, therefore, to bring these views to the attention of policy makers who have the responsibility for action programs which involve food for women and their children.

Finally, while acknowledging the attempts of many countries for self-sufficiency in food production, we are also realistic and admit it will take time. In the interim people need food, and we at the Center feel it is our moral obligation to do whatever we can to see that they get it.

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#11

DAILY TELEGRAPH
12.4.78

Political use of charity

WHAT is a charity? Perhaps an association to help the poor, the old, the sick, the helpless; in short to alleviate hardship. Yet this definition must today be regarded as rather vague if not irrelevant. Charitable work is seen less as helping the needy and more as a means of effecting social change, if not, in some cases, the conquest of political power. Radical action is seen by some as the only way of changing the lot of the poor.

But campaigning for social and political change is something which the Charity Commissioners, who register charities, stipulate that they may not do.

Some of our leading charities find the problems of the West and the Third World inextricably linked. The rich countries, they claim, are rich at the expense of the poor ones. An Oxfam advertisement explains thus:

> Coffee is grown in poor countries like Brazil, Colombia and Uganda. But that does not stop rich countries like Britain exploiting their economic weakness by paying as little for their raw coffee as we can get away with. On top of this, we keep charging more and more for the manufactured goods they need from us. So? We get richer at their expense. Business is business.

Hence the quest for social justice also involves widespread political campaigning at home. Last year War on Want staff gave £150 to the Grunwick strikers. "Poverty in this country," explained its general secretary, Mrs Mary Dines, "arises from the same system that creates it overseas."

War on Want's advertising, its analysis of the relationship between the rich and poor countries, and its calls for a "fundamental change in the world's political, economic, and social structures" are thoroughly ideological. They offer no objective analysis — only slogans: the "disease of affluence," the villainous "multinational corporations," the "rich and powerful" who allegedly exploit the "poor and powerless."

This approach is not confined to War on Want. Other charities like Oxfam, Christian Aid and the British Council of Churches are almost as ideological. However, some bodies tread softly lest there should be trouble with the Charity Commissioners, who have complained in the past about the tendency of propaganda to replace education. To get around this, Oxfam and Christian Aid set up a limited company, Devopress Ltd, to publish a journal, the *New Internationalist*. This explains to the British public that many of the problems of the poor countries are due to their exploitation by the rich countries, that poverty in Britain arises from the same cause that creates it overseas — international capitalism.

Who else? Marxist and Marxist-Leninist dictators like Mao, Castro and Samora Machel are almost always given fulsome praise. Angola, Mozambique, and Guinea-Bissau and China are described as "exciting countries" where completely new social models are being created. The journal exudes breathless ecstasy about "new orders" and "new men": Chinese communes are "momentously promising forms of social organisation" untainted by individualism and materialism which produce greed, inequality, racism and sexism. Leading articles advocate violent revolutionary changes, arguing that "the destruction and oppression wrought by poverty is the greater terror."

Thus, without editorial responsibility, and without necessarily endorsing every word, Oxfam and Christian Aid own and back a politically extremist publication. Meanwhile the British Council of Churches and the Catholic Institute of International relations, campaigners against investment in South Africa and supporters for so-called "liberation movements," act politically to harden public opinion against the demon regimes.

Overseas the charities ensure that aid does not reach the "entrepreneur, merchant or rich farmer" but goes towards "land reform, the redistribution of resources and an end to exploitation from within as well as without." These activities involve War on Want working with, what it calls the "organised poor," who, it claims, "are taking control of their environment, often in conflict with local

GEORGE SZAMUELY
considers the dividing line between charity and pressure group to be in need of reinforcement

and national interests," and with "national peasants" movements in Honduras which campaign for the "redistribution of land" to "farm collectively." From its description these groups seem to me little more than bandits.

War on Want sets great store by rural co-operatives and a "new mentality" in the Third World whereby "the individual and family learn to put the economic and political interests of the local community and nation before their own." With this in mind, it makes grants to the rulers of Mozambique, Angola and Guinea-Bissau, thoroughly excited by the new and radical systems of "local democracy" being created as part of a "total Government policy at grassroots level."

War on Want also sends money to "Zimbabwe refugee camps" in Mozambique, urging black Zimbabweans to reject "economic exploitation" and take up the struggle for "majority rule" and finding the "liberation movements" deserving of aid. Last year it gave £5,000 to SWAPO.

An ally of War on Want is the Institute of Race Relations which, extraordinarily, also has charitable status. Its director, A. Sivanandan, declared at the annual War on Want convention: "The Third World has been subjected to the most obscene side of capitalism in the forms of colonialism and neo-colonialism. . . . If we want to help we must help the poor in their revolutionary struggles."

Founded in 1952 in order to study race relations around the world, the IRR had built up a considerable reputation for scholarship, publishing a quarterly journal, *Race*, until in 1974 it was taken over and converted into a forum for Marxist revolutionary ideas. The title of its journal changed to *Race and Class* with articles consisting mainly of rather tedious and hysterical Marxist vituperations without claim to scholarship. It describes the respectable origins of the IRR as "infamous." However, "insights into the interconnection between economy, power structure, ideology and consciousness can inform liberation struggles in the planning of their own forms of socialist society."

What has any of this to do with race? Well, the IRR is strongly against racial integration. "The black underclass," it declares, "must take a leading role in the revolutionary struggle, bringing to white workers political dimensions peculiar to its own historic battle against capital."

At home, charities like the Child Poverty Action Group and Shelter have escaped condemnation from the Charity Commissioners for their lobbying and quite blatant pressure-grouping as activities ancillary to their charitable purposes. They reject the old concept of charity, which they claim was patriarchal and patronising, but wish to retain their tax-exempt status.

Frank Field, director of the CPAG, gives us a glimpse into the future when he declares: "Poverty at home and abroad are not separated issues. The causes are the same and they have to be tackled together. Now groups concerned with both problems are beginning to work together." What can the search for social justice, for equality, for the eradication of the "root causes" of poverty mean except more "constituency education," or, what is the same thing, propaganda, more lobbying, more "direct action" involving helping strikers or immigrant groups, more spurious educational institutions at home and aiding guerrillas and bandits abroad?

It is plainly irrelevant to talk of political activities being permissible provided they were ancillary to the object of a charity, as Lord Goodman's report did in 1976: for a number of charities, politics is their daily life. The Charity Law Reform Committee has called for an extremely wide definition of a charity, encompassing every non-profit-distributing organisation, which would then enjoy tax and rate relief, thus abolishing the concept of charity. All political parties would thus enjoy tax exemption! By contrast, Prof. Friedman would eliminate all such tax exemptions. This would be a gradual process involving the reduction of all taxation.

'One need not, however, go so far. What is necessary is a clear definition of a non-political charity. Perhaps then we will no longer have the farce of wholly or partly political groups masquerading as charities and enjoying privileges they are not entitled to.

#12

SEPTEMBER 1977

Social Perspectives

CENTRAL BUREAU OF STATISTICS MINISTRY OF FINANCE AND PLANNING GOVERNMENT OF KENYA

THE RURAL KENYAN NUTRITION SURVEY
FEBRUARY – MARCH 1977

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In keeping with its policy to expand the pool of information on the 'quality of life' in Kenya, and in order to optimize resource allocation for the provision of social and health services, the Government has conducted a nation-wide nutrition survey of children in rural areas aged 1 to 4 years. This is the most vulnerable age group. The survey was conducted by the Central Bureau of Statistics in February and March 1977, and covered 1,400 children within the framework of the Bureau's National Intergrated Sample Survey Programme (NISSP). It was undertaken as a special 'module' of the second round of the Intergrated Rural Survey (IRS II).

Basic data was collected on growth indicators which can be used in conjunction with 'norms' to assess physical development in terms of per cent of standard weight-for-age (W-A), height-for-age (H-A), and weight-for height (W-H). These are discussed more fully below. In addition to height, weight, sex and date-of-birth, information was also obtained on mid-upper arm circumference, birth order, period of breast-feeding, and the number of meals taken the day prior to enumeration and normally. Data was also collected on the frequency of consumption of basic food groups, but not on the actual quantity of intake.

A primary advantage of using the NISSP framework, apart from facilitating field work, is that a substantial body of data already exists on the same households that responded to the nutrition survey. For example, information on the ecological zone, ethnic group, cropping patterns and the household size is available. It is hoped that by combining this information, interesting inroads can be made into understanding some of the factors which are associated with childhood undernutrition.The results of a substantive analysis of the nutrition survey and of this associated data is scheduled to be published in the form of a technical monograph.

A follow-up nutrition survey may be undertaken in the future, in conjunction with a food purchasing survey. If possible, these surveys will be conducted in a different season of the year, and will include urban areas and children under one year of age.

2 Introduction

The most prevalent and important form of malnutrition in young Kenyan children is usually known as Protein Energy Malnutrition (PEM). This is the basic type of malnutrition due to a lack of food. In its obvious and dramatic form, PEM results in the widely known signs of 'kwashiorkor' and 'marasmus'. Classically, the term 'kwashiorkor' is used to describe the disease with the symptoms of severe oedema or swelling of the body, red hair, and flaking skin, and was attributed to a lack of protein in the diet. A child suffering from 'marasmus', on the other hand, is extremely thin and shrivelled, with little muscle mass, and bones showing through the skin. This condition was primarily attributed to a lack of energy foods in the diet.

The term PEM is now used to describe marasmus, kwashiorkor, and combinations of the two. The pairing of kwashiorkor with protein deficiency, and marasmus with calorie deficiency, is becoming less distinct. Most forms of PEM are now considered to result from shortages of both protein and energy in the diet. Instances of children receiving sufficient energy but insufficient protein occur only in a few areas of Kenya, where children are fed diets consisting almost entirely of cassava or bananas. In the other far more numerous maize and millet-eating areas, children receiving enough food to satisfy their energy requirements would normally have an adequate or nearly adequate protein intake.

Mortality may result from severe PEM directly, or in combination with other stresses which are not usually fatal by themselves, such as measles or diarrhoea. Milder forms of PEM, which are far more prevalent, also have serious consequences for the individual, and are very important from the standpoint of national development and welfare, owing to the large numbers of children involved. There is a growing body of evidence which suggests that PEM retards mental as well as physical development, and has permanent effects on mental capacity and scholastic performance. The early years of childhood are vitally important for physical and mental development. It now appears that although body proportions i.e. weight-for-height, can return to normal after an episode of PEM, (if proper food is given in a healthy environment) in subsequent years after childhood, mental development may not be able to. Height may also be permanently impaired.

In addition to adverse effects on mental capacity, moderate PEM reduces resistance to disease and infection, which in turn lower nutritional status. This vicious cycle can rapidly lead to severe PEM which may terminate in death.

The failure to grow normally is the first indication of PEM in children. Much can be learned about the incidence of severe and moderate childhood PEM in the country from easily collected information on growth.

This issue of Social Perspectives is a non-technical report on the first nation-wide rural nutrition survey conducted in Kenya. As it is based on uniform techniques and procedures, it provides a coherent baseline assessment of the nutritional status of young children in rural Kenya.

3 Methodology

The sample of respondents for the survey was restricted to rural children over 1 and under 4 years of age. Details concerning the sample structure are given in the next section. Information on height, weight, and age allows computation of the three nutritional-status indices referred to above. These indices, H-A, and W-H, and W-A, are expressed as 'percents of standard'. These standards are set by a large number of healthy, well-fed children. A child who has a W-A of 80 per cent of standard, for example, weighs 80 per cent of the average weight of healthy children of the same age.

PEM manifests itself in two forms anthropometrically. The first form, called 'stunting', develops slowly due to a chronic food deprivation over a period of time which inhibits bone growth and results in a child abnormally short, i.e. with low-H-A, but with normal body proportions. By contrast, the second form occurs when W-H is low and the child is 'wasted'. Such children appear very thin, but have a normal height. Wasting can set in rapidly if the child is exposed to disease, contaminated food or water leading to diarrhoea, or is acutely deprived of food. W-H is often used as a measure of malnutrition in situations where age is unknown or uncertain. Some children may, of course, be both stunted and wasted. They will be both short for their age, and underweight for their height. W-A will be low whether the child is stunted, wasted, or suffering from some mixture of the two. It is the best single anthropometric indicator of PEM, when age is known, and is the most widely used. However, this measure does not differentiate between stunting and wasting. This distinction is desirable to establish since it has been suggested that the two types of PEM have different causes, consequences, and time-frames, and many require different solutions. The following chart summarizes these concepts which were developed by Waterlow:

	H-A	W-H	W-A
Stunted	Low	Normal	Low
Wasted	Normal	Low	Low
Both	Low	Low	Very Low

In recent years, there has been a renewed interest in using the mid-upper arm circumference (MAC) as an indicator of nutritional status. The mid-upper arm circumference is measured half-way between the shoulder and the elbow using a metal tape measure. Arm circumference is very easy to interpret. In well-nourished children, the mid-upper arm circumference increases very slowly with age, and is nearly constant for children in the age range 12-36 months. In children suffering from PEM, particularly the wasting variety, the MAC decreases rapidly and the extent of reduction in MAC varies more or less in direct proportion to the degree of malnutrition. MAC is a fairly reliable, simple, age-independent indicator of malnutrition. MAC is also useful for the preliminary nutritional screening of children for primary health-care programmes. Children initially identified as being malnourished on the basis of a low MAC can later be more thoroughly investigated at a nutrition centre before deciding whether they would benefit from a nutrition intervention programme. MAC was measured in this survey in order to calibrate this index against W-A, to establish its usefulness, and to provide additional age-independent information.

The field equipment required for these three measurements consisted of:

1. circular double-spring balance scales measuring from 0-25 Kgs;
2. pairs of plastic trousers with a harness for supporting children during weighing;
3. flexible plastic-coated steel tapes to measure MAC;
4. 'stadiometres' or length boards. These consisted of rigid boards about 120 cms. long, folded in the centre for convenient transport on a motorcycle luggage rack. On one end, a collapsible head rest was attached which could be fixed rigidly at right angles to the base of the board when in use. A centimetre tape measure was fixed to one side of the board, and a detachable foot rest was provided that could be moved up and down and read off against the tape measure. The child was placed supine on the board and the foot rest was placed firmly against the child's feet until they were perpendicular to the base board. Measurements of standing height made without such a board have proven to be unreliable.

Information was coded directly on to the questionnaire. In addition to anthropometric measurements of the child, the mother provided information relating to the date-of-birth of the child, whether documentary evidence was available to establish this date, the birth order of the child, the length of time until the child was completely taken off the breast, the number of meals fed usually and on the day prior to enumeration, and to the frequency of consumption of basic food groups. These consisted of cereals, starchy roots and bananas, meat, poultry, fish, milk, beans, and vegetables. Documentary evidence on date-of-birth was obtained by inspecting, where available, a birth registration form, baptismal card, clinic card, or written family record. Age was calculated to decimal months by computer. Deceased older siblings were taken into account in ranking the birth order of the sampled child. Weight was measured to the nearest quarter kilogram, and height and MAC to the nearest 0.1 cm.

Each of the Bureau's field supervisors who were deployed to dispense the questionnaire, attended a three day training course. On at least one of these days the supervisors visited a number of respondents and made the anthropometric measurements in the presence of an instructor. Experiments were designed to test the variation in measurement made by different supervisors on the same 'subject'. The supervisors practiced making measurements until this 'between observer error' was reduced to a level comparable with the accuracy of the equipment used. In addition, the supervisors were visited by the instructors in their own areas during the survey, and some of the children already measured were re-measured by the instructors for a reliability check.

4 Data Limitations and Caveats

Limitations of the data collected in the survey fall into three categories: sample size; sample bias; and data errors.

As mentioned in the Foreword, the nutrition survey covered the same sample of households as in IRS II. The sampled households for IRS II were selected through a two-stage sampling procedure. First, a national probability sample of cluster areas was chosen by a stratification scheme which took into account population densities, ecological zones, and geographic representation. In the second stage, a 10 per cent random sample of the households was

selected from the total listings of households for each cluster yielding about 20 households per cluster. As a result, 29 districts were covered in the sample spread over every province except North Eastern Province. The districts of Central, Western and Nyanza provinces were fully covered in the sample. In the Coast, Eastern and Rift Valley provinces the sample did not extend into some of the districts: i.e. Lamu in Coast Province; Isiolo and Marsabit in Eastern Province; and Turkana, Samburu, Laikipia, and Kajiado in Rift Valley Province.

The target population for the nutrition survey, estimated from the IRS II Household Listing, numbered 1,616 children in the age range of one to four years. After editing, the sample size was reduced to 1,383 children from 1,003 households, or 85.5 per cent of the target number of children. Given the limited variation in the data, estimates of the mean growth measures relatives to standards are well established at the provincial level. The exception is the Coast Province where the sample of responding children was considered inadequate. The sample frame in this area has recently been expanded for the current and subsequent rounds of surveys.

There are several possible sources of bias in the sample which must be taken into account in interpreting the data. The first source of bias relates to the season, i.e. February and March, in which the survey was conducted. These are two months of relatively plentiful food supply. A pre-harvest survey, therefore, might reveal a rather different picture. Uneven coverage is the second possible source of bias. Errors in age which do occur misrepresent the target population due to incorrect inclusions and exclusions. The effect of age errors on age-dependent variables is discussed below.

Coverage is also influenced by non co-operation, absences, or children being unmeasureable because of sickness or handicaps. About 10.5 per cent of the target population were absent from the household and unavailable for the survey. However, only 15 children were too sick or disabled to be measured, and a further 17 cases of non co-operation were reported. It is possible, but unlikely, that those who were absent belong to a nutritionally peculiar sub-group that would have altered the estimates if they had been included. Exclusions due to instances of sickness, disability, or non co-operation, were too few to significantly alter the group findings, regardless of the nutritional status of these children.

The third class of limitations, other than sample size and bias, involves specific data errors. These are classified into three groups: correctable, uncorrectable, and undetectable. A common example of the first group occurred when the reported period of breast-feeding was longer than the calculated age.

An age or measurement error which implied impossible body proportions, or a very suspect physical development pattern, was representative of the second variety of errors which were detected but uncorrectable. These cases were spotted by computer, and then carefully examined manually with reference to other relevant information. One and a half per cent of the sample were excluded because of uncorrectable measurement errors, in addition to the three per cent who were deleted for reasons previously given, i.e. non co-operation, incomplete measurements or unknown age.

The undetectable errors were the most troublesome and erroneous ages are perhaps the most frequent and serious of these. Computation of per cent of standard W-A and H-A require precise knowledge of the date-of-birth. An error of plus or minus 2 months in the age of a child who is about 18 months old would yield a W-A error of plus or minus 5 per cent. Larger errors are possible when the date-of-birth is established by recall, and might lead to suspect values of H-A and W-A which would cause the observation to be deleted. Per cent of standard W-H and MAC, are the only age-independent nutritional status indices in this survey.

Happily, incorrect reporting of age was not a major problem. One-third of the children had documentation which helped to establish their dates-of-birth. In some cases, however, records were not made immediately after birth, and many contain errors. There are two approaches to detecting an age bias among the undocumentated group which constitute the remaining two-thirds of the respondents. Both lines of analysis led to the conclusion that there were no systematic errors in reporting the ages of these children. It became clear that separate results did not have to be reported for the documented and undocumented groups, which would have complicated the presentation and interpretion of the results.

The first approach to detecting age errors involves comparisions of age distributions. The existence of a large, systematic, age bias among those without date-of-birth documentation, would imply a different percentage distribution of these children by three-month age intervals than the age distribution of those having birth documentation. No appreciable difference was found. The second approach relies on age-independent nutritional-status indicators, namely the W-H and MAC indices. Comparisons of the two groups using these measures, and the W-A and H-A indices, established the anthropometric equivalance of the two groups of children. Therefore, it would seem that ages were not significantly biased among those without documentation. If ages had been biased, the age-dependent indices would have been at variance with the other measures used in making these comparisons.

The means of W-H, W-A, and H-A, for respondents with documentary evidence on age were all within 1.5 percentage points of their counterparts in the undocumented group, for Kenya as a whole. The MAC's for respondents in the two groups were within 0.1 centimetres of each other. An equally good matching was found within provinces having nearly the same number of children in the two groups, i.e. Central, Eastern, and Western. Differences in the

other provinces seemed to be caused by too few children in the category with documentary evidence on age.

Finally, a large independent survey conducted in a semi-malaria free region of Nyanza Province, by D. Alnwick one year earlier, yielded figures strikingly similar to the Bureau's. Table 1 refers. Ages were well-established in the independent survey, while the Bureau's survey had a low proportion of documented birthdays—23 per-cent in this province. The close agreement using age-dependent measures indicates that mothers without documentation nevertheless reported their children's ages without systematic error.

Failures of memory could affect the responses for birth order and months of breast-feeding, as well as age. The distribution of reported length of nursing showed the expected lumping at favourite intervals such as 12, 18, and 24 months, but it was not severe. It is doubtful whether the actual distribution had this bunching. The survey requested the time period until the child was completely weaned. No information was collected on the frequency of breast-feeding, the quantity of breast milk, or the introduction of weaning foods. The interpretation of the data on breast-feeding is correspondingly more problematic, but nevertheless of value.

In interpreting data on frequency of consumption of food groups, it should be borne in mind that such information gives only the slightest indication of the quality of a diet. Quantities and concentrations of food consumed are laborious to determine, and are unknown in this survey. Even knowing the quantity of some food taken, for example maize porridge, serves little purpose without knowing how dilute it was. Some mothers, it is suspected, may have reported more frequent consumption of expensive or luxury foods, than was in fact the case. The consumption figures obtained from the survey are, therefore, probably the least reliable.

In conclusion, there are grounds for according a high degree of confidence to the data in general, with the exception of data from the Coast Province, where the sample size was quite restricted. The largest potential problem, that of uncertain ages for respondents without documentary evidence of age, was well-resolved by analyses using age distributions and age-independent measures for comparisons with one-third of the respondents who had documentary evidence of age. The close matching of the Bureau's results with those obtained from the other large survey in Nyanza Province is encouraging. An overall deletion rate of 4.5 per cent of the sample, or 4.0 per cent of the target population, for the combined reasons of non co-operation, lack of measurement because of sickness or handicaps, incomplete measurements, unknown age, and gross measurement errors, seems modest. An omission rate of 10.5 per cent of the target population due to absences is also considered acceptable. Overall, 85.5 per cent of the target population was included in the analysis.

5 Standards and their Interpretion

The growth standards used in this survey are the common Harvard or Boston standards first reported by Stuart and Stevenson[1], but interpolated for monthly ages, sexes combined, by Jelliffe[2]. These are the widely accepted reference values for disease-free, well-fed, 'northern' European children. These Standards may be interpreted as a reference index, without value judgements, or as norms which children ought to approximate. Commonly, they are applied for both purposes. If used as norms, it is important to ascertain whether departures from the Standards reflect nutritional deficiencies, or variations in genetic make-up which do not reflect poor growth. Genetic variations responsible for differences in growth probably do not manifest their effects in the first years of life, and the Standards seem to apply fairly well to young children of all races. Moreover, average body size variations between races may reflect actual differences in nutritional histoy, as well as differences in growth potential. The increased height of second and third generation Japanese immigrants to the United States is a well-known example of this observation. The genetic growth potential of the Japanese migrants had not changed, but diets and the health environment had.

Using an unfortunately small sample, Bohdal[3] has shown that healthy 'Elite African' children aged 4 and 5, attending pre-school in Nairobi, very closely approximated the Harvard Standards, which lends support to their applicability in Kenya. There have been attempts to establish 'African' Standards, but it is difficult as yet to locate a large sample of children raised in optimal growth conditions to establish representative African Standards. The Harvard Standards were derived longitudinally from a large sample of well-fed disease-free children. They also facilitate international comparisions, as they are the most widely used.

Absolute measures are difficult to interpret. For this reason, most of the results of the Bureau's nutrition survey are reported as per cents of these reference Standards.

Gomez has devised a classification scheme to assist in intrepreting the W-A index. Children above 90 per cent of the standard are not classified as being undernourished. In his scheme, first degree PEM corresponds to a W-A index of between 75 per cent and 90 per cent, and a child suffering from second degree PEM would have W-A index between 60 per cent and 75 per cent. Third degree PEM

1. Stuart and Stevenson in W.E. Nelson, Text book of Pediatrics, 7th ed., 1959
2. D.B. Jelliffe, The Assessment of the Nutritional Status of the Community, WHO Monograph Series No. 53, Geneva: 1966.
3. M. Bodhal, & W.K. Simmons, "A Comparision of the Nutritional Indices in Healthy African, Asian, and European Children", Bull. of WHO, 40, 1969, 166-174.

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corresponds to a W-A index of less than 60 per cent. It is generally agreed that children in this third category, suffering from severe PEM, require hospitalization. Even with hospitalization and competent medical attention, the mortality rate for these children in Kenya has been about 22 per cent in the period 1966-68.

Most clinics use a W-A index value of 80 per cent as the dividing mark between acceptable and unacceptable growth, defined by weight and age. This paper refers to children below this level as having 'moderate' PEM, although many of those whose index is at the upper end of the range, say between 70 or 75 per cent and 80 per cent of standard, might be termed 'mild' cases. A child having a W-H index of less than 90 per cent of standard, that is weighing less than 90 per cent of the average weight of healthy children of the same height, is considered somewhat wasted; whereas a W-H index below 80 per cent indicates either moderate or severe wastage. Usually, 90 per cent is the cut-off point between slow and normal growth as defined by the H-A index. Children having a value of H-A in the vicinity of 85 per cent are sometimes referred to as 'nutritionally small'. Nearly all children having a H-A index below 80 per cent are stunted to some degree. These division points are not entirely well-defined. Slightly low values of these indices often represent biological adapation to a harsh environment and a scarcity of food which may not immediately threaten health, although in some cases there will be deleterious effects on mental development.

Children's W-A indices are almost always lower than their values of either H-A or W-H since weight-for-age is driven down by both stunting and wasting. There is another reason for the cut-off reference values for the H-A and W-H indices being higher than for the W-A index. The distribution of the first two indices in a population free of PEM, is not so wide as the distribution of the W-A index. One would expect to find fewer well-nourished children below a given value of the H-A or W-H index than below the same value of the W-A index. Therefore a cut-off value for the W-A index must be lower to be comparable.

MAC is, in this analysis, reported as an absolute number. Most children in the target-population age range with a MAC less than 12 cms., are probably suffering from malnutrition. One objective of this study, however, is to more fully identify MAC cut-off points which match up with W-A index classifications.

6 Previous Surveys in Kenya

Table 1 summarizes the results from nearly all the anthropometric nutrition surveys involving over 50 rural Kenyan children, which have been published to date*. Some of the results from the Bureau's survey are also included for comparison, under the reference 'CBS' signifying the Central Bureau of Statistics. Projects which evaluated nutrition intervention programmes, or were focused on hospital patients, are not referenced in Table 1 since they are not based on random samples. Eastern Province is the most frequently studied area, and not all of the smaller surveys undertaken in this region are included.

Previous investigations have been very limited with respect to geographic coverage or sample size, and often both. Bodhal's work is the only prior attempt at a wide geographic representation, but it was limited to five districts and the children from 175 households. Also, the researchers employed different techniques and equipment; the surveys were conducted during different seasons of the year, ar frequently in different years altogether; and the samples usually represented only one district in a province, or less. Moreover, there have been no previous surveys of over 50 respondents in Western or Rift Valley provinces, and only one former survey of this minimal size in the Coast Province, covering a particular group of nomads. Provincal comparisions using earlier studies are, therefore, hazardous.

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* Unpublished results from studies by Alnwick are also included.

7 Highlights of the Data

Analysis by Region

This survey indicates that the incidence of severe PEM is rather low in rural Kenya. The highest rate of occurrence was found in Eastern Province, where 2.5 per cent of the children surveyed were below 60 per cent of the standard W-A index. Virtually no children had a relative W-A index this is low in Central or Rift Valley provinces, as can be seen in Figure 2.1.

Mild and moderate PEM, however, are fairly widespread. One-third of all the children surveyed had a W-A index below 80 per cent of standard. This proportion ranged from about 40 per cent in Central and Eastern provinces to 25 per cent in Nyanza Province. For the sake of comparison, this proportion, according to the Harvard Standard, would be 2 per cent in a community without any PEM, due simply to natural variation in body size*.

About one-third of rural Kenyan children had a H-A index below 90 per cent, and the same proportion had a W-H measure below this value. The H-A and W-H measures also indicated that Central and Eastern Provinces had the highest incidence of moderate PEM. It is to be expected that Eastern Province, facing difficult agricultural conditions, would rank behind the others nutritionally. It is surprising, however, that a similar profile is encountered in Central Province with respect to moderate PEM. Nyanza Province had a consistently low incidence of malnutrition as indicated by the

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* The cumulative distribution of W-A for the Harvard Standard is plotted in Figure 2.5 for comparisions with Central and Nyanza provinces.

various measures. The forthcoming Technical Monograph will present an analysis by ecological regions. Table 1, and Figures 2.1-2.6, provide provincial comparisions.

Analysis by Age Grouping

Children in the age-range 18-24 months are the most likely to be malnourished. This is the expected age of greatest vulnerability. This period of a child's life corresponds to several months after complete weaning, which occurs at an average age of 14.4 months. The mean values of the three indices showed little consistent variation by three-month age groups, except that the H-A index steadily decreased during the second year of life. The proportion of children with low measurements however, was particularly high in the age-range mentioned.

Wastage seemed to disappear after the first two and half years. Very few of these older children had low values of the W-H index. The proportion of children with a low H-A index, however, increased sharply among children over 18 months old, and remained fairly high at least through to the end of the fourth year. These patterns lend support to the view that stunting occurs later in life, and has a longer time-frame, than wasting. Figures 4.3 and 4.4 illustrate these findings.

It should be reiterated when considering this analysis by age groups, and the growth curves presented in Figures 3.1 and 3.2, that the data for this analysis has been compiled on a cross-sectional basis. The ideal method of discovering changes in nutritional status as a function of age is to observe the same children through time. Cross-sectional data, by contrast, is collected at one point in time on children of different ages.

Analysis by Sex Grouping

Most provinces, with the exception of Rift Valley, showed striking differences in wasting between sexes, favouring males. This contrast was most pronounced in Central Province where 39 per cent of the females versus 28 per cent of the males had a W-H index less than 90 per cent of the standard. Western Province also had marked differences by sex. The proportion of nutritionally small or stunted children, defined by those with an H-A index below 90 per cent of the standard, was the same for both sexes in all provinces except Central Province, where again, fewer males had low values of the H-A index. Only one -quarter of the male children in Central Province fell into this category, whereas slightly over one-third of the females were small or stunted as per this definition. Applying sex-specific growth standards does not alter this finding. In conclusion, it was observed that wasting was more frequently found among females than males in most areas, whereas in Central Province the incidence of stunting was more pronounced among females. There were no substantial differences by sex in the length of breast-feeding at either the provincial or national level which could account for this observation. Figures 5.1 and 5.2 present statistics on differences in nutritional status by sex.

Analysis of Breast-Feeding

About 7 per cent of the children had been completely weaned before the age of 6 months. More than one-third had stopped nursing by the first birthday, and three-quarters were weaned before they were one and a half years old. The mean age at complete weaning was 14.4 months. The duration of breast-feeding was especially long in Eastern Province, where nearly one-third of the children were still nursing after the age of 21 months. This pattern may reflect a relative scarcity of food in the area. Figure 6.1 and Table 3 refer.

The structure of this survey imposes constraints on inferring the relationship between nutritional status and the duration of breast-feeding. All of the children were measured at approximately the same point in time, rather than at the time they were individually weaned. Therefore, only retrospective associations can be established between the observed level of growth, and the prior period of breast-feeding, which may have terminated some time ago. Intervening factors could cloud this association.

Ideally, one should speak of the 'weaning period' which lasts from the introduction of other foods until the child is entirely removed from the breast. This survey only reports on the length of time the child was receiving breast-milk in any quantity. In this discussion, 'weaning' refers to the complete cessation of breast-feeding.

Bearing these constraints in mind, children weaned between 6 and 12 months of age had the most satisfactory growth at the time of the survey. Wasting was observed in children who were weaned early, before 6 months of age, and stunting in children who were still nursing after 18 months. Long periods of breast-feeding, beyond a year and a half, were clearly correlated with an increasing rate of malnutrition. Breast-feeding itself is not at fault, and makes a positive contribution to the diet, but breast-milk alone is not adequate to meet protein and energy requirements after the first six months. This survey suggests that mothers often rely excessively on breast-milk for many months when substantial quantities of foods need to supplement the diet. The proportion of children with a W-A index below 80 per cent of standard rose steadily from around 30 per cent for those weaned in the first year, to 45 per cent for those weaned after their second birthday.

It is instructive to relate the H-A and W-H indices to the period of nursing, so as to decompose the W-A index into its two components, stunting and wasting. As Figure 6.2 illustrates, there was a higher incidence of both stunting and wasting among those weaned before six months, than among those weaned between 6 and 12 months. The extent of wasting was constant among the other groups. However, the incidence of stunting increased among those weaned after 18 months. Stunting rather than wasting,

seems to be responsible for the increasing proportion of children with a low W-A index in groups which are breast-fed for long periods. These children are probably deprived of adequate supplementary foods for many months. The consequent chronic protein-energy deficiency gradually causes stunting as identified by the H-A index. Body proportions, as measured by the relative W-H index, actually improve for many children, although overall growth is impaired. A corroborating conclusion on the correlation between a low H-A index and the length of breast-feeding was noted among 192 children who were still nursing at the time of the survey. The problem of a time-lag between measurement and the termination of breast-feeding obviously does not exist for this group. These children were divided into three groups of almost equal size, according to age, and compared with children in the same age-range, who were not breast-feeding. Table 4 shows the division of the sample using this scheme. The per cent of children in each category below values of the three indices is graphed in Figures 6.3-6.5.

It is apparent that as the children who are still breast feeding become older, there is a dramatic increase in the proportion of children with a low H-A index. In the age-range 12-15 months, only 15 per cent of these children had a H-A index below 90 per cent. Forty-eight per cent of the children who were still breast-feeding after 20 months had a H-A index this low. This trend was much less pronounced among children who had been weaned before 12 months of age. ,

Many nutritionists have been concerned with the problem of early weaning. It is true that low W-H values are more prevalent among rural Kenyan children weaned before the age of 6 months. However, low values of the H-A index, which signify chronic undernutrition, are strongly associated with prolonged breast-feeding, probably because insufficient supplementary foods are given to children who are still nursing. Stunting, which is the end product of chronic undernutrition, may have more permanent impairing physical and mental consequences than wasting, which is associated with early weaning. In addition, the survey indicates that almost three times as many children were breast-fed longer than 18 months than were breast-fed less than 6 months —20 per cent versus 7 per cent. For these reasons, in rural Kenya, the inferred lack of supplementary foods for children nursing for prolonged periods seems to be a more severe nutritional problem than early weaning.

Analysis of Milk Consumption

The frequent consumption of milk after weaning had a more consistently favourable association with nutritional status than any other food group examined in the survey. Of the 1,007 children, or 70 per cent of the sample, who had been completely weaned for at least 3 months, two-thirds were receiving milk at least once a day. This proportion ranged from 4 out of 5 children in Central Province, to 1 out of 2 in Western Province, as shown in Figure 7.1.

In every province, the mean W-A index of children receiving milk at least once a day was somewhat higher than for those consuming milk less frequently. In addition, a smaller proportion of the regular milk drinkers had a low W-A index than found in the group that took milk less frequently. The contrast was most pronounced in the Rift Valley Province where fewer than one-third of those who frequently took milk were below 80 per cent of the standard W-A index whereas nearly one-half of the other children were below this level. The data do not conclusively prove that milk itself is the explanation for this finding. It may be the case that frequent milk drinkers are fed superior diets in other respects too, or are better cared-for generally. However, compared with milk, none of the other food groups in the survey were as clearly associated with satisfactory growth.

A comparision of MAC and W-A*

MAC is more a measure for screening out children with satisfactory values of the W-A index, than for identifying those with low values. About two-thirds of the children in the survey had a MAC above 14cms., almost none of whom had a low W-A index. One child out of two with a MAC below 14cms., had a W-A index below 80 per cent. There is no single MAC value which will identify most of the children with a W-A below 60 per cent, without including a vast majority who have a much higher W-A index. There is a discussion of MAC as a screening device for nutrition clinics prior to Figure 10.1 and Table 5, which present detailed comparisions of MAC and the W-A index.

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*It is expected that MAC will more closely match the W-H index than the W-A index, but since the latter is more widely used, it was chosenas the basis for comparison.

SOCIAL PERSPECTIVE

The Nutrition Module

APPENDIX

TABLE 1

SUMMARY OF ANTROPOMETRIC NUTRITION SURVEYS OF MORE THAN FIFTY RURAL KENYAN CHILDREN

KENYA OR PROVINCE	AREA	YEAR	REFERENCE	NUMBER OF CHILDREN	AGE (MONTHS)	MEAN W-A	MEAN H-A	MEAN W-H	% OF CHILDREN BELOW % OF STANDARD W-A LESS THAN 80%	H-A LESS THAN 90%	W-H LESS THAN 90%
Kenya	Most rural regions	1977	CBS	1383 (33%)[1]	12-48	86	93	96	33	29	29
	Nyeri, Muranga, Kisumu, Machakos	1965	Bondal, Gibbs, & Simmons	175[3]	0-60			93[4]			35[4]
Central	All districts	1977	CBS	225 (49%)[2]	12-48	84	93	94	39	31	33
	Nyeri	1969	Korte & Simmons	130	6-74	85	94	96			
	Kirinyaga	1966	Korte	308-371	1-96[5]	82	92	95			
Coast	All districts except Lamu	1977	CBS	93 (13%)[2]	12-48	89	96	95	24	19	30
	Hola Orma Nomads	1976	Alnwick II	62	0-60			86			80
Eastern	Most districts	1977	CBS	318 (34%)[2]	12-48	83	92	95	41	38	32
	Machakos, Matungulu, and Mbruni	1978	Steenbergen	106	1-35	86	93		35	25	16
	Meru	1974	Blankhart	79	0-35				46		
	Meru	1974	Blankhart	89	0-35				19		
	Machakos, Iveti Kombo	1972	Blankhart	146	0-35				39		
	Machakos, Iveti	1971	Chege	184	0-36				29		
	Machakos, Masii	1970	Blankhart	340	0-35				34		
	Machakos, Mitabooni	1970	Blankhart	226	0-35				37		
Nyanza	All districts	1977	CBS	267 (23%)[2]	12-48	89	94	98	24	25	21
	Kisumu (semi-malaria free)	1976	Alnwick I	725	0-42	90	96	98	22		22
	Kisumu (Kano plains)	1976	Alnwick I	821	0-42	85	93	96	33		32
	Kisumu (Kawo plains)	1972	Allen	320	0-72				15		18
Rift Valley	Most districts	1977	CBS	251 (18%)	12-48	86	93	96	34	29	27
Western	All districts	1977	CBS	229 (54%)	12-48	87	94	95	27	21	29

Notes: 1) All rural areas, except North Eastern Province and the remote northern districts of Eastern and Rift Valley Provinces.
2) Percent of children in CBS survey having date of birth documentation.
3) The children under 5 years were measured in 175 families. The number of children is not reported.
4) These figures were derived, unweighted, from distributions.
5) Although reported only for the broad range of ages, the text states there were no substantial differences between age groups. The age ranges 1-3 and 8-12 years were the best represented.

TABLE 2
SAMPLE STRUCTURE

	NUMBER OF CHILDREN	PERCENT WITH DATE-OF-BIRTH DOCUMENTATION	PERCENT BY SEX		PERCENT BY AGE (YRS.)		
			MALE	FEMALE	1-2	2-3	3-4
KENYA	1383	33	51.1	48.9	37.2	33.1	29.7
CENTRAL	225	49	48.7	51.3	33.8	31.6	34.6
COAST	93	13	52.7	47.3	48.4	23.7	27.9
EASTERN	318	34	50.9	49.1	35.2	33.7	31.1
NYANZA	267	23	55.0	45.0	43.8	31.8	24.4
RIFT VALLEY	251	18	52.8	47.2	32.3	37.8	29.9
WESTERN	229	54	46.7	53.3	36.7	34.0	29.3

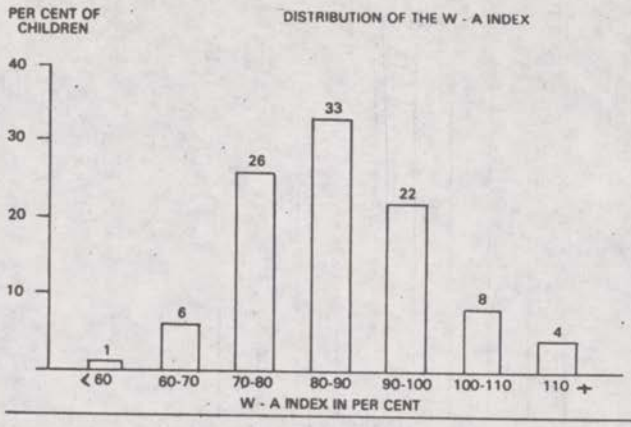
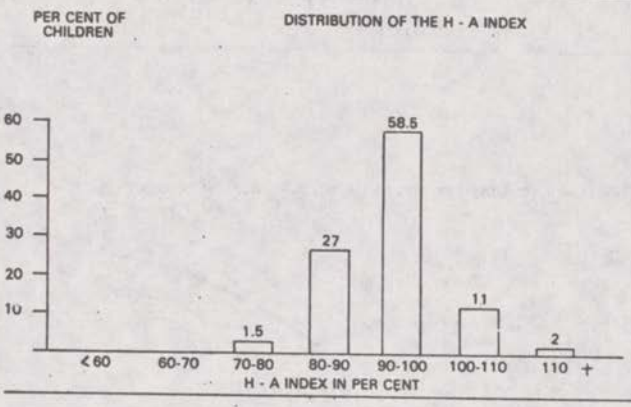


Figure 1.1



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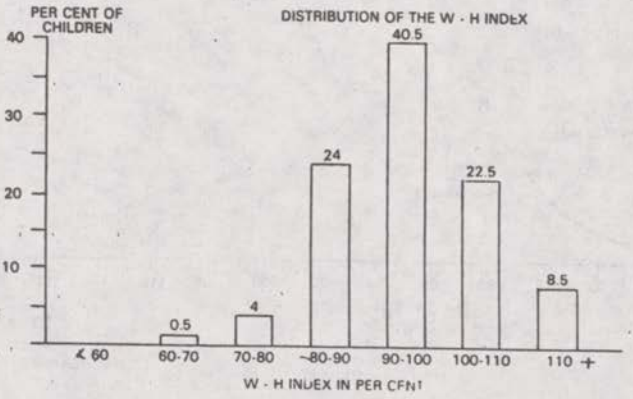


Figure 1.3

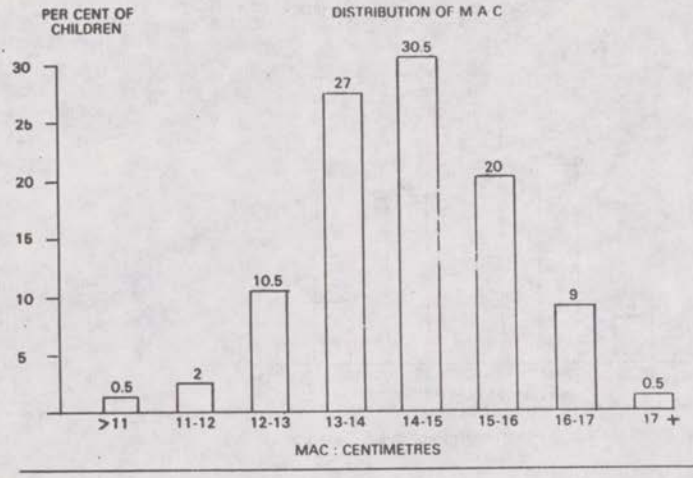


Figure 1

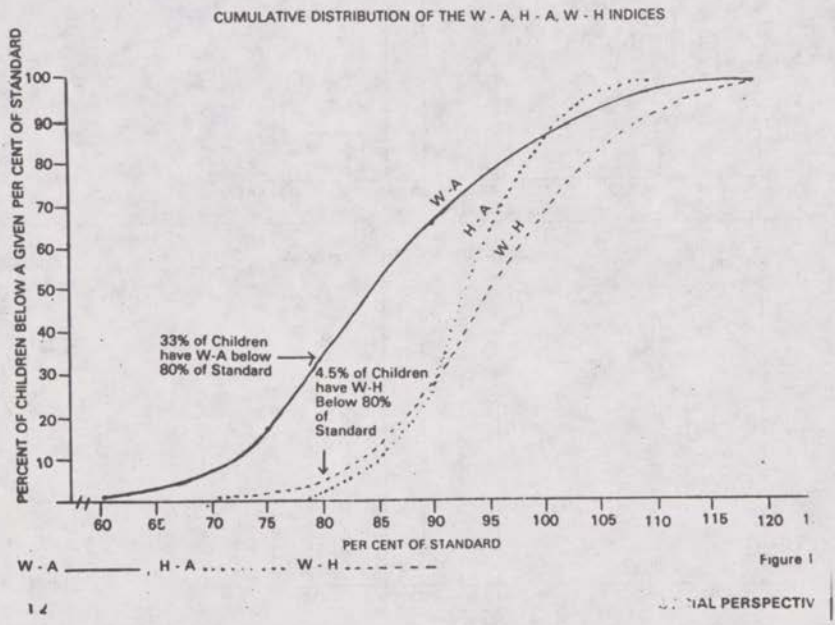


Figure 1

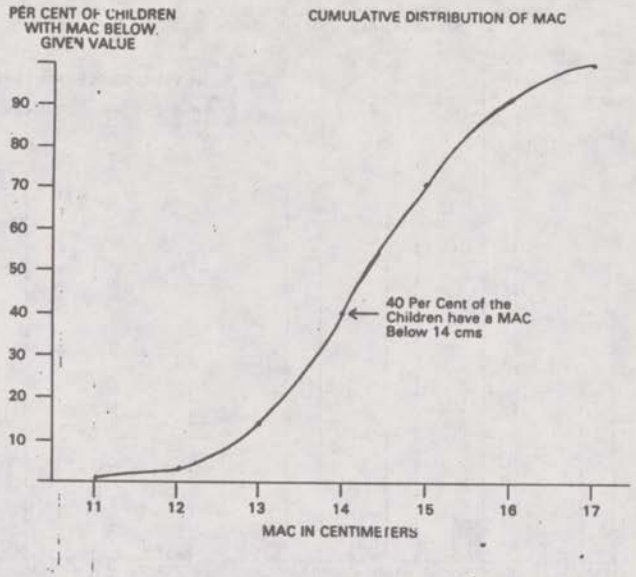


Figure 1.5

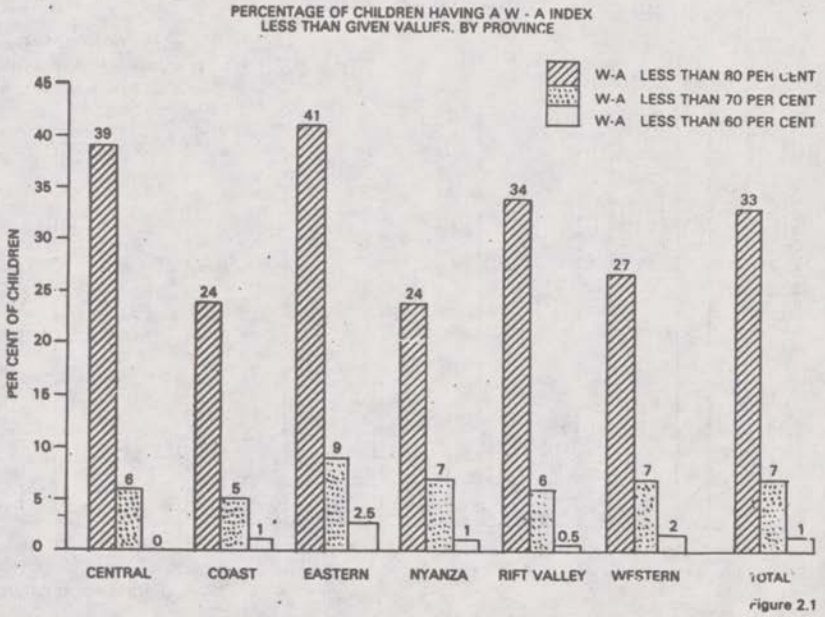


Figure 2.1

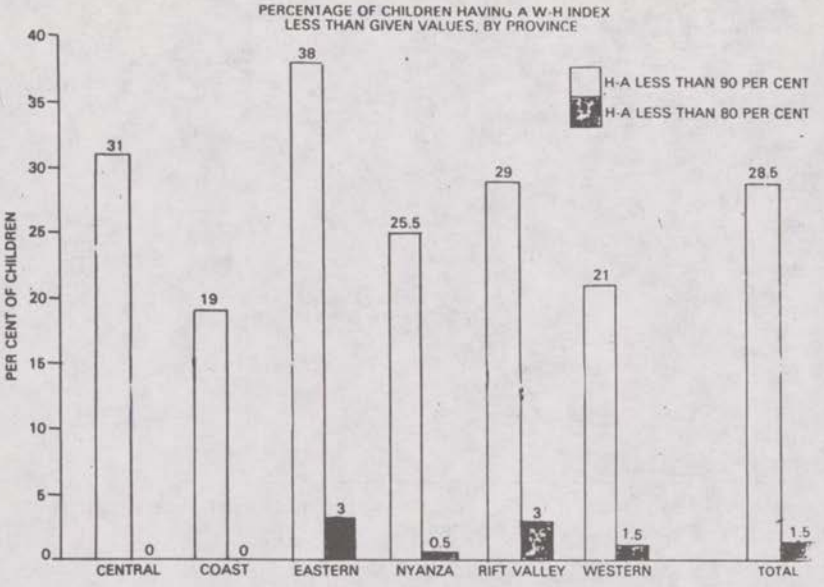


Figure 2.2

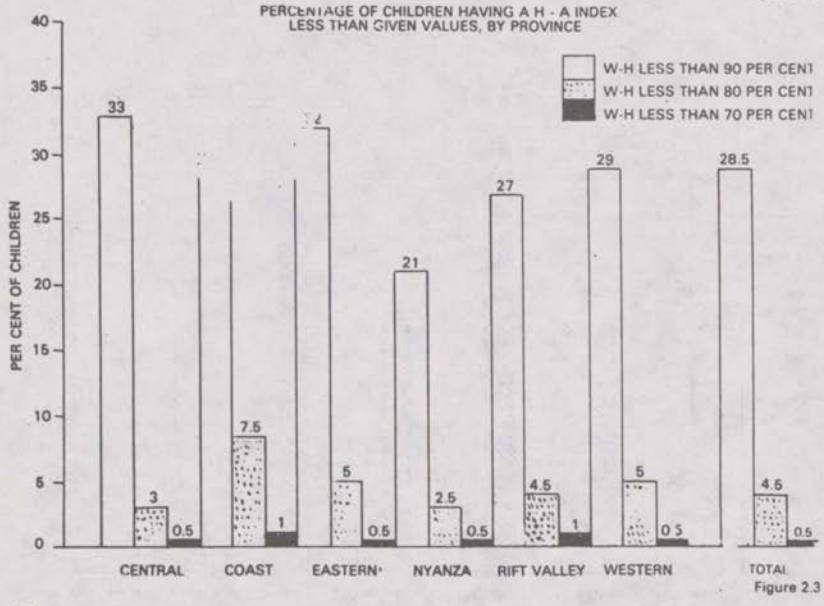


Figure 2.3

Figure 2.5 shows the cumulative distributions of the W-A index for Central and Nyanza Provinces, and for the Harvard Standard. The curves for the other provinces lie between those for the two provinces shown, except that the curve for Eastern Province is slightly higher at the extreme left. The verticle distance between these curves gives the difference in the proportion of children below a given value of the W-A index.

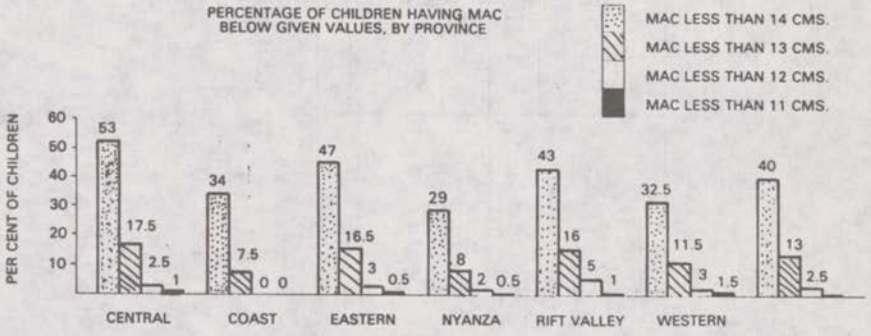


Figure 2.4

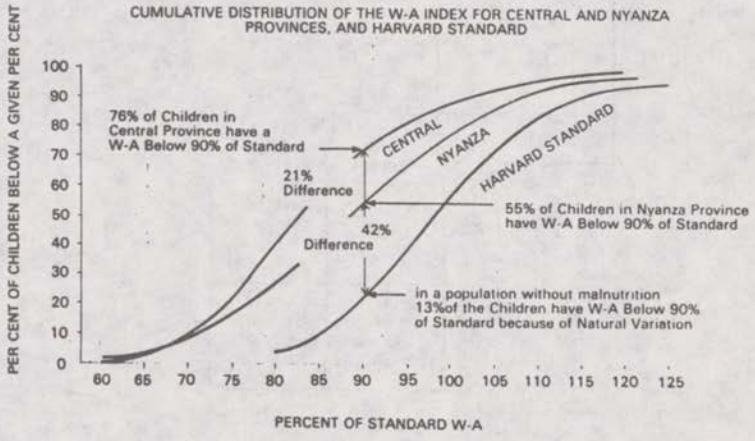


Figure 2.5

WATERLOW TWO WAY CLASSIFICATIONS USING
H-A AND W-H INDICES, BY PROVINCE

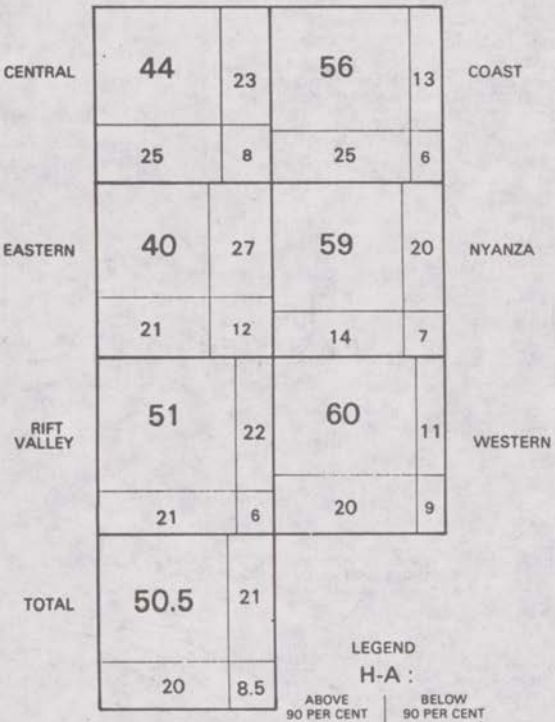


Figure 2.6

WEIGHT GROWTH CURVE BASED ON 3 - MONTH AVERAGES

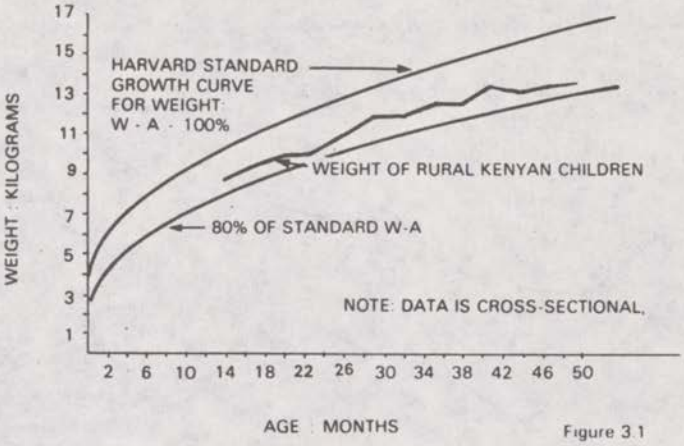


Figure 3.1

HEIGHT GROWTH CURVE BASED ON 3 - MONTH AVERAGES

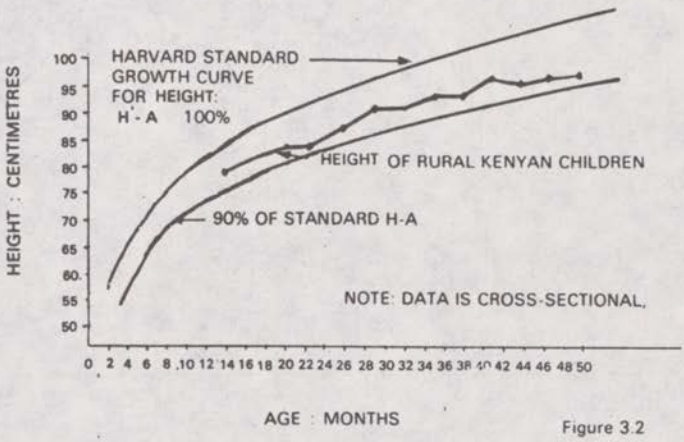


Figure 3.2

The mean H-A index decreases steadily during the second year, and remains below the mean W-H index, which improves somewhat through time. The mean of W-A index ... is below the H-A index, but displays a similar pattern. Figures 4.2-4.4 illustrate that more children in the age range 19-24 months, have low values of the indices, than in other age groups. Whereas the proportion of children with a W-H index below 90 per cent drops suddenly after age 30 months, the proportion having low values of the H-A index remains fairly high. The two-way diagrams in Figure 4.5 show that the per cent of children having both a low H-A index and a low W-H index, drops to about half of its previous value after the third birthday.

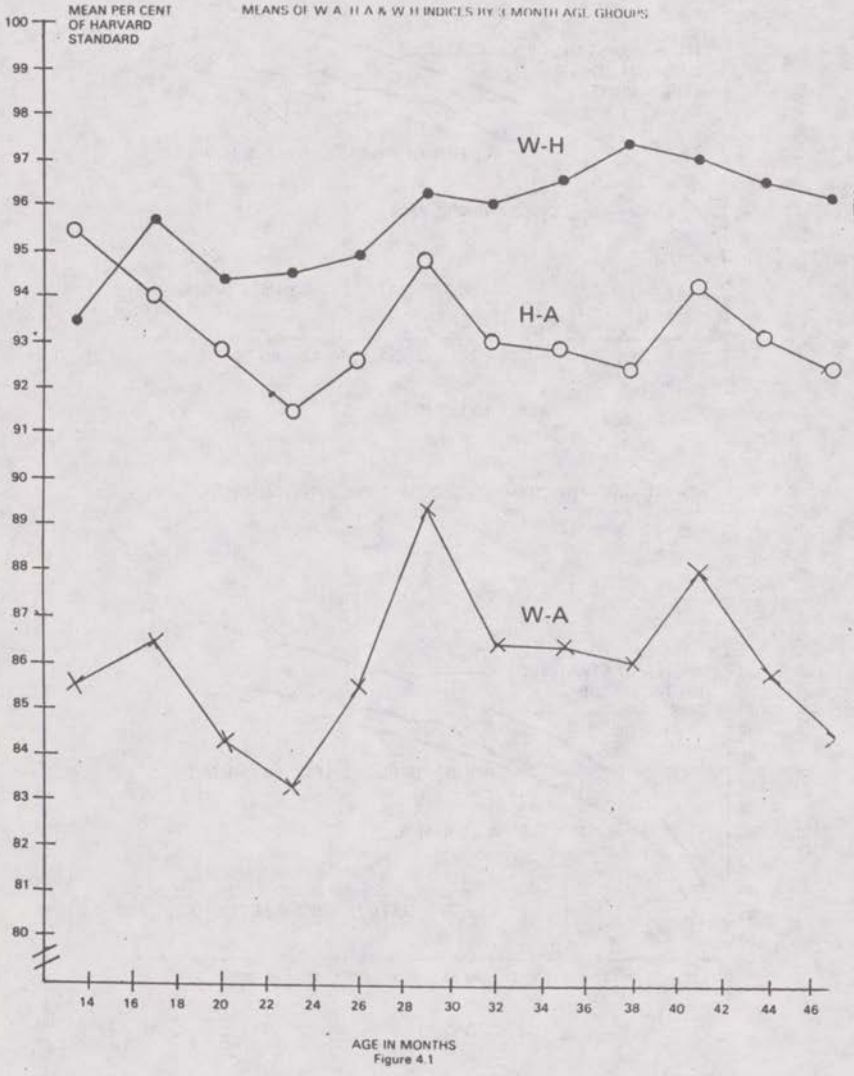


Figure 4.1

NOTE: THERE ARE AN AVERAGE OF 115 OBSERVATIONS PER POINT. THE RANGE IS 97 TO 145.

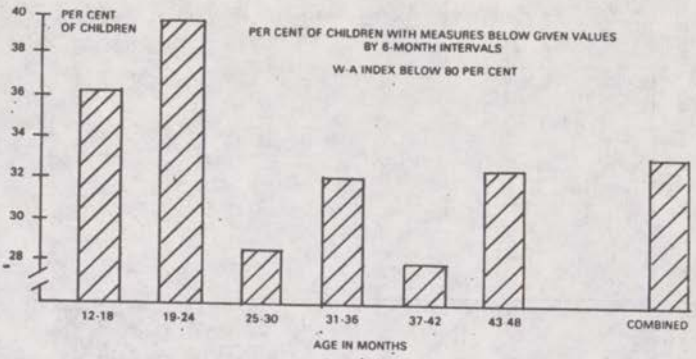


Figure 4.2

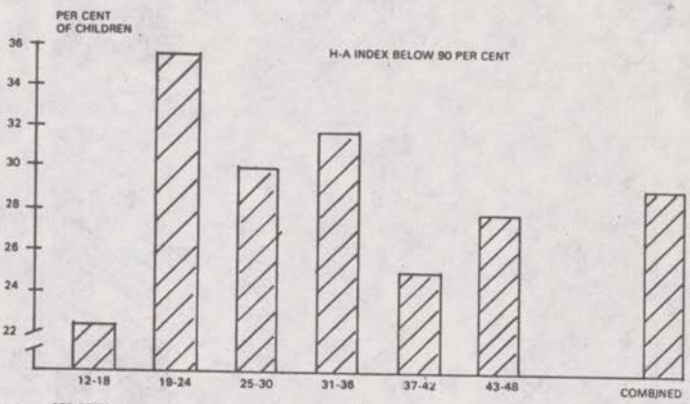


Figure 4.3

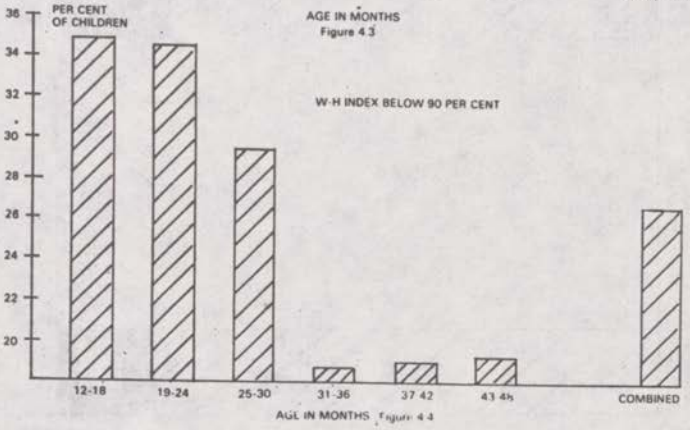
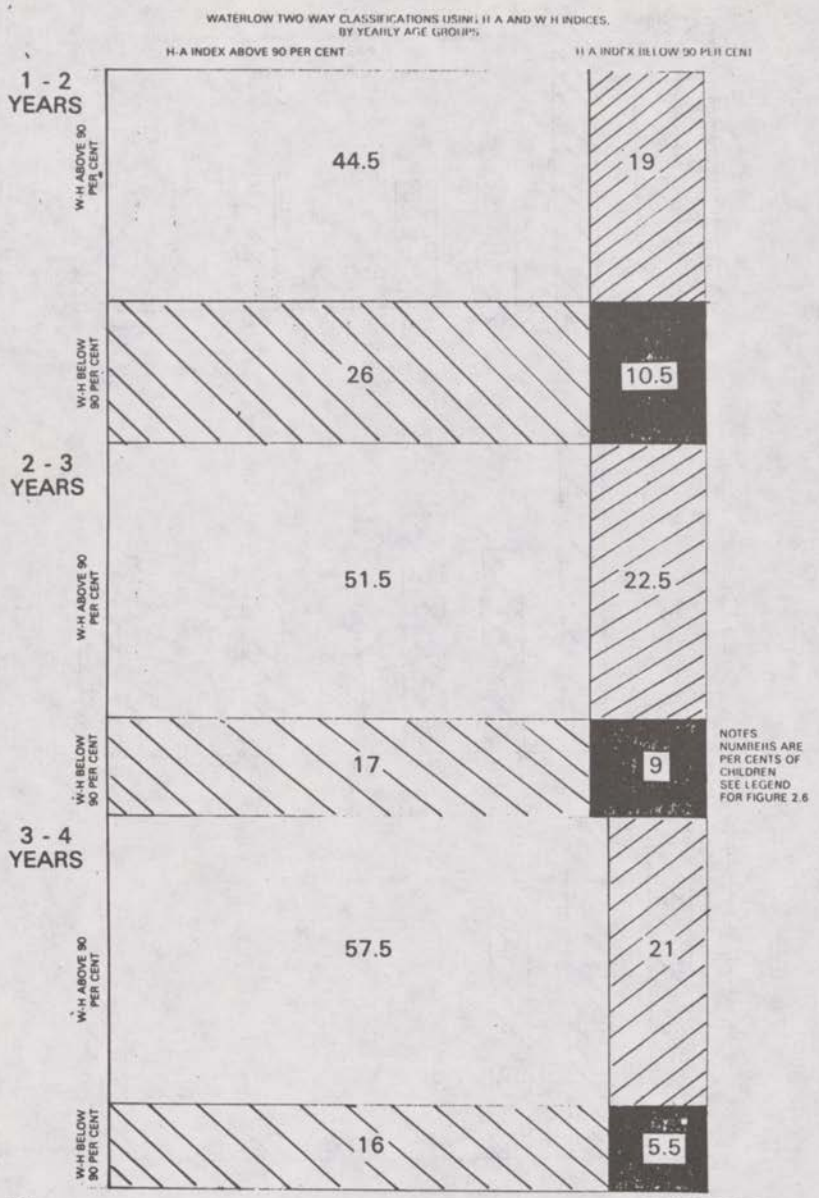
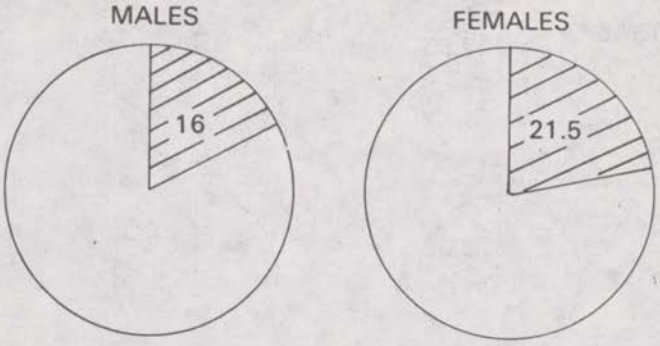


Figure 4.4

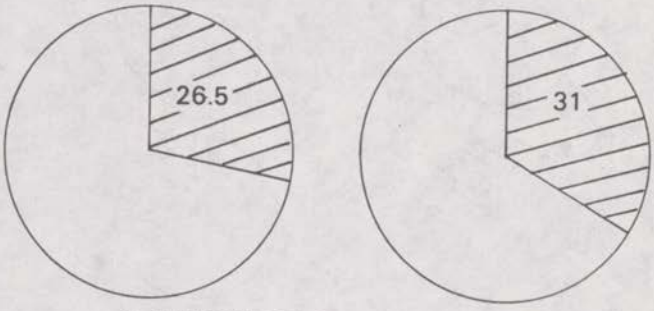

WATERLOW TWO WAY CLASSIFICATIONS USING H A AND W H INDICES,
BY YEARLY AGE GROUPS
H-A INDEX ABOVE 90 PER CENT
H A INDEX BELOW 90 PER CENT
1 - 2 YEARS
W-H ABOVE 90 PER CENT
W-H BELOW 90 PER CENT
44.5
19
26
10.5
2 - 3 YEARS
W-H ABOVE 90 PER CENT
W-H BELOW 90 PER CENT
51.5
22.5
17
9
3 - 4 YEARS
W-H ABOVE 90 PER CENT
W-H BELOW 90 PER CENT
57.5
21
16
5.5
NOTES
NUMBERS ARE PER CENTS OF CHILDREN
SEE LEGEND FOR FIGURE 2.6

More females than males had low values of the three indices. The contrast is shown at the provincial level using W-H index in Figure 5.2

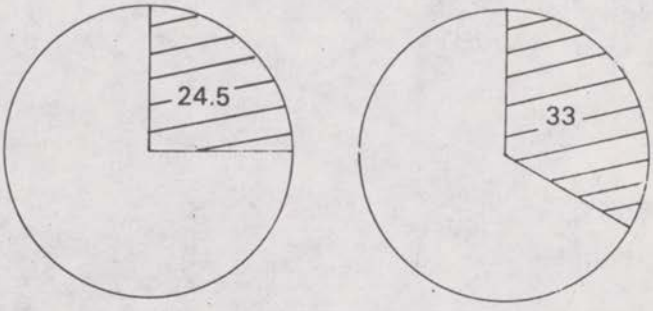
PERCENTAGE OF CHILDREN WITH INDICES BELOW GIVEN VALUES, BY SEX



W-A INDEX BELOW 75 PER CENT



H-A INDEX BELOW 90 PER CENT



W-H INDEX BELOW 90 PER CENT

Figure 5.1

PER CENT OF CHILDREN WITH W H INDEX BELOW 90 PER CENT
BY PROVINCE AND SEX

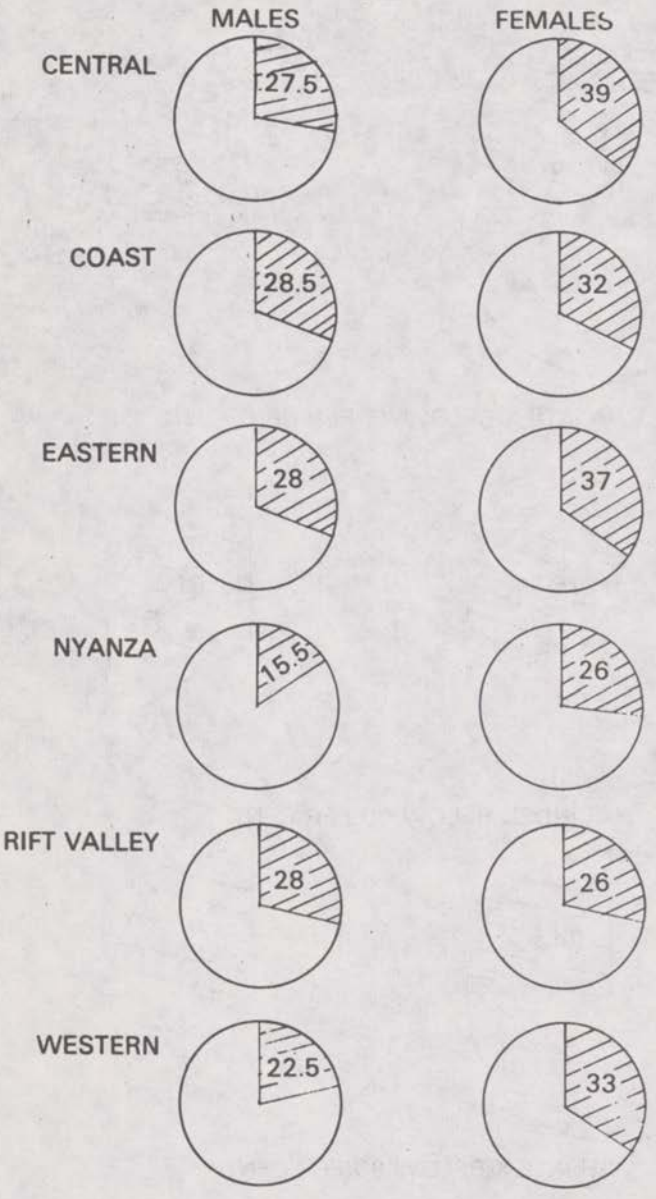


Figure 5.2

LEGEND

PER CENT OF CHILDREN W-H BELOW 90 PER CENT OF STANDARD

TABLE 4
SAMPLE SIZE OF CHILDREN IN AGE GROUPS BREAST-FEEDING AND NOT BREAST-FEEDING USED IN FIGURES 6.3, 6.4, & 6.5

Age (Months)	Breast Feeding	Not Breast-Feeding
12-15	55	71
16-19	75	115
20-48	62	994

TABLE 3
CUMULATIVE DISTRIBUTION OF TOTAL LENGTH OF BREAST-FEEDING, BY PROVINCE
(Per Cent of Children)

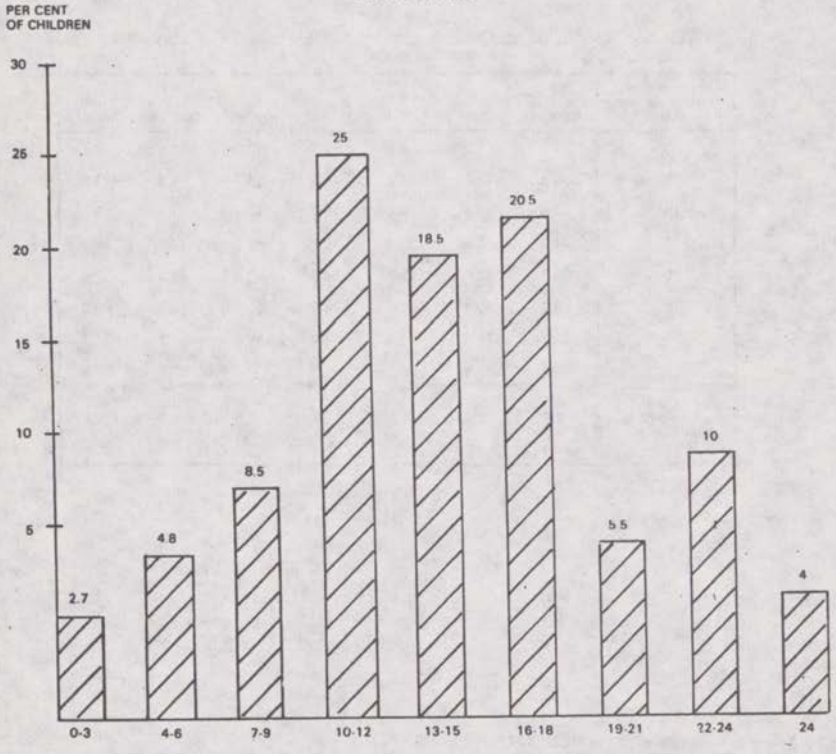
Stopped Breast-Feeding Before Age, in Months	Central	Coast	Eastern	Nyanza	Rift Valley	Western	Rural Kenya
3	1.0	5.3	4.1	1.0	2.6	3.5	2.7
6	6.2	13.2	11.2	3.6	4.3	9.0	7.5
9	18.5	19.8	19.1	10.6	11.2	17.5	15.9
12	44.9	60.6	33.4	38.2	38.5	42.9	41.0
15	65.2	83.0	49.2	58.8	58.4	56.8	59.6
18	88.2	90.9	69.5	78.5	80.5	76.7	80.0
21	93.4	94.8	77.4	82.9	87.4	81.2	85.7
24	97.1	97.4	90.2	96.9	97.4	93.2	95.9
Per Cent Still Breast-Feeding After Age 24 Months	2.9	2.6	9.8	3.1	2.6	6.8	4.1

The histograms in Figure 6.1 show the per cent of children who had stopped breast feeding by three month age groups. There were no significant differences in this distribution between sexes, at either the national or the provincial level. The distribution did vary between provinces, as Table 3 points out. In Eastern Province, only one-third of the children were completely weaned by their first birthday, and 10 per cent were still breast feeding after their second birthday

Figure 6.2 gives the proportion of children below given values of the indices by the length of breast-feeding. Unlike Figure 6.1 and Table 3, some of the children represented in this diagram werestill breast-feeding, so they have not been classified by "total length of breast-feeding", but simply the duration of breast-feeding up to the time of the survey. However, these children are relatively few in number. The rows of numbers below the graph give the total number of children in each category, and how many of those were still breast-feeding. It should be remembered that for most of the children, the relationship is retrospective: present nutritional status is related to the previous period of breast-feeding, which in many cases, will have terminated some months prior to the survey.

The per cent of children with a low W-A index rises with the length of breast-feeding, particularly after 18 months. This finding does not necessarily indicate that breast-feeding has a negative impact, but probably that sufficient supplementary foods are not given to children who are still nursing after the first year. The relevant section of "Highlights of the Data" discusses this point more thoroughly.

DISTRIBUTION OF TOTAL LENGTH OF BREAST-FEEDING,
FOR RURAL KENYA



AGE OF CHILDREN IN MONTHS, WHEN BREAST FEEDING STOPS

MEAN AGE AT COMPLETE WEANING IS 14.4 MONTHS

Figure 6.1

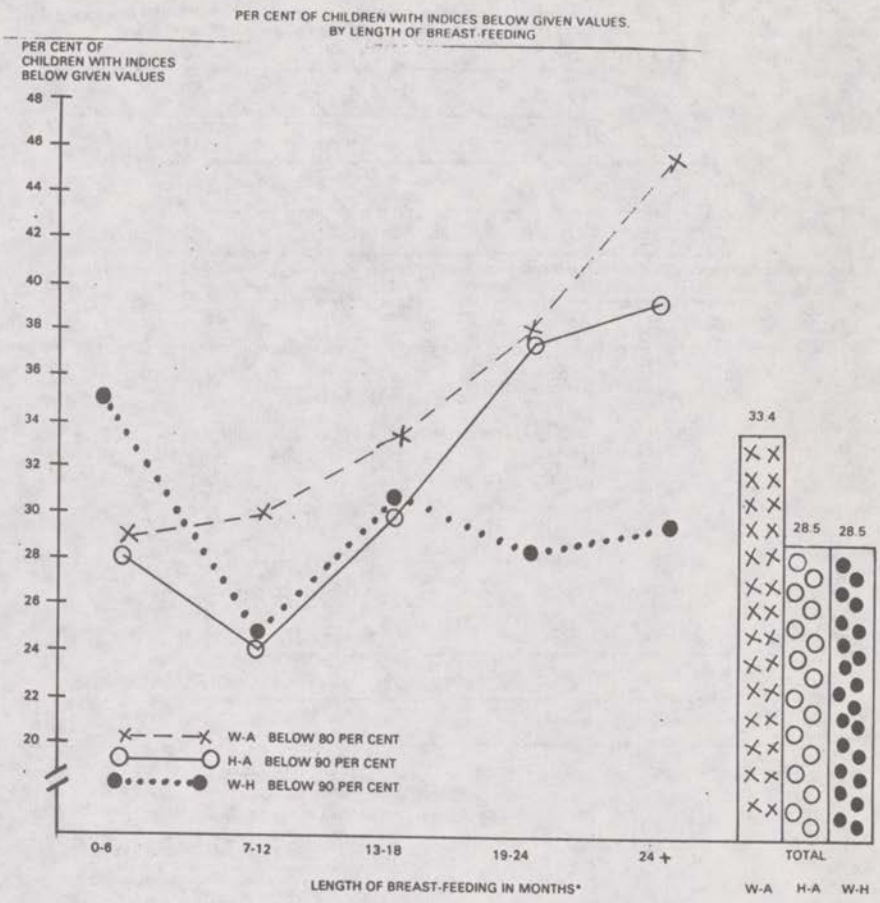
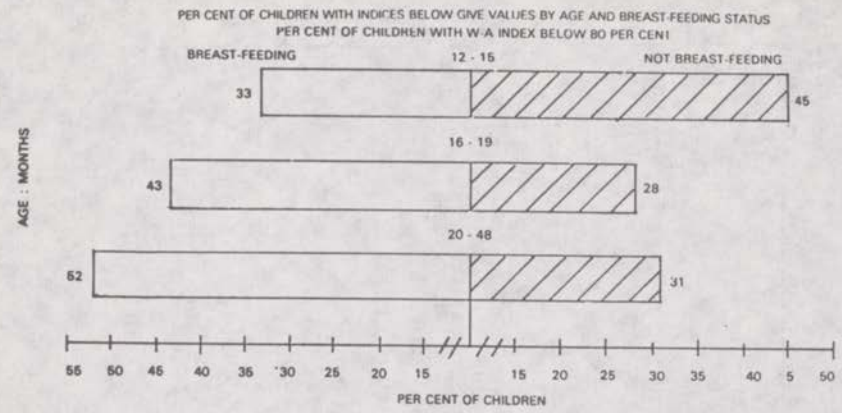


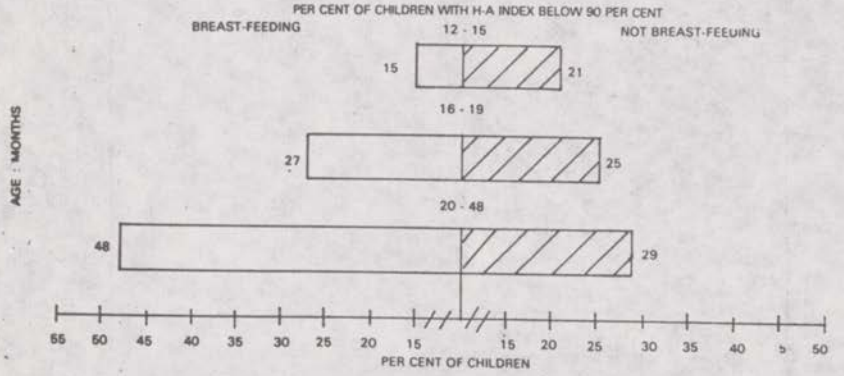
Figure 6.2

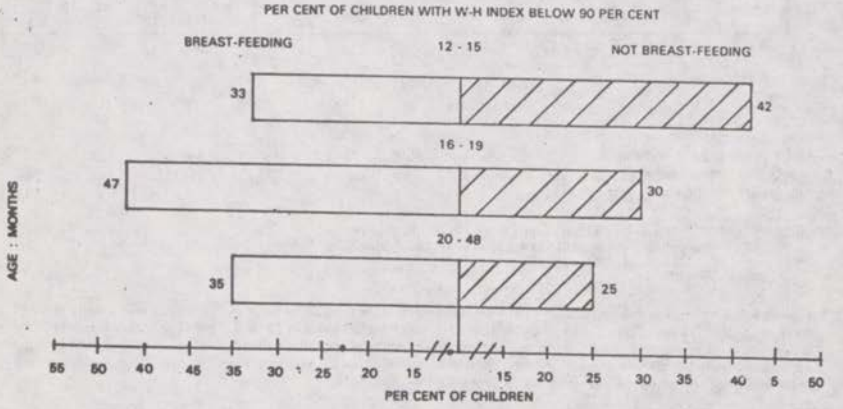
LENGTH OF BREAST-FEEDING:	0-6	7-12	13-18	19-24	24+	COMBINED
NUMBER OF OBSERVATIONS PER POINT:	89	420	566	240	68	1383
INCLUDING NUMBER STILL BREAST-FEEDING:	0	0	118	48	26	192

*NOTE: SOME CHILDREN IN THIS FIGURE WERE STILL BREAST-FEEDING
FOR THESE CHILDREN THE LENGTH OF BREAST-FEEDING EQUALS THE AGE.

Figures 6.3-6.5 compare children who were still breast-feeding at the time of the survey with children of the same age who were not breast-feeding. The number of children in each category is shown in Table 4. There is a steady increase in the proportion of older nursing children who were below given values of the W-A and H-A indices, compared with younger nursing children. Completely weaned children show a similar, but much less pronounced trend for the H-A index, as one considers older age groups. A reverse trend is found for the W-H index.







Figures 6.3, 6.4, 6.5

MILK AFTER WEANING

THESE THREE GRAPHS REFER TO CHILDREN WHO HAVE BEEN COMPLETELY WEANED FOR AT LEAST THREE MONTHS

More than half of the children in every province reportedly received milk at least once a day, after being completely weaned. Figure 7.2 shows that older children received milk less frequently than younger children. Figure 7.3 illustrates that ... wer of the frequent milk drinkers had a low W-A index, than found among children taking milk less often than once a day.

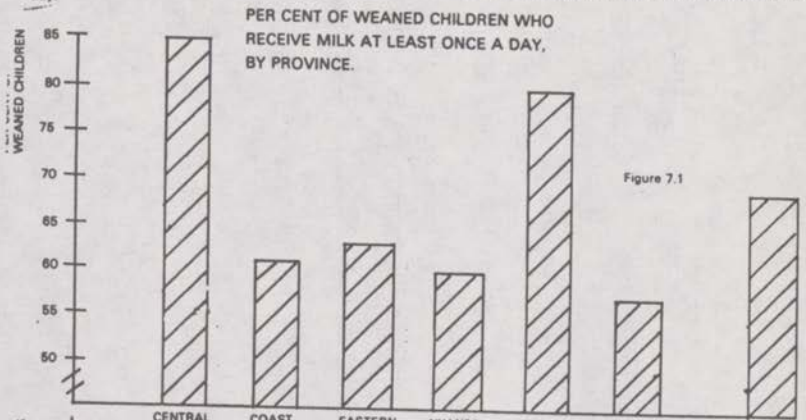


Figure 7.1

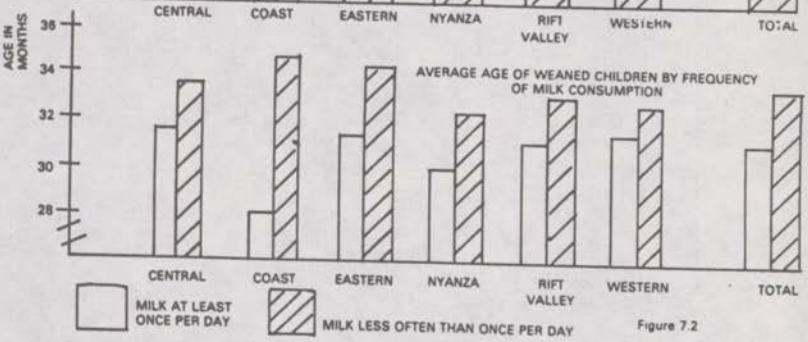


Figure 7.2

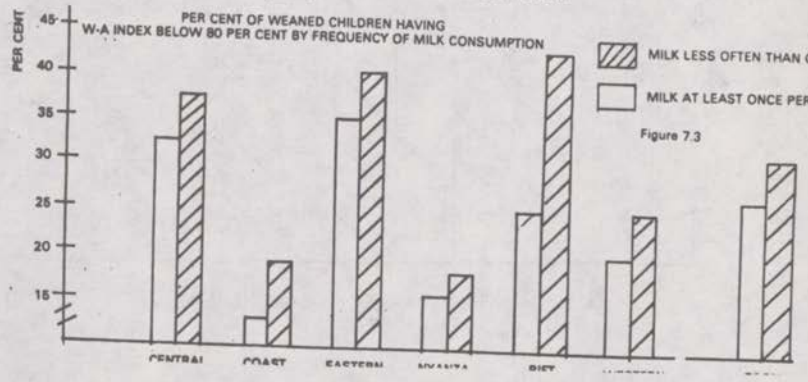


Figure 7.3

Almost one-third of the children were usually fed two meals a day, and one-half received three. There were no significant differences in the means of the W-A, H-A, or W-H indices between the groups of children having 2, 3, and more than 3 meals per day. (The means by number of meals are not shown.)

DISTRIBUTION BY NUMBER OF MEALS USUALLY TAKEN

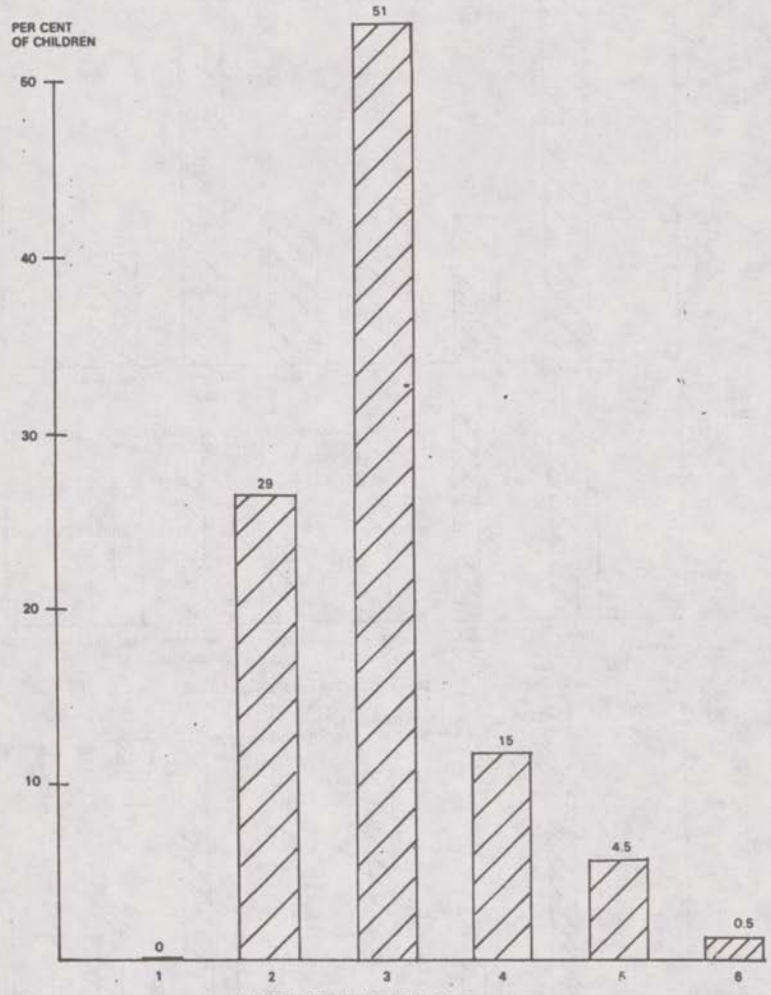


Figure 8.1

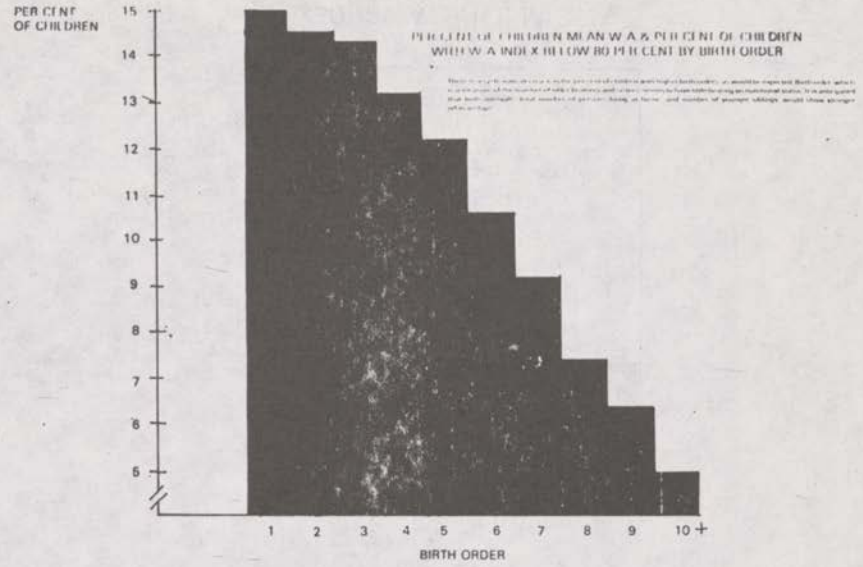


Figure 9.1

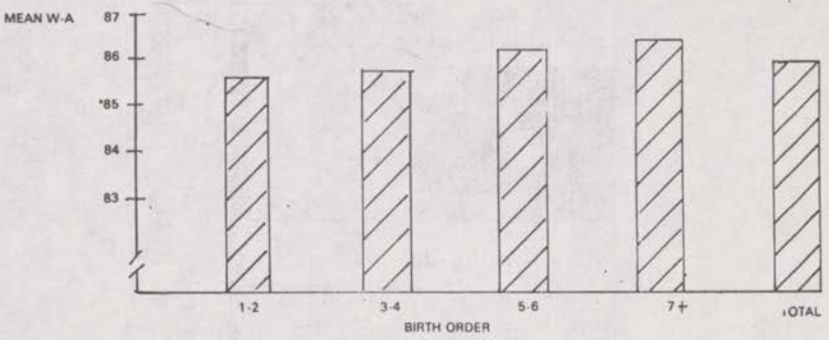
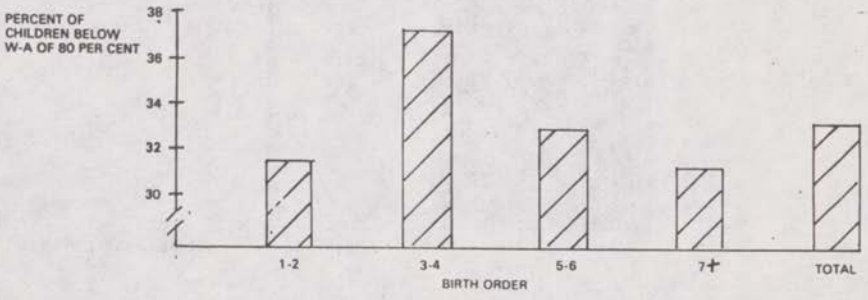
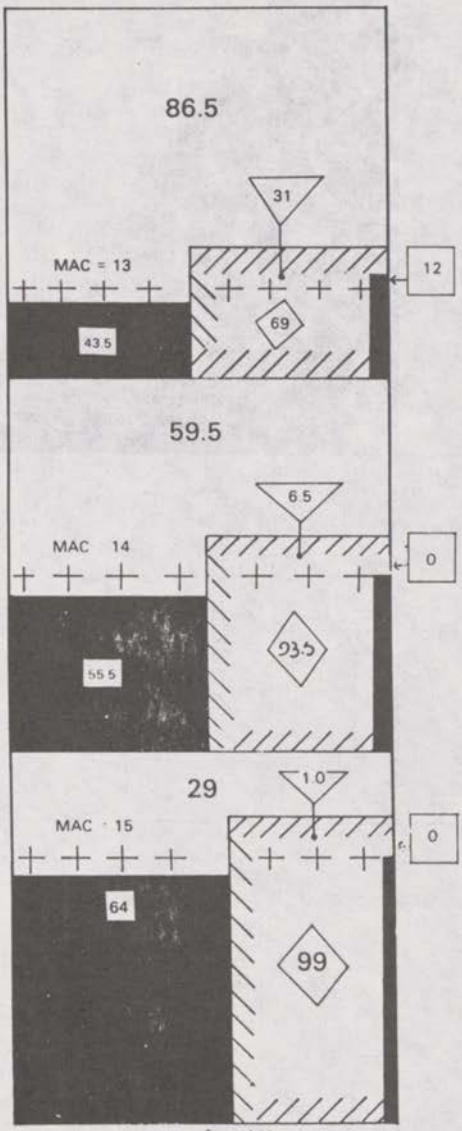


Figure 9.2



MAC VERSUS W-A INDEX



SEE LEGEND ON NEXT PAGE

Figure 1.1.1

LEGEND FOR FIGURE 10.1
ALL NUMBERS ARE PER CENTS OF CHILDREN

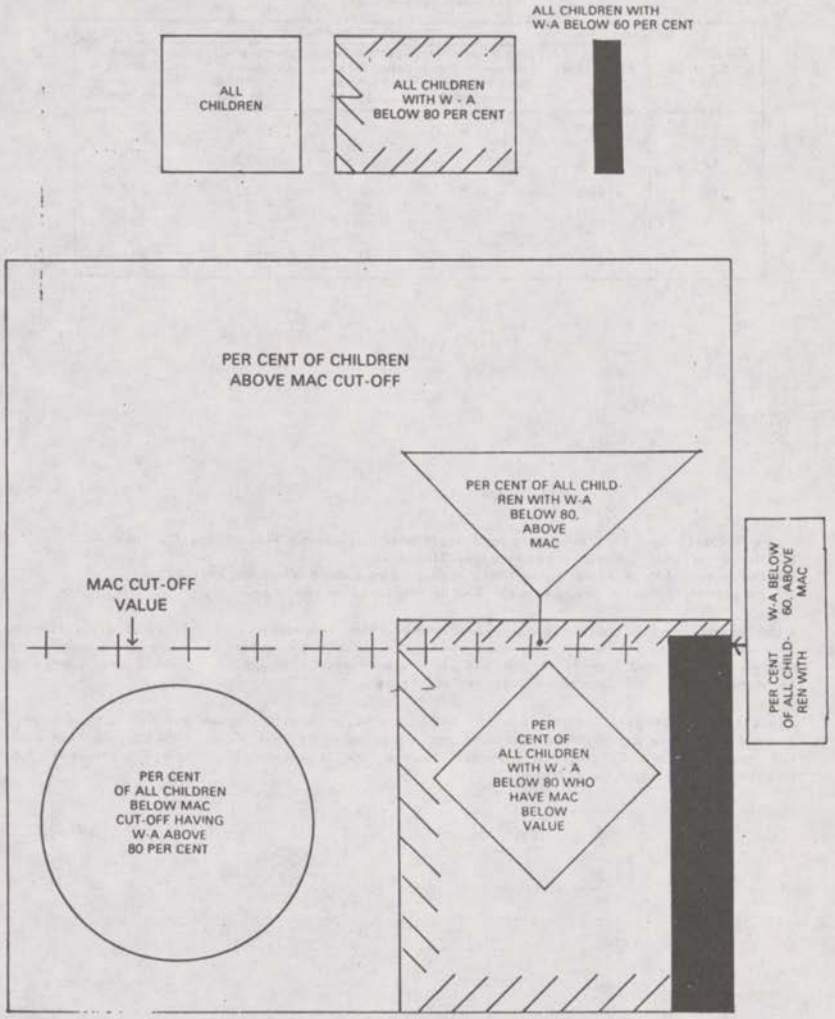


TABLE 5
MAC VERSUS W-A INDEX
(Age -Range: 1-4 Years)

MAC Cut-Off (cms.)	PER CENT OF CHILDREN				
	Above MAC	With W-A Index Below 80 Per Cent who are Above MAC	With W-A Index Below 60 Per Cent who are Above MAC	Below MAC who have W-A Index Above 80 Per Cent	Below MAC who have W-A Index Above 60 Per Cent
11	99.0	92.5	53.0	13.0	79.5
12	97.0	69.0	23.5	22.5	93.0
13	86.5	31.0	12.0	43.5	97.0
14	59.5	6.5	0.0	56.5	98.0
15	29.0	1.0	0.0	64.0	98.5

Figure 10.1 and Table 5 give the following percentages for various values of MAC and the W-A index:
(1) the per cent of children who are above a given MAC value;
(2) the per cent of those children below a MAC value, who are above a W-A value; and
(3) the per cent of those children below a W-A value, who are above a MAC value.

A child having a low MAC does not necessarily have a low W-A index. However, nearly all the children having a high MAC, have satisfactory values of the W-A index. About 60 per cent of the children had a MAC above 14 cms, and nearly all of the children with W-A index below 80 per cent, had a MAC lower than 14 cms. About half of the children having a MAC below this value had W-A index above 80 per cent of standard.

The ease of ascertaining MAC, particularly when ages are uncertain, and time, training, and resources are limited, make it a practical tool for screening out children who do not require the services of a nutrition clinic. A low MAC may be considered sufficient grounds for admission to a clinic. However, a second round of screening will be required if the aim is to reach only those children who have a low W-A index.

#13

Table 2 corrected

HUMAN LACTATION

Nutritional aspects of human lactation*

A. M. THOMSON[1] & A. E. BLACK[2]

This paper reviews the literature on the incidence and duration of breast-feeding in various countries, the volume and composition of breast milk, the health and nutrition of breast-fed babies as judged by growth and morbidity, maternal nutritional requirements during lactation, and the effect of prolonged lactation on maternal health. It appears that lactation can be as well sustained by impoverished as by affluent mothers, and that even in communities where malnutrition is common the average growth of infants is satisfactory up to the age of about 3 months on a diet of breast milk alone. Breast milk appears to have specific anti-infective properties, but prolonged breast-feeding will not prevent infections among older infants reared in a poor environment. The authors believe that breast-feeding is the best form of nutrition for the young infant and deplore its decline in modern industrial societies. The recommendations of various FAO/WHO Expert Groups on nutritional intakes during lactation are summarized. The need for an increased daily energy intake of 4.2 MJ (1 000 kcal) is questioned, and an increase of 2.5 MJ (600 kcal) is suggested. Data on the effect of prolonged lactation on the health of the mother are scanty; body weight appears to be maintained even among poorly nourished mothers. The authors stress the need for well-planned and technically adequate studies of the material and psychological factors involved in breast feeding.

IS BREAST-FEEDING BEST?

It is difficult—perhaps impossible—to discuss breast-feeding without appearing to take sides. That being so, it is necessary to state our own belief that, in general (but not necessarily always), breast-feeding is best. If it is not, the mammary organs of the human female must be regarded as interesting relics of an inefficient evolutionary process for feeding the young. We deplore the fact that, even in the "permissive society", most western mothers regard breast-feeding in public as immodest and in private as inconvenient, but we recognize that the organization of industrial society and of life in nuclear families creates practical difficulties. The fact that modern technology has provided substitutes for breast milk that many mothers and doctors find acceptable and satisfactory does not impair our belief in the basic biological "rightness" of breast-feeding sustained by adequate lactation.

That belief finds support in an enormous amount of medical literature. For example, a recent symposium on "The uniqueness of human milk" (45) advocated breast-feeding on the grounds of the considerable evidence in its favour. Such advocacy has a long history. Toverud et al. (91) quote Oliver Wendell Holmes (1809–1894): "a pair of substantial mammary glands have the advantage over the two hemispheres of the most learned professor's brain in the art of compounding a nutritive fluid for infants." Such views, however, do not necessarily reflect the less vocal opinions of many medical practitioners, and they have been counteracted, very successfully, by the appeal of advertising coupled with the pressures of life in modern industrial society and the introduction of new values into traditional societies.

For the purpose of this review, our concern with breast-feeding and lactation is scientific. We accept Popper's (70) definition of science, according to which the statement "Breast feeding is best" is a hypothesis that has to be tested by the most stringent means available. We recognize that breast-feeding has already lost most of its popularity in western society and is losing ground in many developing

* From the Medical Research Council Reproduction and Growth Unit, Princess Mary Maternity Hospital, Newcastle upon Tyne, NE2 3BD, England.

[1] Director.

[2] Technical Officer.

countries. We do not know how this tendency is to be halted, let alone reversed. But assuredly the cause of breast-feeding will not be assisted by failure to examine scientific evidence as critically as possible, or by basing advocacy on insufficient, misleading, or erroneous information.

INCIDENCE AND DURATION OF BREAST-FEEDING

Breast-feeding and lactation are not simply different words for the same thing. Breast-feeding is a form of human behaviour for which lactation is necessary, but the amount of milk produced need not correspond to either the productive capacity of the mother or the nutritional needs of the baby. It should therefore be remembered that data about breast-feeding do not necessarily reflect the adequacy of lactation.

The Annex summarizes, without pretensions to completeness, some recent reports on the incidence and duration of breast-feeding in various countries. Some of the samples may be highly selective, and comparisons are complicated by the many different ways in which the data are presented. Some general features are nevertheless apparent.

As Solien de Gonzales (82) and others have pointed out, breast-feeding tends to be the most common and sustained the longest in " traditional " communities and in those with the fewest economic advantages. It is the least common and the least well sustained in relatively affluent urbanized communities, where most babies may be artificially fed from birth. This broad inverse correlation between the incidence of breast-feeding and economic and educational status ceases to be valid in some communities—e.g., the more affluent and educated classes of North America—where breast-feeding may be more common than in poorer classes (11, 34, 74). Then, however, there seems to be a tendency for supplementary foods to be introduced at an early stage and for weaning from the breast to take place after a few months at most.

Where data over a period of time exist they show that, wherever mothers have been exposed to the culture of modern industrial society, the incidence of breast-feeding has been declining. For example, in the United Kingdom, Hytten (38), showed that the proportion of infants still being breast-fed at 3 months of age fell from 60–80% in 1929 to less than 30% in 1955. Similar trends have been reported from Poland (13), from USA (62), and from Guatemala (82). There may have been some reversal of the downward trend among more educated women (see below), but this is unlikely to have had any marked effect on the general tendency.

Since breast-feeding is a form of human behaviour, it is important to study the motivation behind it. There seems to be little evidence that women have a strong " instinct " to breast-feed, despite the physical and emotional satisfaction that breast-feeding is often claimed to give. Prothero (71) considered that, in a group of London mothers, the establishment and maintenance of breast-feeding was a matter of intellectual conviction rather than of instinctive urge. In Aberdeen, Scotland, very few of a group of primiparae found breast-feeding to be completely simple, satisfying, and satisfactory (39). The steady decline of breast-feeding in most communities, despite much medical propaganda in its favour (not, however, outweighing commercial and other propaganda on behalf of breast milk substitutes), is a fact that requires further study. It does not suffice merely to hope that modern technology and communications will fail to penetrate " primitive " populations where sustained breast-feeding continues to be the usual form of maternal behaviour.

There appears to be no scientific information on possible ethnic (genetic) differences in the capacity to lactate and breast-feed. Our own experience suggests that these may nevertheless be important: in West Africa, breast-feeding seems to be not only almost universal but also highly adequate and easy (60), whereas in the United Kingdom early weaning is common and many women seem unable to secrete enough milk, or milk of sufficient energy content, to satisfy the needs of the baby (37). The shape of the " equipment ", i.e., breasts and nipples, may be different in different races.

VOLUME AND COMPOSITION OF BREAST MILK

Reliable information on the volume of milk produced is scanty. It is not easy to measure daily milk production by manual or mechanical expression; most estimates have been based on test-weighing the baby itself—a procedure that necessitates interference with " natural " breast-feeding, especially where feeding is undertaken casually or on demand. Another difficulty is that the amount of milk secreted depends to a great extent on the demand—i.e., on the frequency and vigour of suckling. Reports of late failure of lactation are thus particularly difficult to interpret, possibly because in many instances the

child may have been put to the breast much less frequently than during early lactation.

Sénécal (79) reported the following 24-h milk outputs, measured by test-weighing in hospital, in a West African community where suckling often continues with little abatement for 18 months or more: for babies aged less than 3 months, 4–6 months, 7–9 months, 10–12 months, 13–18 months, and over 18 months, the average yields were 583, 659, 648, 685, 738, and 702 ml, respectively. Sustained yields, averaging more than 500 ml during the first year, have also been reported for poor Indian women by Rao et al. (73) and by Rajalakshmi (72). There is little comparable information from western communities; the extremely high yields reported for late as well as for early lactation in Detroit (66, 67) are by no means representative, since the subjects were professional wet-nurses. Disregarding these results, it appears from information summarized by Morrison (64) that established milk yields of 600–700 ml per day may be typical—i.e., not much bigger than those reported from developing countries.

Assuming an average energy value for mature breast milk of 0.3 MJ (70 kcal) per 100 ml, a daily yield of 700 ml of milk represents an energy supply to the baby of nearly 2.1 MJ (500 kcal). The data of Fomon et al. (29) suggest that babies aged about 3 months need about 0.4 MJ (95 kcal) per kg of body weight per day, and the average weight of babies of that age is about 5.5 kg. On this basis, it appears that a diet of breast milk alone should be sufficient for babies up to about 3 months of age. After that, supplementation is likely to become increasingly necessary if the energy needs of the baby are to be fully met.

The composition of human milk has been described and compared with that of cow's milk by Macy & Kelly (56), Gyorgy (35), and, with special reference to tropical communities, by Bailey (4). The effects of maternal nutrition on the composition of milk were discussed by Hytten & Thomson (41). Here, only a few points of special interest need to be summarized.

(*a*) The amount of protein in human milk per 100 ml or protein energy per 100 kcal (0.42 MJ) appears to be lower in human beings than in faster-growing mammals (8). The concentrations above 12 g/litre that are sometimes reported in the literature have usually been obtained by applying a conversion factor to total nitrogen, including non-protein nitrogen. Human milk has a relatively low protein level, but it has a higher level of S-containing amino acids (with a high cystine : methionine ratio) and of many essential amino acids and histidine (52) than cow's milk has.

(*b*) Human milk contains more long-chain fatty acids and free fatty acids than cows' milk does. Its fatty acid composition tends to reflect that of fats in the maternal diet and may be affected by the state of the maternal energy balance (42, 53).

(*c*) There appears to be general agreement that the output of breast milk and the concentration in breast milk of protein, fat, carbohydrate, calcium, and iron are little influenced by the nature and amount of the maternal diet within a remarkably wide range of intakes, and that the nutritive value of the milk is well sustained in prolonged lactation. In New Guinea, Bailey (4) found the proximate composition of milk to be much the same after 18–24 months of lactation as it was at 6–12 months. Karmarkar et al. (48) assert that supplementation with protein and fat of the diets of very poor Indian women in Baroda had no effect on the yield but some beneficial effects on the protein or fat content of breast milk; on the other hand, Gopalan (30) in South India found that extra dietary protein caused an increase in milk yield associated with some reduction of protein concentration. Even under famine conditions, the effect on breast milk appears to be slighter than might have been expected, probably because maternal tissues can be used to subsidize lactation. The effect of the maternal diet on human milk yields seems to be much slighter than is the case with farm animals; but it should be remembered that such animals have usually been bred to produce much greater yields of milk than are required by the offspring.

(*d*) The amount of fat-soluble vitamins contained in breast milk is influenced to some extent, and that of water-soluble vitamins to a great extent, by the nature of the maternal diet.

We shall not attempt to deal with the complex reasons for the cessation of lactation, but it may be noted that pregnancy has been described as a "common cause for cessation of breast feeding" in a poor Indian community (86). In a study of 120 poor-class Egyptian women, Kamal et al. (47) also reported pregnancy during lactation to be the commonest cause of weaning. They say that "It is evident that pregnancy did not cause milk insufficiency, for it was not a major cause of supplementation . . . Thus it appears that endogenous steroids do not have a pronounced effect on lactation, so long as suckling is

maintained". The first part of that quotation, at least, would seem to require independent confirmation, since it seems to contradict the widespread belief that pregnancy "competes" with lactation. However, pregnancy does not necessarily lead to weaning. Cantrelle & Leridon (12) say that in rural Senegal 30% of mothers conceived while breast-feeding; 10% were still nursing when 4 months pregnant, and 1.5% during the last month of pregnancy.

The literature thus gives the impression that the babies of mothers who keep on breast-feeding will outgrow the supply of milk, but that, with continued suckling, the volume and nutritive value of the milk remains at a high level for a long time, even during a subsequent pregnancy. That view, which is based on rather flimsy evidence, needs to be reassessed. It is possible that mothers who stop breast-feeding at a relatively early stage are those whose milk supply is failing. Data from Nigeria (W. Z. Billewicz & D. Morley, unpublished observations, 1970) show that, irrespective of the age at which it took place, the weaning of Nigerian children in Ilesha was accompanied by a considerable but temporary decrease in the rate at which weight was being gained. This phenomenon did not occur among rural Gambian children (59). It seems difficult to explain the difference in terms of an effect that occurs, or fails to occur, after weaning. A more probable hypothesis is that, in Nigeria, the loss of weight was due to failing lactation, which preceded weaning. In the Gambia, the effects of failing lactation would usually be mitigated by the local custom of passing the baby to other lactating women within the family, if the mother was unable to satisfy it.

There is a considerable need for objective studies of the natural history of breast-feeding and associated phenomena in developing as well as in "advanced" communities. Existing information is scanty, usually crude, and often biased by the attitude of the observer.

THE HEALTH AND NUTRITION OF BREAST-FED INFANTS

As has been shown above, theoretical calculations suggest that a diet of breast milk alone will become insufficient for the average growing child when it attains a weight of about 5.5 kg, around the age of 3 months. In practice, supplementation of some kind has already been introduced by many mothers. The nutritional problem thereafter centres progressively on the amount and nature of the supplementary food, and the importance of breast milk gradually diminishes.

The interpretation of data on the growth and health of infants from the point of view of sustained breast-feeding is complicated by other factors. The introduction of supplementary foods, which may be of poor nutritive value, is accompanied by increasing exposure to bacteria and parasites at the very time when the immunity acquired passively before birth is dwindling. The resulting illness may affect appetite and the ability to suckle, thus having a potentially adverse effect on the mother's ability to lactate as well as on the growth and wellbeing of the child. Conversely, a poorly-nourished child may have an increased susceptibility to infections and infestations.

Infections

Breast milk is commonly considered to have specific anti-infective properties by comparison with breast milk substitutes. According to a review by Mata & Wyatt (58): (*a*) there is "an incomplete understanding of the significance of antibodies in human colostrum and milk, although no doubt exists of their participation in host defense, particularly derived from their presence in the gastrointestinal lumen"; nevertheless it is reasonable to consider that such antibodies "act importantly in control of invading agents"; (*b*) a human milk diet leads to a bifidobacteria flora that is probably antagonistic to certain pathogens; and (c) breast milk seems to have anti-infective properties through other factors, such as a "resistance factor" to staphylococcus aureus, lysozyme, complement, interferon, and cells with immunological capacity. Mata & Wyatt conclude that "Human milk is definitely more effective than cows' milk in protecting the newborn infant against infection".

There is no reason to doubt that conclusion, in so far as it applies to the neonate and young infant, but whether breast milk has an important anti-infective role in older infants appears to be a more open question. In an important Swedish study, Mellander et al. (61) note that "Up to the 1930's most investigations showed a considerably higher incidence of infant infections in infants reared by the bottle. Critical analysis of these studies, however, clearly reveals that poor standards of hygiene and concomitant increased risks of infection were of great significance . . . and it is therefore difficult to determine what effect the differences in composition

of the artificial mixtures and breast milk may have had. Recent investigations, in which more attention has been paid to these sources of error, have still in most cases shown a preponderance of acute infections in bottle-fed infants ... but the differences have often been only moderate". In their own investigations, during which great care was taken to ensure comparability between infants fed in different ways, a small but statistically significant excess of upper-respiratory-tract infections and acute diarrhoea was found in infants that had been breast-fed for less than 2 weeks compared with those given 6½ months or more of "plain breast feeding".

This suggests that, where the hygiene of the environment is satisfactory, the influence of breast-feeding on the incidence of infection in infants is marginal, and this is consistent with the important fact that infant mortality rates have fallen to remarkably low levels in most "advanced" countries despite the rapid decline of breast-feeding. Kubát et al. (54) and Bouchalová & Omelka (9) in Czechoslovakia, and the Royal College of General Practitioners (75) in the United Kingdom failed to find any advantage of breast-feeding over bottle-feeding in infants and young children.

Few, if any, similarly controlled studies have been undertaken in countries with unfavourable environmental conditions. In such circumstances, fully breast-fed infants have a low incidence of diarrhoeal and other infections and infestations during the early months of life, but meet with a tide of infection during the latter part of infancy (60, 77). It also appears that earlier weaning is being accompanied by a reduction in the ages at which serious forms of malnutrition are found (26).

In Malaysia, Dugdale (18) found the type of feeding to have no statistically significant effect on the frequency of minor respiratory or alimentary illnesses in infants. In Senegal, Cantrelle & Leridon (12) found, contrary to their expectation, that children who died between the ages of 2 and 4 years had been breast-fed for longer (25.6 months on average) than children who survived (24.3 months); "a possible explanation may be that breast-feeding is often prolonged for a child whose health is delicate, although this does not always prevent its death some time after it has been weaned".

Certainly there is no reason to believe that maintenance of prolonged breast-feeding, without attention to the hygiene of the environment and to the improvement of infant care generally, will be effective in reducing the prevalence of infections, or to doubt that, where the environment is favourable, bottle feeding can be accompanied by a satisfactorily low incidence of infection. Improved methods of supplementary feeding, applied in isolation, appear to be relatively ineffective. Edozien (19) working in Nigeria with children aged 12–36 months, found increased rates of growth when milk protein supplements were given, but mortality remained high unless malaria and other infections were dealt with. Becroft & Bailey (6) in New Guinea and Venkatachalam et al. (93) in India failed to show that nutritional supplementation of breast-fed infants improved growth. Similarly, in Guatemala, Béhar et al. (7) failed to demonstrate a striking effect of supplementary feeding on disease incidence or on growth and development.

The same workers (78) pointed out that "Precise knowledge of breast milk intake is woefully lacking for representative developing regions. The value and necessity of breast-feeding in most developing regions for the first six months of life is firmly established, in some places to such an extent that it is almost a matter of 'nurse or die'. Is excessively long breast-feeding, however, actually harmful because of the assumption that the child is being well fed in later months when in reality he is not? Or is it a saving grace because of social and economic inability to provide a better substitute? These are questions largely unanswered."

Other forms of morbidity

Breast-feeding may be of importance as regards factors other than infection. Replacing it by substitutes with a high content of saturated fatty acids, such as full-cream cows' milk, may lead to defective absorption of calcium and to greater risks of hypocalcaemic tetany in infants (96). Grulee & Sanford (33) reported that breast-fed infants had a relatively low incidence of infantile eczema; this does not appear to have been confirmed. Nor does there appear to be confirmation of a report by Osborn (69) that teenagers who had been entirely breast-fed for 2 months or more had less coronary disease than those who had been bottle-fed since birth. Davies (16) has quoted Osborn in support of his theory that cows' milk protein is an antigen that can lead to atheroma and coronary thrombosis. Paediatricians in some countries are concerned about hypernatraemia caused by feeding over-strength cows' milk formulas, and the possible early onset of obesity due to concomitant excessive calorie intake (10). The problem of lactose intolerance among bottle-fed

Table 1. Growth increments of fully or predominantly breast-fed infants from birth to 3 months of age

Place and source		Mean birth weight (kg)	Weight gain (kg)	Length gain (mm)	Head circumference gain (mm)	Sample and type of feeding
Growth standards (65)	M	3.40	2.32	98	56	Boston children of north European stock
	F	3.36	2.26	93	53	
Iowa, USA (28)	M	3.44	2.57	99	—	104 Caucasian infants ⩾ 2.5 kg birth weight. Breast-fed plus supplements
	F	3.24	2.25	97	—	
[illegible] (63)	M, F	3.40	2.56	—	—	60 infants 3.2–3.6 kg birth weight. Fully breast-fed at 15, 16, or 17 weeks
Keneba, Gambia (I. A. McGregor et al., unpublished observations, 1968)	M	2.9	2.9	116	—	99 infants in rural village, poor economic status and very high prevalence of infectious diseases
	F	2.7	2.4	108	—	
Dakar, Senegal (20, 57)	M	3.29	3.23	108	564	356 infants > 2.5 kg birth weight, mostly breast-fed
	F	3.14	2.71	101	514	
Jamaica (84)	M	3.48	2.43	—	—	229 children, total births in rural survey area; poor economic status. Almost all breast-fed during first 3 months
	F	3.31	2.19	—	—	
Hyderabad, India (86)	M	2.8	2.25	1015	575	87 infants. Rural sample, poor economic status. Breast-feeding usual for over 1 year
	F	2.7	1.80	885	490	
Bombay, India (46)	M	2.84	1.72	1024	538	61 infants of the sweeper community, very poor; 90% fully or mainly breast-fed at 3 months
	F	2.73	1.78	820	569	

children is not within the scope of this review, but is may be noted that lactose intolerance has been suggested as a cause of persistent diarrhoea and wasting among breast-fed children in Africa (50).

Growth

Growth rates provide a useful means of summing up the general nutrition and health of breast-fed infants. It was mentioned above that the volume and proximate composition of breast milk appear to be little affected by the nutritional status of the mother. This is strongly confirmed by records of the growth of infants whose diet consisted exclusively or predominantly of breast milk. It is, of course, necessary to consider growth rates during the first three or four months of life only, since after that the breast milk supply cannot be expected to meet the complete nutritional needs of the infant, and more or less adequate supplementary feeding is usually provided.

Table 1 gives differences between size at birth and size at 3 months, as shown in the well-known Harvard growth standards (65), together with incremental data from a number of fully longitudinal or semilongitudinal growth studies of infants stated to be fully breast-fed or coming from communities where breast-feeding is the rule. It seems reasonable to believe that the increments shown in the table were sustained for all practical purposes by a diet of breast milk alone. The figures show that early growth in weight, length, and head circumference is seldom seriously defective, and often well " up to standard " even when the mothers are from the poorest classes in Bombay, impoverished peasants living near Hyderabad, or hard-working women in one of the unhealthiest localities in West Africa. The evidence in Table 1 could, of course, be greatly augmented by using published data from cross-sectional growth studies from most countries of the world. There is practically universal agreement that breast milk is satisfactory as the sole food of young infants, irrespective of the standards of nutrition and health that prevail in the communities where the mothers live. (This is not the same thing as saying that individual mothers who are ill or badly nourished or overworked always continue to breast-feed satisfactorily; they often do not. We are concerned here with average patterns in communities, and they are unquestionably satisfactory.)

That satisfactory situation does not continue. In communities with slender resources, poor hygiene, low standards of nutrition, unsatisfactory levels of education, and so on, it is usual for the growth of infants to falter severely towards the end of the first 6 months. This cannot be interpreted simply in terms

Table 2. Growths increments in breast-fed babies of differing birth weights [a]

Birth weight group (kg)	Increments (birth–3 months)			Measurement at 3 months as % of birth measurement		
	weight (kg)	length (mm)	head circumference (mm)	weight (%)	length (%)	head circumference (%)
< 2.1	2.44	926	559	233	120	118
2.0–2.5	1.97	866	455	183	118	114
2.5–3.0	2.09	886	458	174	118	113
3.0–3.5	2.07	895	472	163	118	114
3.5 +	1.79	819	433	147	116	112

[a] Data of Banik et al. (5).

of inadequate lactation or failure to breast-feed; as already indicated, the situation is complicated by the necessity to provide supplementary foods and by exposure to infection at the time when passively acquired immunity is fading. Whether it is true, as many have said, that prolonged breast-feeding is particularly important where mothers are unable or unwilling to provide satisfactory breast milk substitutes under hygienic conditions during the critically important transition to an ordinary mixed diet, still seems to require objective confirmation.

Low birth weight

In view of the special vulnerability of infants of low birth weight (95), it is important to consider the extent to which breast-feeding is adequate for such infants. There is ample evidence that, in general, breast-fed infants of low birth weight gain less during early life than those that are artificially fed (1), which suggests that breast-feeding may not be best in those special circumstances. The situation is complicated by the fact that many underweight babies are fed for a considerable time on expressed or banked breast milk by means of a tube or bottle; whether this is really equivalent to breast-feeding may be worth investigation. Banik et al. (5) describe growth during the first 3 months of life of Indian (Delhi) babies most of whom were, presumably, exclusively breast-fed. Table 2 is a summary of their data.

Whether the increments in the weight of low-birth-weight babies are to be regarded as satisfactory or not, these data suggest that lactation is not seriously impaired, if at all, in mothers who have given birth to babies of low birth weight.

MATERNAL NUTRITIONAL REQUIREMENTS DURING LACTATION

Table 3 summarizes the recommendations of various Expert Groups convened by FAO and WHO. To facilitate comparisons, the data have been reduced to a common basis, which is specified in footnotes. These recommended allowances include a margin of safety (except for energy), which may be large: they are not minimum physiological requirements. Nevertheless, they show that nutritional requirements during lactation are usually higher than those during pregnancy, which in turn are higher than those of a comparable nonpregnant woman.

The FAO Second Committee on Calorie Requirements (21) considered that lactation imposed an additional requirement of 4.2 MJ (1000 kcal) per day on the following basis. The average milk production was taken as 850 ml per day, with an energy value of 2.5 MJ (600 kcal); this energy was tentatively assumed to be provided from food energy with a conversion efficiency of 60%. The FAO energy allowance does not correspond with the extra intake of healthy women who are lactating successfully, and it is certainly too high. Thomson et al. (90) found that the average dietary energy intake of 23 Scottish lactating women was 2.47 MJ (591 kcal) per day greater than that of 32 women who were bottle-feeding their babies. Taking into account probable subsidization of lactation through loss of maternal body fat, they calculated that the average efficiency of human milk production was greater than 90%, in agreement with findings, nearly 40 years earlier, of Shukers et al. (81). On this basis, according to Thomson et al., " for a woman producing 500–600

Table 3. Daily allowances recommended by FAO/WHO expert groups for nonpregnant, pregnant, and lactating women [a]

	Nonpregnant	Pregnant	Lactating
energy, J (kcal) [b]	9.6 MJ (2 300 kcal)	10.5 MJ (2 500 kcal)	13.8 MJ (3 300 kcal)
protein, g [c]	56	64	77
calcium, g [d]	0.4–0.5	1.0–1.2	1.0–1.2
vitamin A, μg retinol [e]	750	750	1 200
thiamine, mg [e]	0.9	1.0	1.3
riboflavin, mg [e]	1.3	1.4	1.8
niacin, mg [e]	15.2	16.5	23.8
ascorbic acid, mg [f]	30	50	50
vitamin D, μg cholecalciferol [f]	2.5	10	10
vitamin B_{12} μg [f]	2.0	3.0	2.5
folate, μg "free" folate [f]	200	400	300
iron, mg [f]	19	?	?

[a] The recommended allowances are based throughout on a "reference" woman (age 25; body weight 55 kg; weight gain during pregnancy 10 ± 2 kg; moderately active; living in a temperate climate).

[b] FAO (21). The daily allowance of energy for a pregnant woman is based on an additional allowance of 40 000 kcal (167.5 MJ) per pregnancy, taken over a period of about 6 months.

[c] FAO/WHO (23). A net protein utilization of 70 is assumed; "Protein intake considered adequate for all but a very small fraction (2.5 %) of the population."

[d] FAO/WHO (22).

[e] FAO/WHO (24). The allowances are based on recommended intakes of 0.4 mg thiamine, 0.55 mg riboflavin, and 6.6 mg niacin or niacin derived from tryptophan (60 mg tryptophan = 1 mg niacin) per 1 000 kcal (4.2 MJ).

[f] FAO/WHO (25). The allowance of iron for a nonpregnant woman assumes that 10–25 % of calories are derived from animal foods. "No figures are included . . . for recommended intakes by pregnant and lactating women, since recommended intakes must depend on knowledge of previous dietary practices."

Note: Some of the figures shown above have been modified in a recent WHO report (69a).

kcal/d in milk, the provision of about 600 kcal/d (2.5 MJ) as available dietary energy should be adequate. If it can be assumed that mothers who are breast-feeding exhibit a reduced level of physical activity, the practical allowance (additional to that of a nonpregnant, nonlactating woman) may be a little lower". Subsequently, Passmore et al., in a WHO monograph (69a), recommended an additional 550 kcal (2.3 MJ) during lactation.

An FAO/WHO Expert Group (24) related the requirements of thiamine, riboflavin, and niacin to dietary energy. If the additional energy requirement imposed by lactation is less than that shown in Table 3, the allowances of those vitamins will be reduced in proportion.

With reference to calcium requirements, an FAO/WHO Expert Group (22) "realized . . . that, in certain populations, successful repeated pregnancies and lactations are achieved with a calcium intake much below the suggested allowance". No specific comment seems to be needed with respect to the FAO/WHO recommendations on allowances of other nutrients.

LACTATION AND MATERNAL HEALTH

We shall not attempt to deal with aspects of breast-feeding that are difficult to quantify, such as its convenience and the satisfaction it gives to the mother. Undoubtedly breast-feeding is convenient under some social and cultural conditions and it can be a source of great pleasure to the mother as well as the baby; but these benefits may have been overrated by enthusiasts for breast-feeding.

As noted above, lactating women have increased dietary needs, and if these are not met there should be evidence of tissue depletion leading, if it continues long enough, to actual deficiency disease. Surprisingly, confirmatory evidence is scanty. The suspicion may be justified that concentration on the benefits of

breast-feeding for infants has led to the neglect of possible hazards for the mothers.

The simplest evidence of tissue depletion is loss of body weight during lactation. Venkatachalam (92) showed in a cross-sectional study that the mean weight of Chimbu women in New Guinea fell steadily with increasing parity. In villages near Madras, India, Devadas & Prema (17) reported that nursing mothers on their ordinary diets lost weight but gained when food supplements were provided. On the other hand, Gopalan & Belavady (31) reported no difference, according to parity or stage of lactation, in the mean body weight of poor lactating Indian women. In a prospective study of 14 such women for up to 90 weeks after delivery, " It was noticed that in some of the mothers the body weights remained practically stationary. In those that lost weight the loss ranged between 1.8 kg and 7.3 kg, and it took nearly a whole year for this loss to occur ". Gopalan & Belavady suggest that tissue losses might have been masked by increases of body water; this hypothesis does not appear to have been re-examined. In an impoverished West African rural community, Thomson et al. (89) found that lactating women maintained body weight remarkably well; in 8 women followed during 18 months of lactation, the mean weight at the end of lactation was nearly as high as it was at the beginning.

It would appear, from this limited evidence, that most lactating mothers, even when living in poor nutritional circumstances, are able to maintain body weight despite raised energy requirements. The problem deserves further study.

Other evidence of maternal deprivation during lactation is even more limited. Atkinson & West (3) found by means of photon beam scanning that there was a 2.2% loss of calcium, on average, from the femoral shaft during 100 days of lactation in well-fed women. They suggest that depletion of calcium in bone may be normal during lactation, even in the presence of an adequate intake. Whereas this is probably true, Walker et al. (94) doubt that the losses are cumulative, even in women having had several pregnancies and lactations while taking diets with calcium contents as low as 300–400 mg daily; they found no X-ray evidence of bone depletion in Bantu women with 7 or more children, compared with similar women with 2 or fewer children. Osteomalacia has for long been known to be precipitated by pregnancy and possibly by lactation, but such cases appear to be rather rare except among Indian immigrants to the United Kingdom (27) or severely malnourished women in oriental countries (97). It certainly does not appear to be the result of uncomplicated calcium deficiency; a concurrent deficiency of vitamin D may be implicated.

We have not traced any reports suggesting that other vitamin deficiencies occur more commonly than usual among lactating women. For reasons that are by no means clear, the literature gives the impression that, from this point of view, the hazards are greater during pregnancy than during lactation. It may be so. Hytten & Leitch (30) suggest that during pregnancy: " The fetus, using hormones as manipulators, overrides and resets the mother's homeostatic mechanisms in its own interests: it is the price of viviparity. " This power to adjust maternal metabolism is lost at parturition, and lactation does not involve the massive endocrine adjustment that characterizes pregnancy.

In their study of lactating primiparae in Aberdeen, Scotland, most of whom had access to adequate diets, Hytten et al. (38) found a high incidence of " minor " complaints such as tiredness, backache, and repeated minor infections. Whether this is a feature of lactation generally or of lactation in a modern urban society where breast-feeding is not the norm remains unclear. It is, however, a matter of simple observation that lactating women in the developing countries, especially in the " backward " rural areas where breast-feeding remains an everyday, natural event, are able to undertake hard physical work; whether they, too, feel more tired than usual appears to be unrecorded.

CONCLUSIONS

The natural history of breast-feeding

There is a large volume of published information on the prevalence and duration of breast-feeding from various parts of the world, but relatively few reports deal with large and representative samples and few give much detail. Interpretation from a nutritional point of view is often complicated by differences of terminology and by the lack of information on the extent to which complementary and supplementary feeding is used. There is astonishingly little objective information on the behavioural and psychological aspects of breast-feeding. Published information on the reasons for the rapid decline of breast-feeding in many communities seems to be based mainly on speculation and assertion. There is accordingly an urgent need for data on

all aspects of breast-feeding in various ecological settings. If such data are to be collected in an objective manner, the first concern of the observers must be to record the relevant facts without bias and without directly influencing the behaviour of those being observed. This is not as simple as it may seem, since in many communities the mothers themselves expect medical and nursing personnel to exhibit certain attitudes (e.g., hostility to artificial feeding or, for that matter, to breast-feeding) and may mould their responses accordingly. It may be necessary to secure the information indirectly, for example, during the course of some enquiry into another topic that is unlikely to cause the mother to conceal her real feelings towards breast-feeding.

Thus, it would be desirable to undertake longitudinal studies of maternal behaviour in relation to infant-feeding in various communities and socio-economic settings, with the object of recording, without interference, what really happens and what material and psychological influences mould maternal behaviour. Such studies could be combined with (and, if necessary, camouflaged by) observations of the growth and health of the infants and of the physique and health of the mothers. Particular attention should be paid to ways in which industrial society alters attitudes towards breast-feeding, with reference to problems of modesty, maternal activity including paid work, the influence of the media on infant-feeding methods, and " folklore " with respect to infant-feeding.

Practically nothing is known about the physiological capacity to lactate of mothers in different ethnic groups and under different environmental conditions. Particular attention needs to be paid to the possibility that, if a mother is unable to breast-feed satisfactorily through inadequate lactation, the baby may become sick and even die, particularly in impoverished and uneducated communities where maternal breast-feeding is the rule and satisfactory substitutes are not available. This might lead to considerable selection, so that mothers who continue to lactate for long periods are those with a relatively high capacity for lactation, whereas those who stop breast-feeding early are those with a low capacity.

Studies of variations in milk output and composition should be attempted in impoverished communities where sustained breast-feeding is usual. How is the level of milk production related to the growth, health, and survival of infants and young children? Studies should be made of the kinds and amounts of supplementary feeding in relation to adequacy of milk production. Special attention should be given to the " natural history " of breast milk production and the nutritive value of such milk after prolonged lactation, e.g., 6 months post partum.

There is a need for a study of weaning practices and of the growth and health of infants and young children around the time of weaning. Is the time of weaning influenced by the health and condition of the child? In view of the observations and speculation of Cantrelle & Leridon (12), is it possible that the children weaned early are those whose growth and health have been failing, whereas the ones weaned late are those whose growth and health have remained favourable? Does weaning—which may be very abrupt in some communities—lead to any faltering of growth or impairment of wellbeing? How rapidly do the maternal breasts regress to the nonlactating state, and are any difficulties experienced?

It is known that in some communities weaning marks the time when a return to sexual activity is expected. Under what circumstances and with how much consistency are such customs observed? Are there less obvious forms of parental behaviour that might create some relationship between lactation and the amount of sexual activity? Attempts might be made during studies of breast-feeding to establish how much sexual activity takes place at various stages of lactation and after weaning.

Lactation and health

A considerable amount of work has already been done on the anti-infective properties of human milk and on the prevalence of various infections in fully breast-fed and fully bottle-fed infants. There is, however, a need for more information, particularly from developing communities where standards of hygiene are poor. If breast-fed infants have fewer infections, is this due to a protective influence of breast milk, or to less exposure to a highly infected environment? Is the prevalence of infection related to the amount and nature of supplementary feeding? Studies of infections in infants who are wholly and partly breast-fed should be planned from a broadly ecological point of view.

Information on types of morbidity other than infection in relation to infant feeding is so fragmentary as to be little better than speculation. There is a particular need for long-term prospective studies of hypotheses that seem reasonable. Where possible, community data on infant feeding collected during studies such as those recommended above should be

used to provide baselines for long-term follow-up studies of growth and health.

The low-birth-weight infant (who may be prematurely born or "light for dates") presents a problem of special importance. The very small infant that is unable to suckle will quickly die in a community where special facilities for feeding and care cannot be provided. Such babies are outnumbered by those that, although technically of low birth weight, are mature enough to ensure their own survival under reasonable "natural" conditions. There appears to be very little information on whether such infants, when fully breast-fed, develop as well as similar infants that are fed with suitable breast milk substitutes. It is known that artificially fed babies of low birth weight tend to grow more rapidly, at least during infancy, than those who are breast-fed. Does this confer any subsequent advantage from the point of view of physique, function, and general health?

An attempt should be made to organize long-term follow-up studies of low-birth-weight infants (both prematurely born and "light for dates") who have been fed in different ways. Under appropriate conditions, randomly chosen feeding regimens might be prescribed. Observations during follow-up should include physical measurements, tests of neurological and psychological function, and records of general health.

Full lactation undoubtedly causes a considerable increase in the nutritional needs of the mother. It is important to establish the extent to which these needs are being met by depletion of her own tissues. In this context, it should be remembered that pregnancy may have been accompanied by the storage of fat and possibly of other nutrients that will be discarded after pregnancy whether or not lactation occurs. The simplest measure of maternal gain or loss is change in body weight. Where possible, observations on weight may be accompanied by metabolic and biochemical studies designed to measure changes in body composition. It is also important to establish whether or not sustained lactation is accompanied by any increased incidence of clinical deficiency states. Thus, studies of maternal physique, body composition, and health during lactation are required that are related to dietary intakes and physical activity.

We are well aware that few, if any, of the abovementioned study proposals will be easy to carry out. The lactating mother is a preoccupied, busy, and often psychologically vulnerable individual—not at all the ideal subject for close observation and experimental "interference". Elaborate precautions (even subterfuges: see Hytten et al. (39)) may have to be adopted to prevent or at least minimize changes induced by the observer in the very phenomena that he wishes to observe. A premium must be placed on technical adequacy: short-cut procedures and inadequately tested techniques may do little more than add to the mass of dubiously reliable information and sheer speculation that already clutters the literature. As much effort may need to be devoted to the problem of how to collect information reliably as to the collection itself. A "fact" is only as reliable as the method used to establish it.

Definitions and classifications

The existing literature is also less useful than it might be because terms are often poorly defined and different classifications may make accurate comparisons impossible. There is a need for standard definitions of terms such as "fully breast-feeding", and "weaning". Numerical data should be expressed in standardized ways that will facilitate comparisons between data from different sources; for example, the proportions of mothers who are breast-feeding exclusively might be specified at prescribed intervals after parturition. Finally, all reports should contain enough information to permit intelligent interpretation of the data from a broad ecological standpoint.

RÉSUMÉ

ASPECTS NUTRITIONNELS DE L'ALLAITEMENT AU SEIN

Beaucoup de personnes sont fermement convaincues que l'allaitement au sein est le meilleur. Mais l'auteur, se plaçant à un point de vue scientifique, estime qu'il s'agit là d'une hypothèse demandant à être vérifiée.

L'allaitement au sein est une forme de comportement social tandis que la lactation est une fonction physiologique; les données relatives à la fréquence et à la durée de l'allaitement au sein n'indiquent pas nécessairement que la lactation soit adéquate.

L'article offre un résumé de rapports récents sur la fréquence et la durée de l'allaitement au sein dans divers pays. En général, il est moins prolongé dans les collec-

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The Weanling's Dilemma

BACTERIAL CONTAMINATION IN TRADITIONAL GAMBIAN WEANING FOODS

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Summary Although emphasis on infant feeding is rightly being placed on breast-feeding, the need for safe weaning foods for the developing world must also receive its due attention. Traditional weaning foods used for young infants in a typical West African village can be as hazardous, bacteriologically, as commercial milk products, and providing a breast-fed child with supplements under the conditions which prevail in much of the developing world is potentially dangerous, whatever the source of the food.

INTRODUCTION

WEANLING diarrhœa related to poor hygienic conditions has long been recognised as a major health hazard for infants in the developing world.[1] However, in the past year or two, publicity has focused on just one aspect of this health hazard—namely, that associated with commercial baby milks or the so-called "occidentogenic" aspect. Unfortunately, much less attention has been paid to the role of local weaning foods in weanling diarrhœa. There is a danger that traditional weaning foods will be assumed to be free from this problem (particularly when heat is used in their preparation), but this is far from being the case and it is important that we face up to the more basic environmental issues involved.

We describe the situation in an isolated, rural, West African village where it is as true now as it was in 1962–63 that commercial milk preparations and the use of feeding bottles are virtually unknown.[2] In spite of this, infantile diarrhœa is common and we have measured its impact on the growth and general wellbeing of the infant.[3-5] Although there will be differences in detail, the problems described here are probably relevant to most of the developing world; there are, for example, many similarities between this community and those in Central America described by Gordon and colleagues.[6]

METHODS

This study was carried out in the village of Keneba, The Gambia, a subsistence farming community which has been described in detail elsewhere.[7,8] The custom is to breast-feed the child for about the first 18 months, but traditional weaning foods are introduced as a supplement after 3 months. Since 1974, we have observed each child from birth for growth, dietary intake, and health status. Daytime breast-milk intakes (6.30 A.M.–6.30 P.M.) were measured each month by a carefully standardised test-weighing procedure. In order not to lose subjects over a long follow-up period, measurements were made of intakes over only 12 hours and these were carried out in such a way that the mothers could continue with their normal daily activities.

Traditional weaning foods were tested at regular intervals after cooking and in different seasons for *E. coli*, *B. cereus*, *Staph. aureus*, *Cl. welchii*, and *Salmonella*; the total viable count was also made.[9] The first weaning foods to be introduced are watery cereal gruels, the most common being made from millet or rice. The time-consuming and tedious method of preparing these foods includes the pounding of the damped grain, mixing of the resultant flour with cold water, and perfunctory boiling which, if prolonged, would result in a gelatinous mixture too thick for a young infant. Because of the time involved, and because food is too valuable to be thrown away, the common practice of cooking a relatively large amount at one session means that residual food may not be eaten until 8 hours after preparation and storage at ambient temperatures of 30–40°. Water was examined for *E. coli* count and total viable count[10] and for the presence of *Salmonella*.

RESULTS

From 3 months of age onwards the body-weight of the infants fell behind the internationally accepted standard (fig. 1A),[11] intake of breast-milk fell (fig. 1B), and traditional gruels were used increasingly to supplement the diet (fig. 1C). Diarrhœal disease also appeared at 3 months and was commonplace by 6 months (fig. 1D) although the exact prevalence was subject to seasonal variation.

Preliminary studies established that the supplementary gruels were frequently heavily contaminated with potentially pathogenic microorganisms. To determine the points at which bacterial contamination occurred, investigations were carried out at various stages during the process of preparation and storage.

The millet flour itself was contaminated; for example, counts of up to 10^9 total organisms/g and 10^2 *E. coli*/g

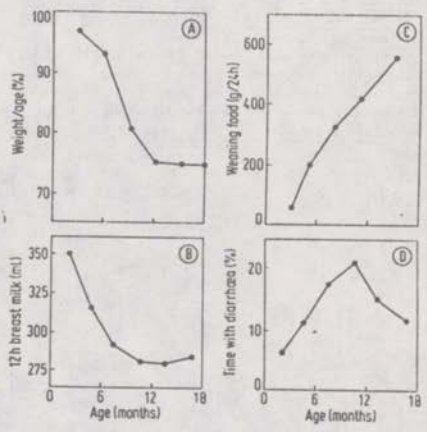

Fig. 1A—Percentage expected weight of village children by age (1422 data points).

Fig. 1B—Breast milk consumed between 6.30 a.m. and 6.30 p.m. (417 data points).

Fig. 1C—Traditional weaning food consumed (1681 data points).

Fig. 1D—Percentage of each month the average child is ill with diarrhœa (772 data points).

BACTERIAL COUNTS IN A TRADITIONAL WEANING FOOD 8 h AFTER PREPARATION AND IN TWO BABY MILK FORMULÆ PREPARED WITH BOILED VILLAGE WATER AND STORED UNDER SIMILAR CONDITIONS

Preparation	*E. coli*	*B. cereus*	*Staph. aureus*	*Cl. welchii*	*Salmonella*
Traditional weaning food	$>10^3$	10^4–10^5	10^2–10^3	10^4–10^5	Not isolated
Milk 1	$>10^3$	10^3–10^6	10^3–10^6	$>10^2$	Not isolated
Milk 2 (biologically acidified)	$>10^3$	10^2–10^3	10^2–10^3	$<10^2$	Not isolated

Values are microorganisms/g food except for the *Salmonella* which was sought in 25 g. (1 ml of milk=1 g).

have been obtained. The water used in cooking was also highly contaminated; during the wet season, for example, in September, 1977, levels of 10^5 total organisms per ml and 10^2 *E. coli*/ml were common.

Because the cooking cannot be prolonged, many of these organisms survive and even in the simmering mixture contamination of up to 10^4 total organisms/g have been measured. This food is then poured into the child's feeding bowl. These bowls are rigorously washed with fresh well-water, scrubbed with palm leaves until they appear genuinely clean, then left to dry on stands in the sun. In spite of this, total viable counts of the order of 10^3–10^6 organisms from an empty bowl were usual. Fig. 2 shows the rate of bacterial multiplication in a typical gruel during storage in a bowl; the initial total viable count was considerable and it increased rapidly thereafter.

To place our findings on traditional weaning foods into the perspective of current controversies surrounding commercial baby milks, two well known, readily available milk formulæ were reconstituted with boiled well-water. When freshly prepared, the reconstituted milks were bacteriologically similar to the freshly prepared local gruel, a total viable count of 10^2–10^3 organisms/ml of milk reflecting mainly the degree of contamination of the containers. Milks prepared with unboiled well-water were contaminated by 10^4–10^5 organisms/ml, depending on well-pollution which varies with seasons.

Since prepared infant foods are stored until they have been completely consumed different weaning foods were examined under these conditions. By 8 hours (see accompanying table) the levels of *B. cereus* and *E. coli* in one of the reconstituted milks were not much higher than in the gruel, regardless of whether the milk had been made up with boiled or unboiled water. Only *Staph. aureus* contamination was greater in the milk, but not in the milk that had been "biologically acidified"; levels of *B. cereus* were noticeably lower in the biologically acidified preparation. *Cl. welchii* was essentially absent in both milks but was present in appreciable quantities in the traditional gruel. A more detailed report on our bacteriological studies of Keneba infant foods will be presented elsewhere, but it is clear that traditional foods as well as imported ones are subject to marked bacterial contamination.

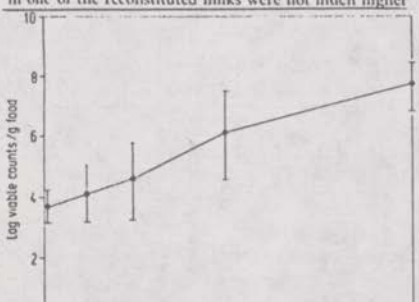

Fig. 2—Aerobic bacteria (total viable count/g) in traditional weaning food immediately after preparation and at progressive intervals afterwards. Values are the mean of four studies ± S.D. carried out at different times of the year.

DISCUSSION

In a developing country such as The Gambia, feeding babies with any food other than breast-milk is bound to be hazardous. The main aim in such areas is to maximise and sustain production of breast-milk, and this has been given top priority in our applied research programme. Nevertheless, it would be naive not to expect that some degree of supplementary feeding will be necessary for many infants after 4–6 months of age, if rates of growth approaching those given by Jelliffe (1966)[11] are to be achieved.[12]

Microbiological contamination is clearly not just confined to commercial baby milks and feeding bottles. It is found equally in traditional weaning foods and the simplest of feeding containers (it is difficult to envisage any container which would be easier to clean than a bowl and spoon). Health workers and educators should appreciate that traditional weaning foods are often contaminated and that stereotyped advice about domestic and personal hygiene can have only a limited impact in a situation where sterility can never be achieved. The most important single piece of advice would probably be to give infants only freshly prepared food. However, even this simple piece of advice is difficult to implement when mothers have considerable demands on their time besides the preparation of food for their children.

Unless one can seriously envisage a radical improvement in the home environment of mother and child in the third world, food scientists and nutritionists must pay more attention to the development of better weaning foods. These should be easy and quick to prepare and, if intended for the young infant, should be of a liquid or, at most, a weak semisolid consistency. Moreover, they must be reasonably resistant to bacterial overgrowth for at least the 1–2 hours when the infant is likely to be feeding.

Apart from microbiological contamination, traditional Gambian weaning foods, like those of many other countries, are nutritionally inadequate. The average available energy density of the millet gruel is only one half that of the Keneba mothers' breast milk (34 kcal or 140 kJ instead of 70 kcal or 290 kJ/100 g). Mineral

requirements are also poorly served, either because of low absolute levels, as in the case of calcium (2 mg/100 g compared with 35 mg/100 g in human milk), or because of virtual unavailability due to chelation with phytic acid or unavailable carbohydrates, as occurs with copper and zinc. Vitamins A and C are virtually absent in the gruel and riboflavin and nicotinic acid concentrations are also lower than in human milk. Intelligent use of local food resources may well produce a "multi-mix" supplement adequate for the older infant and pre-school child, but the problem for the young baby is more difficult to solve. Since most nutritionists believe that the optimum food for young infants is milk, especially human milk, supplements should resemble breast-milk as closely as possible. Whilst this is perhaps counsel of perfection, particularly in the third world, breast-milk should nevertheless be the reference standard for any substitute food intended for the young infant.

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Patient and Doctor

TAKING A HISTORY FROM THE DIFFICULT PATIENT*

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MEDICAL history-taking has always depended on asking questions. We learn in medical school about the pathological processes that invite the review of systems, and every discovery of a new disease or disease process adds to the list of questions to be remembered—the basic material of the historical investigation. Yet, patients so often defeat us. This one is too frightened even to hear or answer, another cannot remember the information we seek; another may conceal a vital fact, because of uneasiness about diet, drinking, or drugs. There are thus three problems—fear, subconscious repression, and concealment.

Successful questioning depends on an investigative state of mind in both the questioner and the questioned. The questioner puts his query to the questioned. The latter, if he is in a favourable state of mind, cooperates, takes up the question, puts it to himself, notes the answer, and returns it more or less undistorted to the questioner—a formidable exercise in cooperation. Most of my suggestions will concern tools to repair breaks in the links in this chain.

The very anxious patient, specifically someone too anxious to talk, too frightened to put our questions to himself, perhaps too frightened even to listen, causes a very early break in the chain. This situation calls for an empathic approach.

A second break comes later. The patient can listen and is also willing to give an honest answer, but has difficulty in getting information from himself. This problem arises most dramatically in amnesia, but some measure of this repression, as it is called, accompanies many conditions, particularly those hysterical states that present confusing physical signs. Then the questioner's tool is an associative technique.

Finally, the break may come very late. The patient is attentive, knows the answer, but will not talk; essentially he does not trust us. This lack of trust is common in patients who suspect that they have heart-disease, cancer, or other dangerous conditions. The patient often starts by trusting us, but as the examination proceeds he becomes frightened of our discovering something fatal, and begins to withhold information. Or he may not have trusted us from the start: the drinkers and the addicts come into this group. What we have to do is to overcome the distrust and the patient's belief that we are unsympathetic or even dangerous. "Offsetting the projections" is the tool needed with these patients.

FEAR

Usually we try to deal with fear by direct reassurances: "You'll be all right". In the calmer aftermath of the reassurance we proceed with our questions. Understandably the patient's fear returns: "If there's nothing wrong, why is the doctor questioning me?" Then we reassure again, and hope to complete enough of the examination to make some decision possible before the patient's faith in our contradictory behaviour expires.

The method I suggest as an alternative to reassurance will at first also seem contradictory. This method involves acknowledging and sharing the fear, thereby apparently reinforcing it. It will not be immediately obvious that by acknowledging and sharing the fear we, so to speak, take it on ourselves and away from the patient.

Reassurance must often be given indirectly; in the case of the frightened patient by reinforcing his resources for bearing fear. It is the difference between telling someone that the weight he carries is not so great as he thinks it is, and helping him bear it.

The simplest form of verbal sharing is the use of exclamations. Each culture has its own particular signatures of understanding; not everyone would use today the "By Jove's" and "Jolly good's" that Dr Watson used to move Sherlock Holmes along (when a question too often produced the contemptuous "Elementary, my dear Watson"). But we have only to recall the everyday speech of understanding friends to know what moves us. Essentially the friend echoes the feeling conveyed. "How terrible!", "How wonderful!", "How frightening!" We feel understood. This must be one of the most primitive devices by which people distinguish friend from foe.

A more complex form of verbal sharing is the use of statements describing the other's mood—for example, "You must feel awful". The implication is that anyone would feel awful, it is natural to feel as you do. The state of mind of the other is supported by the speaker. It is often possible to go further and make this support more convincing by reference to what

*Based on lectures at the Scott and White Clinic, Temple, Texas, and at the Hampden District Mental Health Clinic, Springfield, Massachusetts.

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Malnutrition and gastroenteritis in The Gambia

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Summary

There is a strong association between failure to thrive and diarrhoeal disease in young Gambian children.

The high prevalence of diarrhoeal disease seen is not due to frequent attacks of "acute infantile diarrhoea" of viral origin. The picture of protracted diarrhoea is almost certainly due to colonization of the upper bowel and the high prevalence demonstrated to be at least partly due to the environment to which the children are exposed, particularly in terms of food and water hygiene.

Until this cycle of upper bowel colonization and protracted diarrhoea is broken, a diet-based nutrition programme cannot be expected to function effectively.

Introduction

A number of salient points emerge from the analysis of the pattern of infection in Keneba (COLE & PARKIN, 1977). There is a very high prevalence of diarrhoeal disease in our survey population. Between the ages of seven and 13 months the children, on average, have diarrhoeal symptoms for six days in each month, with a peak occurring at nine months of age. Diarrhoeal illness contributes almost exclusively the non-dietary element in failure to grow. The extent of this contribution is such that an intervention programme intended to improve the nutritional status of these children could be expected to achieve only limited success if it is based on dietary measures alone.

One may speculate that radical improvements in water supply, sanitation and personal hygiene could be expected to reduce the amount of diarrhoeal disease occurring (WATT *et al.*, 1953; HOLLISTER *et al.*, 1955; MORLEY, 1973). Such an approach, however, holds out little hope of early alleviation of the problems facing an isolated rural community such as Keneba.

Our overall aim is to try to determine some simple specific measures that can be introduced at rural village level to reduce the contribution of diarrhoeal disease to growth failure. Clearly, before this can be achieved a better understanding is required of what has hitherto been referred to as diarrhoeal disease.

Fortunately, in our survey community the term diarrhoea (Mandinka, Konobayo *lit:* the belly runs) is in almost all cases used quite accurately. Dysentery, much less often used, has a more variable meaning and further clarification is always sought. Our diagnosis, then, is in the first instance largely based on the mother's history.

Specific investigations have been pursued along three main channels. Firstly we have looked at possible sources and routes of transmission using water and food bacteriology studies. Secondly we have tried to identify a causal agent using stool microbiology. Thirdly we have sought, by way of upper bowel studies, a possible mechanism to explain the association between frequent diarrhoea and failure to thrive.

Water bacteriology

The village is served by six wells between 10 and 25 years old, three having been built by the Area Council and the other three by the villagers themselves. These vary between 45 and 60ft in depth and a small part of the top section of the shaft only may be lined by cement.

Water is hauled by hand from these wells using buckets, often improvised from old inner tubes, on ropes. It is then transferred to a larger container, such as a tin bath, and carried back to the compound. There the water storage pots are replenished. These unglazed earthenware pots, which vary in size from 25 to 70 litres, may be stored in the kitchen or out in the yard areas. Different pots are kept for washing and for cooking and drinking purposes. They are usually covered and may occasionally be cleaned out, although this practice is far from routine. Water is obtained from them by dipping in with a small container, often a tin can which lies around to hand.

Samples were taken from each well on two occasions and from each of a 50% sample of water storage pots used by survey children on one occasion. The bacteriological methods used were standard to the U.K. (DHSS, 1969). Four types of examinations were made. Colony counts ranged from $2{\cdot}6 \times 10^2$ to $4{\cdot}0 \times 10^{10}$ per ml. Faecal coliforms almost always exceeded 1,600 per 100 ml of water with a range from 60 to 18,000 per 100 ml. Total coliform counts were even higher. In England it is recommended that supplies should be condemned where this figure exceeds 10 coliforms per 100 ml. Examination of unconcentrated 50 ml aliquots of water for specific pathogens yielded salmonellae from one well and from two water pots not filled from the affected well. In a different situation, concentration techniques would be used and it is likely that contamination with salmonella is more widespread than we have shown.

In summary, all Keneba well water shows marked evidence of faecal contamination and there is further evidence to suggest subsequent additional contamination in some of the water pots.

Food bacteriology

A small pilot study has also been initiated into the bacteriology of some of the commoner foodstuffs eaten by our survey children.

The diet of the population is cereal based, the nature of the cereal being to some extent determined by season and availability. Commonest are rice, millet, finger millet, sorghum and maize. Groundnuts and green leaves are commonly added. The initial weaning food, often introduced around the age of four months, is usually a

very thin watery gruel based on one of the cereals. As the child grows older, food is usually presented in a more concentrated form, with more things added.

Although there is a tendency for adults to observe three meal-times per day, feeding of small children is particularly haphazard, never more so than during the rains, when considerable time and effort is diverted towards farming activities. At such times small children and infants may be left in the compounds in the care of young "nursemaids" with a supply of porridge or gruel for the next eight to nine hours, and food from the evening meal is sometimes stored overnight.

The bacteriological results indicate that freshly cooked food is generally of acceptable quality. However, after 30 minutes, *Bacillus cereus* which was present in two-thirds of the samples reaches unacceptable levels (10^5 to 10^7 organisms per g of food) which are known to be associated with gastro-intestinal symptoms (THATCHER & CLARK, 1973).

Evidence of coliform contamination is also found after periods in excess of 30 minutes, unacceptable levels being detected in one-third of the samples, presumably introduced after cooking.

From the description of the feeding habits it can be seen that children in the age group under discussion will be consuming food with significant levels of bacterial contamination for much of the time.

Stool bacteriology

During the 1975 rainy season from August to October, that is covering the period of peak prevalence of diarrhoea in our survey population, Dr. T. H. J. Matthews from the Clinical Research Centre, Harrow, carried out a stool bacteriology survey in Keneba. He took as his subjects Keneba survey children aged between six months and three years with an immediate history of diarrhoea of not more than four days duration. Specimens were also obtained from the same population when the children were not suffering from diarrhoea, but attended the clinic either with other ailments or, at our request, for routine examination. The results are summarized in Tables I and II.

The over-all isolation rate of bacterial pathogens of 5% is low by any standards (SEN, 1962; BACK & BROOKS, 1962; CHAN & LUCAS, 1964).

Table I – Stool bacteriology—isolation rates

	Numbers of specimens	Bacterial pathogens
Total	497	25 (5·0%)
Diarrhoea	356	20 (5·6%)
Routine	141	5 (3·5%)

Table II – Stool pathogens isolated

	Numbers	% of total +ve
Total	25	100
Pathogenic *E. coli**	16	64
Salmonella	5	20
Shigella	4	16

*The five positive routine stool specimens all yielded path. *E. coli.*

Table III – Virus isolations in 27 selected Keneba children

	Tissue culture	Electron microscopy
Adeno virus	4	—
Entero virus	25	—
Corona virus	—	5
Other virus-like particles	—	5
Rota virus	—	0
	—	—
Total	29	10

Stool virology

During this period samples of stools in which no bacterial pathogens were demonstrated were sent for tissue culture and electron microscopy at Dr. Tyrrell's Unit at the Clinical Research Centre, Harrow. A total of 177 specimens were submitted, of which 138 (78%) were from patients with diarrhoea.

Table III indicates the results on the first 27 specimens examined. No specimen contained rotavirus. The significance of the corona viruses isolated is open to speculation. Virtually all specimens contained enteroviruses on tissue culture, but as previous studies have shown no relationship with disease (SCRIMSHAW *et al.*, 1968), no attempt has been made to type these, at least for the present. Since the completion of this initial analysis many more faecal samples have been analysed, with the same result. The findings will be published in detail elsewhere.

These results contrast strikingly with the findings elsewhere of a strong association of a virus, variously termed duovirus, rotavirus, orbivirus and reo-virus-like agent with acute diarrhoeal illness in young children, a subject which has been well reviewed (Anon., Editorial, *Brit. med. J.*, 1975). This may reflect a true difference in the aetiology of diarrhoea in our rural survey population as compared with urban populations, often the subjects of other reports. It may also reflect the quite different nature of the protracted or recurrent diarrhoea which is the pattern seen in Keneba.

Upper bowel studies

In a further attempt to clarify the nature and effect of the diarrhoeal illness, during the rainy season this year one of us (J.P.K. McC.) carried out studies of small intestinal function by means of duodenal intubation.

A cohort of children was taken in Keneba between the ages of six and 20 months. All had a history of protracted diarrhoea. Of the cohort of 46, six cases (13%) were technical failures and the parents of three children (7%) withheld consent, giving a remainder of 37 (80%) successful intubations.

These children were brought fasting to the clinic, where they were sedated. A tube was passed via the mouth and having passed the pylorus of the stomach (as judged by the appearance of a bile stained aspirate with a high pH), the tube was advanced a further 20-25 cm, manipulating the patient to bring it to the duodeno-jejunal flexure.

After 30 minutes a test meal was given, being a modification of the "Lundh meal" used in adults. This meal of chicken, glucose and corn oil was introduced via a separate naso gastric tube and post-prandial juice collected for a total of two hours. This technique is currently in routine use at the Hospital for Sick Children,

Great Ormond Street. The following components of the aspirate were examined, aerobic and anaerobic bacteriology, parasites and total and individual bile salt concentrations.

Bacteriology

Aerobic and anaerobic bacteriological studies have so far been carried out on 25 of the patients. A few of these studies were carried out in Keneba, but most samples were returned to London, frozen at −70° in glycerol transport medium. The total count in healthy children is usually considered to be not greater than 10^3 organisms per ml (GRACEY & STONE, 1972; TOMKINS *et al.*, 1975). In 19 of the 25 patients (76%) the total bacterial count was 10^4 per ml of juice or greater and therefore clearly abnormal (Fig. 1).

In addition the spectrum of organisms found was clearly abnormal. In 14 (56%) of the patients significant numbers of *Klebsiella* were found, in six (24%) *Pseudomonas*, in 14 (56%) *E. coli*, and in four (10%) *Bacteroides*. One patient had *Salmonella paratyphi B* in the duodenal juice. The gram-negative organisms have been kept and will be assayed for their ability to produce toxins.

Parasites

The only parasite detected was *Giardia lamblia*. This was observed in specimens of juice from six (16%) of the 37 cases. None of these was under the age of a year. Looking only at the group over the age of a year gives an isolation rate of 22%—this merits further study.

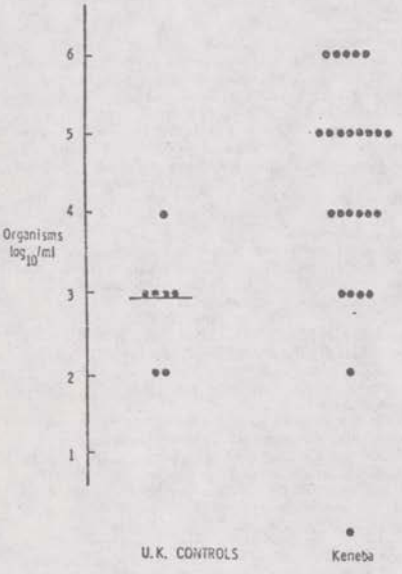

Fig. 1. Total bacterial counts in jejunal aspirates from 25 children in Keneba, The Gambia; controls are from data collected in the U.K.

Bile salts

Bile salts are synthesized in the liver, stored in the gall bladder and discharged into the small intestine during a meal. There they play a key role in many of the digestive processes, coming together above a certain concentration to form micelles which solubilize dietary lipid ready for absorption.

There are three main bile salts, namely, cholic acid, chenodeoxycholic acid and deoxycholic acid. Their molecular structure (Fig. 2) differs in the number and position of the hydroxyl groups on the characteristic steroid nucleus. Cholic acid has three hydroxyl groups (a trihydroxy bile salt), the others having two (dihydroxy bile salts).

Normally these bile salts are conjugated to one or other of the two amino-acids glycine and taurine. Unconjugates may be found in the presence of bacterial colonization of the gut, as may disturbances in the total and individual bile salt concentrations.

These aspects have been examined in the duodenal juice of the patients, using the 3 hydroxysteroid dehydrogenase assay and separation by thin layer chromatography. The results are summarized in Figs. 3–5. One half of the Keneba survey population specimens fall below the critical micellar concentration of 2 mM per l (Fig. 3). The mean total bile salt concentration in a group of U.K. controls was 7 mM per l. The ratio of glycine:taurine conjugates is usually three; half of the Keneba survey children were clearly abnormal, with values in excess of six (Fig. 4). This is identical to the pattern seen in ileal resections and in this situation is likely to be due to malabsorption of the taurine conjugates. Normally dihydroxy bile salts account for 60% of the total bile salts present. Four-fifths of the Keneba series had a dihydroxy bile salt concentration of less than 50% of the total (Fig. 5).

Thus well over half of the survey cohort showed significant disturbances of bile salt metabolism, likely to be due

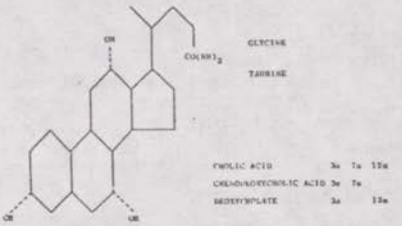

Fig. 2. Basic structure of the three main bile salts in jejunal aspirates.

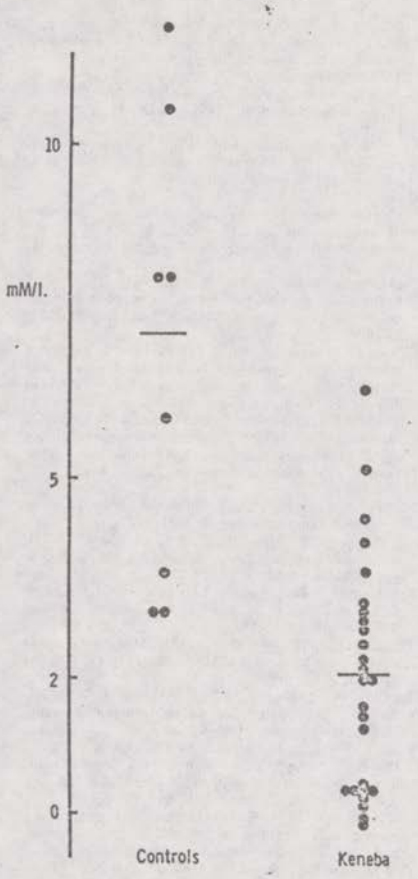

Fig. 3. Total bile salt concentration in jejunal aspirates from 25 children in Keneba, The Gambia; controls are from data collected in the U.K.

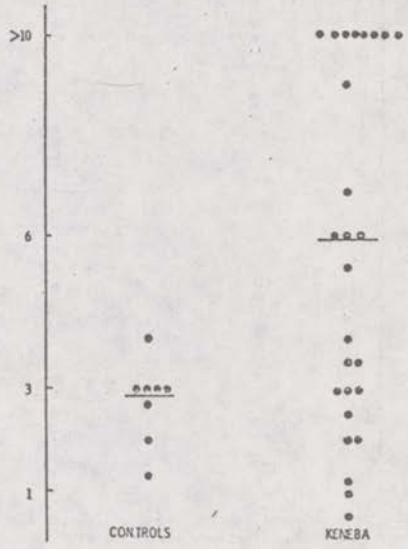

Fig. 4. Glycine:taurine ratio in the bile salt conjugates of children from Keneba, The Gambia; controls are from data collected in the U.K.

to malabsorption of bile salts. The importance between the diarrhoeal disease in Keneba and colonization of the upper gut seems established. The links between this clinical abnormality and the poor hygiene of the village food and water supplies is being investigated in more detail. It is hoped that suitable preventive interventions will be possible and the effectiveness of these will be quantified, their effectiveness being judged on how well they are able to minimize the poor growth performance demonstrated in the first paper of this symposium (WHITEHEAD *et al.*, 1977).

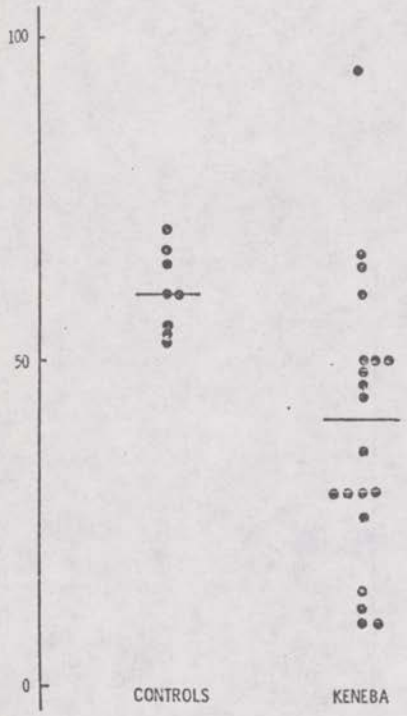

Fig. 5. The percentage of dihydroxy bile salts in Keneba, The Gambia; controls are from data collected in the U.K.

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A study of the age of onset, diet and the importance of infection in the pattern of severe protein-energy malnutrition in Ibadan, Nigeria

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1. Fifty unselected consecutive cases of protein-energy malnutrition (PEM) presenting at the General Out-patient Clinic of the University College Hospital, Ibadan were classified as marasmus (twenty), kwashiorkor (nineteen) marasmic-kwashiorkor (seven) and undernutrition (four) according to the Wellcome Classification of PEM (*Lancet*, 1970; Waterlow, 1972).

2. The mean age of the children with marasmus (22·4 months) and of the children with kwashiorkor (25·4 months) were not significantly different. The children with marasmic-kwashiorkor (27·8 months) were significantly older than the children with marasmus.

3. The deficits in weight- and length-for-age were similar to values previously reported (Waterlow, 1972) even though the children with marasmus tended to be older and the children with kwashiorkor younger than has been reported. Values obtained for the deficit in length-for-age suggested that the children with marasmus had been undernourished from birth whereas the children with kwashiorkor had apparently grown normally until they were 10 months old. It is possible that the history of growth in the first year of life influences the final form of PEM in these two groups of children.

4. Forty-nine of the fifty children had been breast-fed for at least 9 months and nine children had been breast-fed for 2 years. Of the twenty children with marasmus nine were still receiving some breast milk. The diets fed to weaned children with marasmus and to children with kwashiorkor were identical and consisted solely of a maize-starch gruel with no supplementation of protein or vitamins. The similarity in the dietary histories of the two main groups of children suggests some uncertainty concerning a specific role for protein deficiency in the development of kwashiorkor.

5. All the children had had similar infections. The most common of these were measles (morbilli) (40% of all cases) and gastrointestinal infections. However the children with marasmus had a history of chronic diarrhoea whereas the children with kwashiorkor had had more acute diarrhoea.

6. The similar dietary histories but dissimilar histories of infection given by the mothers of the children with marasmus as opposed to those with kwashiorkor suggest that recurrent diarrhoea was at least partially responsible for the chronic undernutrition in the group of children with marasmus. Furthermore although the weaning diets were inadequate the final deterioration in nutritional status was precipitated by gastroenteritis, often following measles.

Protein-energy malnutrition (PEM) manifests itself in two main forms: kwashiorkor and marasmus. There has been much controversy with regards to the aetiology of the two conditions, as well as their age of onset (Waterlow & Alleyne, 1970). Much

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Table 1. *The distribution of fifty malnourished children among the four main groups recognized in the Wellcome Classification of protein–energy malnutrition* (*Lancet*, 1970)

(Weight deficits were assessed against local standards (Janes, 1975))

Group	Criteria of Wellcome Classification of PEM: Oedema	Weight-for-age (% expected weight-for-age)	No. of children
Kwashiorkor	+	60–80	19
Marasmic-kwashiorkor	+	60	7
Marasmus	−	60	20
Undernutrition	−	60–80	4

+ Oedema present; − oedema absent.

of this controversy has been due to confusion over the criteria which should be used to identify marasmus and kwashiorkor. A simple set of criteria based upon the weight deficits of the children and the presence or absence of oedema was suggested by a Wellcome Foundation working party (*Lancet*, 1970). They recognized four main groups of malnourished children (Table 1) and their recommendations have been discussed in detail by Waterlow (1972). Since their report was published several workers (Shakir, Demarchi & El-Milli, 1972; Hijazi, 1974) have used the Wellcome Classification (*Lancet*, 1970) to describe the relative incidence of the four main types of PEM in hospital cases.

It has been proposed that the dietary aetiologies of kwashiorkor and marasmus are different (Dean, 1965; McCance, 1971), kwashiorkor being due to protein deficiency, and marasmus the result of energy deficiency. However in a number of countries the ages of the children with either marasmus or kwashiorkor appear to be different and because of this age difference it is difficult to make valid comparisons of the dietary factors associated with the two conditions. In one of the few published studies of the dietary histories of children of similar ages suffering from either kwashiorkor or marasmus, Gopalan (1968) was unable to find any qualitative difference between their diets.

Many factors, in addition to inadequate diet may be involved in PEM. These include infection (Gopalan, 1968); in this respect gastroenteritis and measles (morbilli) appear to be important (Dean, 1965).

The purpose of the present paper is to report on the current pattern of hospital cases of severe PEM in Ibadan, Nigeria, with particular reference to the age of onset, the dietary history and the patterns of infection in the children.

EXPERIMENTAL

The children were fifty consecutive cases presenting at the University College Hospital, Ibadan referred to us by the General Out-patient Clinic. Six children, whose severe PEM had resulted from either a multiple pregnancy, maternal death

Table 2. *The age and sex distribution of fifty malnourished Nigerian children from Ibadan within the four main groups recognized in the Wellcome Classification of protein-energy malnutrition* (*Lancet*, 1970)

(Values given are the nos. of children in each age-range and group)

	♂				♀			
Group ...	KW	MK	MA	UN	KW	MK	MA	UN
Age-range (years)								
0–1	0	0	1	1	0	0	0	0
1–1·5	0	0	4	1	1	0	2	0
1·5–2	2	0	2	1	3	2	3	0
2–2·5	2	2	2	1	9	2	2	0
2·5–3	1	0	3	0	1	1	1	0
Total	5	2	12	4	14	5	8	0

KW, Kwashiorkor; MK, marasmic-kwashiorkor; MA, marasmus; UN, undernutrition.

or the presence of congenital abnormalities, and who were unrepresentative of the general pattern of severe PEM in the community, were excluded from the study.

On their first visit to the Institute of Child Health, Ibadan, a detailed birth, developmental and dietary history was obtained from the mothers, also information about immunization, previous illnesses and the time of onset of the present symptoms. The children were then physically examined and their 'nude' weight and supine length were measured. The birth dates of the children were obtained from the head of the family group in which the child had been resident. Their deficits in weight- and length-for-age were estimated by comparison with local standards (Janes, 1975).

Differences between mean values were analysed by Student's *t* test.

RESULTS

1. *Ages and anthropometric measurements*

There were twenty-seven females and twenty-three males in the study group. Table 2 gives the distribution of age and sex of the children within the four main groups of PEM of the Wellcome Classification (*Lancet*, 1970). The distribution of children within the four groups were; nineteen with kwashiorkor, twenty with marasmus, seven with marasmic-kwashiorkor, four with undernutrition. Two-thirds of the children with no signs of oedema (undernutrition and marasmus) were male while three-quarters of the children with signs of oedema (kwashiorkor and marasmic-kwashiorkor) were female. The mean age of the children with kwashiorkor (25·4 months) was not significantly different from the age of the children with marasmus (22·4 months). The children with marasmic-kwashiorkor (27·8 months) were significantly older ($P < 0·05$) than the children with marasmus (Table 3).

The deficits in weight- and length-for-age are also given in Table 3. The children with kwashiorkor had a smaller deficit in length ($P < 0·001$) than those with either

Table 3. *Deficits in body-weight and length (% expected value) of forty-six severely malnourished Nigerian children from Ibadan grouped according to the Wellcome Classification (Lancet, 1970)*

(Mean values and standard deviations; weight and length deficits were assessed against local standards (Jancs, 1975))

Group ...	Kwashiorkor (*n* 19)		Marasmic-kwashiorkor (*n* 7)		Marasmus (*n* 20)	
	Mean	SD	Mean	SD	Mean	SD
Age (months)	25·4	4·4	27·8	4·7	22·4	6·6†
Weight-for-age	69·9	7·3	54·8**	4·6	50·0	6·8**
Length-for-age	91·3	3·7	86·5*	3·0	83·8	3·9**
Weight-for-length	81·1	6·0	69·5	7·6	66·1	8·9

Mean value significantly different from that for 'kwashiorkor' group:
* $P < 0.05$, ** $P < 0.001$.
Mean value significantly different from that for 'marasmic-kwashiorkor' group:
† $P < 0.05$.

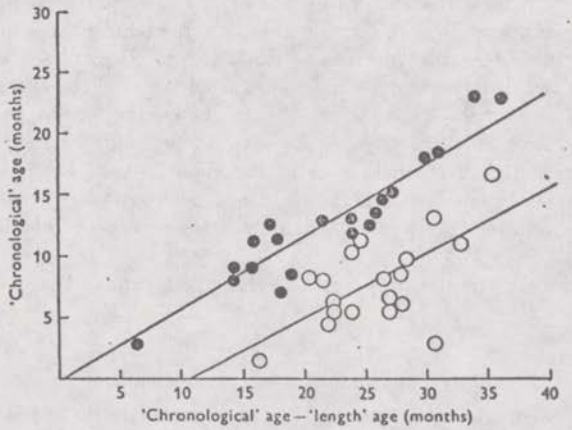

Fig. 1. The relationship between age ('chronological'; months) of presentation at the University College Hospital, Ibadan, and the deficit in length ('chronological' age – 'length' age (based on local standards (Janes, 1975); months)) in malnourished Nigerian children with marasmus (●) and kwashiorkor (○), grouped according to the Wellcome Classification of protein-energy malnutrition (*Lancet*, 1970). 'Marasmus' group: *n* 20, slope 0·585, intercept 0·52, *r* 0·886, $P < 0.001$; 'kwashiorkor' group: *n* 19, slope 0·504, intercept 10·35, *r* 0·593, $P < 0.01$. Differences between intercepts: *t* 4·123, $P < 0.001$; Differences between gradients: *t* 0·488, not statistically significant.

marasmus or marasmic-kwashiorkor, suggesting that their malnutrition was of more recent onset. This conclusion was confirmed by the relationship between their deficit in length (expressed as 'chronological' age at presentation minus their 'length' age) and their age (chronological) at presentation at the hospital (Fig. 1). The results suggest that the children with marasmus had been undernourished virtually from

Table 4. *The duration of breast-feeding for forty-four severely malnourished Nigerian children from Ibadan grouped according to the Wellcome Classification of protein-energy malnutrition* (*Lancet*, 1970)

(Values given are the nos. of children in each age-range)

Age-range at complete weaning from breast milk (years)	Group		
	Kwashiorkor	Marasmic-kwashiorkor	Marasmus
0–1	0	1	0
1–1·5	1	2	8
1·5–2	11	4	8
2–2·5	5	1	3
Mean ± SD (months)	19 ± 5	19 ± 5	18 ± 6

birth even though they were presenting at different ages. On the other hand the results indicate that the children with kwashiorkor had not shown any failure to grow until they were 10 months old.

2. *Dietary history*

With the exception of one child with marasmus who had been fed on an artificial milk formula (Lactogen; Nestle Ltd, Ikeja, Nigeria) from birth, all the children had been breast-fed for at least 9 months. Some had not been completely weaned for 30 months (Table 4). Of the children with marasmus 45% were still receiving breast milk, while all the children with kwashiorkor or marasmic-kwashiorkor had been completely weaned. At complete weaning all children received maize starch as their only food with no supplements of protein, vitamins or mineral salts. These results indicate that there were no detectable differences in the dietary histories of children with kwashiorkor, marasmus or marasmic-kwashiorkor.

3. *Immunization and infections*

In general the children in the undernourished group were better immunized than the children in the other groups of PEM (Table 5). No child had been immunized against measles and no child with kwashiorkor or marasmus had received complete immunization against poliomyelitis. In general the children with kwashiorkor had received the least immunization.

Table 6 gives the infections which had affected the children within 3 months of presentation at the hospital. The incidence of measles was high and in 89% of the cases who had had measles the disease had occurred within 2 months of presentation and had apparently precipitated the child's final deterioration. There was no difference in the age of onset or the incidence of measles in the children with either kwashiorkor or marasmus. The incidence of diarrhoea was also very high. Forty-six per cent of all the children had diarrhoea when they were presented at the hospital. All the 'undernourished' group had current diarrhoea. Although 35% of the children with

Table 5. *The immunization status of fifty malnourished Nigerian children from Ibadan, aged 6 months – 3 years, grouped according to the Wellcome Classification of protein-energy malnutrition* (*Lancet*, 1970)

(Values are given as % immunized of the total no. of children in each group)

Group	BCG vaccination*	Complete triple antigen†	Complete poliomyelitis immuni-zation‡	Smallpox§ (variola)	Measles‖ (morbilli)
Marasmus	40	25	0	20	0
Kwashiorkor	15	10	0	0	0
Marasmic-kwashiokor	28	0	14	28	0
Undernutrition	75	50	50	50	0

* Bacille Calmette-Guérin immunization against tuberculosis.
† Adsorbed diphtheria – pertussis – tetanus vaccine.
‡ Two oral doses; live poliovirus vaccine.
§ Dried smallpox vaccine.
‖ Live attenuated measles virus vaccine.

Table 6. *Common infections which occurred within the 3 months before presentation at the hospital in fifty malnourished Nigerian children from Ibadan grouped according to the Wellcome Classification of protein-energy malnutrition* (*Lancet*, 1970)

(Values are given as % total no. of children in each group)

Group	Measles (morbilli)	Acute diarrhoea	Febrile illnesses	Chicken-pox (varicella)
Marasmus	35	35	15	10
Kwashiorkor	30	40	15	0
Marasmic-kwashiorkor	42	56	14	0
Undernutrition	50	100	25	0

marasmus had acute diarrhoea their mothers reported that they had had intermittent diarrhoea for long periods of time. This history was not given by the mothers of the children with kwashiorkor who reported that their children had only recently developed gastroenteritis.

DISCUSSION

Although there are few formal reports of the relative incidence of marasmus and kwashiorkor in different communities, there appears to be a wide variation in the relative proportions of these two main forms of severe PEM in hospital cases throughout the world. In the Middle-East marasmus is more common than kwashiorkor (McClaren, 1966; Shakir *et al.* 1974), in Peru the incidence of the two forms is approximately the same (Baertl, Placko & Graham, 1974) and in Jamaica where marasmic-kwashiorkor once accounted for a high proportion of the hospital cases, marasmus has increased in recent years (Picou, 1974). Kwashiorkor is usually regarded as a particular problem in sub-Saharan Africa (Dean, 1965; McCance, 1971). However the results of the present study suggest that marasmus and kwashiorkor make up equal proportions of the hospital cases of severe PEM in Ibadan. As

Rutishauser & Whitehead (1969) have found that the relative incidence of undernutrition with or without oedema varies from one region of Uganda to another, and a recent survey of clinic cases in Northern Nigeria (Dosseter, 1975) has found that 59% of the cases of severe PEM were without oedema, generalizations as to an African pattern of severe PEM may be unjustified.

It is possible that the present results and information from hospitals in general, underestimate the incidence of marasmus in the community. Mothers tend not to recognize either a low rate of weight gain or even a loss of weight in their child, whereas the presence of oedema alerts them to the child's condition. Consequently children with oedema are usually taken to hospital earlier in the development of severe PEM than those with marasmus, which group may represent those who have survived. Nevertheless the ages of the children in the present study were similar, whether they had marasmus, kwashiorkor or marasmic-kwashiorkor. This was unexpected as previous studies in many parts of the world have indicated that children with marasmus are less than 14 months old, while children with kwashiorkor are older than 18 months (Graham, Cordano & Baertl, 1964; Dean, 1965; McClaren, 1966). There are however exceptions, for example in Jamaica where a large proportion of cases with oedema are about 1 year old (Waterlow & Alleyne, 1970; Picou, 1974) and in India where the children with marasmus tend to be older than has been usual elsewhere (Gopalan, 1968). Our findings are similar to those which have been obtained in India. However, it should be pointed out that reports of the ages of unselected cases are uncommon and where they have been reported they have suggested a smaller difference in the ages of children with marasmus and kwashiorkor drawn from the same environment (Shakir *et al.* 1972; Picou, 1974; Waterlow & Rutishauser, 1974).

The mean deficits in weight and length of the severely malnourished children were similar to those that have been previously found in malnourished children of ages different to ours (Shakir *et al.* 1972; Waterlow, 1972; Hijazi, 1974). In particular the children with kwashiorkor had a lower deficit in length-for-age than those with marasmus or marasmic-kwashiorkor. This suggests that the children with kwashiorkor had been undernourished for a shorter period than those with marasmus. This conclusion is supported by the relationship between the deficits in length-for-age and the ages of the children when they were presented at the hospital. The results suggest that the children with marasmus had been chronically undernourished from birth whereas the children with kwashiorkor were not significantly undernourished until they were 10 months old. The differences in the patterns of growth of the children with marasmus and kwashiorkor were found even though their dietary histories, as reported by their mothers, were similar. Thus of the forty-four mothers from whom we were able to obtain information, forty-three had given their child breast milk for at least 1 year. Unfortunately we were unable to obtain any information upon the amounts of breast milk that were either offered to the children or that they ingested. These must have been inadequate as 45% of the children with marasmus were still receiving some breast milk. Furthermore the six children with marasmus who had been completely weaned for at least 2 months before coming to

hospital had been fed the same diet that had been fed to the weaned children with kwashiorkor. The information on the diets of the children who had been completely weaned tend to exclude a specific protein deficiency in the aetiology of kwashiorkor, in agreement with the results obtained in India (Gopalan, 1968).

The patterns of growth of the children with marasmus or kwashiorkor suggest that it is the events of the first year *post partum* which are important in determining the final features of the terminal stages of severe undernutrition in the second year of life. As there were no differences in the reported dietary histories it is possible that factors other than the feeding practices of the mothers were responsible for the differences in the histories of growth of the two main groups of severely malnourished children. One such factor is infection, particularly of the gastrointestinal tract. Although a high proportion of children presented with diarrhoea, the mothers of the children with marasmus reported that this had continued for a long but uncertain time. In contrast the children with kwashiorkor had only recently developed severe diarrhoea, which had apparently been precipitated by measles in 30% of the cases with kwashiorkor. Furthermore the children in the undernourished group who had been well nourished, on the basis of their deficits in length-for-age, until shortly before presenting at hospital were reported by their mothers to have deteriorated after the onset of diarrhoea, precipitated by measles in 50% of the cases. Thus it is possible that the chronic undernutrition of the children with marasmus was not due to a lack of food being offered to them but to their inability to ingest or absorb the food due to chronic gastrointestinal infections.

The present results do not separate the various factors involved in the aetiology of marasmus as opposed to kwashiorkor but do cast doubt on a qualitative difference in their dietary histories. The results suggest that immunization against measles, the disease which precipitated the final deterioration in the nutritional status of approximately 40% of the present cases, would materially affect the incidence of severe PEM in Ibadan. Collaborative studies of the variations in feeding practices, staple foods and patterns of infection, all of which presumably contribute to the variations in marasmus and kwashiorkor throughout the world, are required to answer these questions in any detail.

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BREAST IS BEST

Dear Christopher,

Now that you are to be a fully fledged pædiatrician, let me first of all applaud your desire to do some research for the first time in your life. I support your hunch that breast-feeding is both a worthy and a productive topic. You ask for my views and experience as an experimental pathologist, and here they are.

Everyone knows that "breast is best", at least where babies are concerned. But the topic looks like becoming as much a matter for polemics and lobbying as for the cool assessment of any evidence there may be. My own view, for the record, is that breast is indeed best (for babies); but that we will lose the baby with the bath-water if we are not a little more convincing about it. It is a matter for regret that, though pædiatricians are almost unanimously and passionately in favour of the breast, their influence is negligible or even negative. I wonder why?

The usual general proposition is that the human breast "was meant" to feed the human baby, and that, if it "fails", the best substitute is a product designed to mimic the human material. This proposition is incontrovertible, even though there is very little evidence for it. It is a "fact of life".

The medical profession—in England at least—has always had an ambivalent attitude to the scientific, evidential method. Thus a conviction which is poorly supported by proper evidence will be adhered to very strongly if it is something that "Nature intended"; but doctors will ignore that Nature may well have intended the high infant mortality of a generation and more ago; and did she really intend that children should be given killed viruses through a needle or on a sugar lump, or extracts of various moulds? The scientific, evidential method of reasoning is rejected in practically every clinical circumstance unless it shows some sign of being adducible in favour of an emotionally held fact of life; just as a clinical measurement or investigation will often only be accepted if it accords with the predetermined clinical impression. When either of these coincide, a tremendous air of pseudoscientific learning is often assumed, the most bogus logic is resorted to, and statistics of the kind which will prove anything are embraced.

The main clinical sin remains the old one of misreading the word casual as causal. Thus the current increase in our consumption of Cypriot or Egyptian potatoes is

casually related to the present spate of ingrowing toenails. This is not so very far removed from the recent wave of conviction that neural-tube defects were due to potato blight, for which there was never very much real evidence. The difference between the two examples—the first of which is manifestly absurd—is that in the second we all have a desperate, emotional *thirst* for some sort of solution for a terrible human problem, together with a greater or lesser degree of guilt that our much-trumpeted cleverness still awaits its reward. Cot deaths are a similar case. The need for a solution is so emotionally pressing that an intense search is in progress for any casual relationship with them—such as bottle feeding—and it is but a short, predictable step that the mind's typewriter will slip, and casual will become causal.

It is perfectly true, of course, that the solution to many problems has begun with the observation of a casual relationship. But we conveniently forget those which are unproductive, or even frankly misleading. For example the casual observation of cholesterol crystals in plaques of atheroma has led to a quarter-century of research based on the supposed causal relationship between the two. Probably the only people to have derived any benefit from this have been the researchers themselves who were kept in a job, and certain sections of the food industry. The chances are that even the high serum-cholesterol of the atheromatous is unrelated to the cholesterol in the plaque and that neither has any more causal relationship to atheroma than cold weather has to Christmas.

Articles for the promotion of breast-feeding would often make wonderful set-pieces for courses in the medical abuses of logic, even though they are almost certainly correct in their general conclusions. Let us examine the usual list of conditions incriminating artificial feeding.

Infections.—The immunological properties of colostrum are well-known, and there is sound evidence that colostrum should be ingested by the baby because it confers immunity. Farmers have known this longer than doctors. However, there can be little evidence that breast-feeding beyond the first few days will add very much in this respect, the clutching-to-the-bosom of recent scientific discoveries related to immunoglobulin content of breast milk notwithstanding. In another example, the prevalence of gastroenteritis in bottle-fed babies accords best with the proposition that it is less easy for underprivileged mothers, lacking in hygienic facilities, education, and motivation, to feed uninfected artificial milk to their babies than to breast-

feed them cleanly. If bottle feeding had been shown to be highly advantageous in other respects, we would now have been surrounded by a public clamour for the relief of underprivileged, working-class conditions rather than for these mothers to breast-feed their babies. It might even now be the better of the two solutions. Dirty homes, however breast-fed their children, will continue to generate more than their share of childhood infections.

Hypocalcæmia.—Infant convulsions, perhaps significantly, are yet another potentially serious condition about which doctors are desperately puzzled, so that the ratio of demand for a solution to available information is very high indeed, and the hypocalcæmia of bottle-fed infants will not lack its adherents for the argument.

Hypernatræmia.—Here supporters of breast-feeding are on surer ground, though it is alarmist and probably quite unjustified to associate hypernatræmia causally with brain damage, the relationship being in great measure casual and far from direct. In any case it is not the modern artificial feed which is the culprit but the manner in which the mother makes it up. So why blame the feed?

Obesity.—The best doctors have heard of the recent doubts about the supposed dangers of infant obesity, leading allegedly to middle-aged obesity and its related lethal hazards—as interesting a hoax perpetrated by the pædiatric profession on itself as any to be found. This does not prevent them from adding it to the list of dangers of the bottle. This they do somewhat unscrupulously, usually with the personal convenience of having backed all the runners by mentioning the hypothesis and at the same time exhibiting awareness of its weaknesses.

Cow's milk allergy undoubtedly exists, but along with other allergies is hard to quantify and is a good standby diagnosis outside the major centres of interest in the subject for any puzzling episode of apparent digestive upset in a baby.

Necrotising enterocolitis.—It is not fair to add this highly fatal and distressing condition of unknown ætiology to the argument. Doctors are extremely worried that they personally are the cause of it on special-care baby units, and it is characteristic of human nature, but not excusable, for them to wish to add it to the ragbag of sins attributable to an outside source like artificial feeding.

Cot death.—As has been said, there are as many theories of its ætiology as there are people searching for them and, although several look mildly promising, the area is best described as one of total ignorance. An association with bottle feeding may indeed be meaningful, just as is the association of geographical latitude with multiple sclerosis (see below). But no more so.

Atopic diseases, ulcerative colitis, coronary vascular disease,

and multiple sclerosis.—Here is another collection of serious, yet puzzling diseases. It is quite reasonable for doctors to feel very ignorant and even very guilty that they have no explanation for them. But it is quite unreasonable for them to lash out at any target in the vicinity, such as artificial feeding, to account for them and save their personal bacon. For example, a remarkable fact about multiple sclerosis is its gradually increasing incidence the further North the population. It is not a matter of climate, since distance from the equator has nothing to do with it. Thus it is very uncommon in South Africa, and very common in Scotland and Scandinavia. Is it therefore wicked, or unnatural, to live in northern latitudes? I can see no justification whatever—indeed one might say it is seriously irresponsible—to add these diseases to the ragbag just because sporadic papers have appeared "suggesting" their relationship to bottle feeding. Further, it is downright bad doctoring as well as lacking in ordinary humanity to threaten mothers with them as a penalty for not feeding their babies themselves, as seems to be so often suggested.

In a prominent recent article its author came to three conclusions: (1) breast-feeding should be more strongly advocated than in the past for at least two weeks and preferably four months; (2) when breast feeding is not possible one of the new low-solute milks should be recommended; (3) the introduction of solid foods into the diet before the age of 4 months should be discouraged. I cannot find anything in these conclusions to disagree with, although my backing for them would be largely for reasons of the emotional and behavioural bonding of mother and baby. I "believe" this to be important with all the tenacious attachment which might be expected of a doctor for a "fact of life". I am surprised that few writers on the subject mention it much.

With best wishes to Sue on the impending arrival of my first grandchild. I wonder if she will feed him.

Yours, Daddy

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Nutrition and mortality in infancy and early childhood: past and present relationships[1]

W. R. Aykroyd

The main purpose of this paper is to consider how far past trends in mortality in infancy and early childhood, and present differences in this mortality in developed and underdeveloped countries, can throw light on the problem of protein–calorie malnutrition (PCM) as it exists today and on measures for its solution.

Figure 1 provides a framework for the paper. It shows infant mortality and deaths in the age group of 1 to 2 years in England and Wales in certain years from 1841 to 1961. These figures were kindly supplied by the Registrar General for England and Wales. With respect to the infant mortality rate, the salient facts are that it remained remarkably high until about 1910, after which it fell rapidly and steadily. The latest figure (1968) is below 20. Mortality in the 1- to 2-year age group began to fall a little before the infant mortality rate and has declined almost to the vanishing point; the child who has passed through infancy enters one of the safest periods in life. Very similar trends have no doubt occurred in all the technologically developed countries, including the United States. They represent to some extent a common, chronological mortality pattern, and reflect a transformation in infant and child health during the present century. The British figures are, however, more accessible than those for most of the developed countries and cover a longer period of years.

The position in 1906

A once well-known book, "Infant Mortality, a Social Problem," was published in 1906 by George Newman (1), a distinguished British medical officer of health. He stated the purpose of the book in vigorous language:

> "Though the general death rate is decreasing the infant mortality rate is not declining. This means that whilst during the last half-century, a time of marvellous growth of science of preventive medicine, human life has been saved and prolonged, and death made more remote for the general population, infants still die in greater numbers and more readily than in the past. In England and Wales one quarter of the total deaths every year is of children under the age of twelve months. And this enormous sacrifice of human life is being repeated year by year, and is not growing less."

In support of these statements, Newman gave the figures shown in Table 1.

The book was written just at the moment when the infant mortality rate was beginning to decline. The figure of 138 for 1901 to 1905 probably represents a significant decline when compared with 154 for 1891 to 1900. By 1911 the rate was 130 and from this point onward the fall was rapid: 83 in 1921; 66 in 1931; 30 in 1951; 19 in 1967. That Newman was unaware of then current favorable tendencies (he may have thought that things were getting worse) lent force and eloquence to his writing. Drummond and Wilbraham (2) believed that his book was responsible to a large extent for the beginnings of the infant welfare movemer in England.

In the first decade of the century the r ported infant mortality rates for most co tries in Europe were as high as the rate England and Wales, and for some a g

[1] Based on a lecture given May 7, 1970 t Division of Nutrition, Vanderbilt University, ville, Tennessee 37203.

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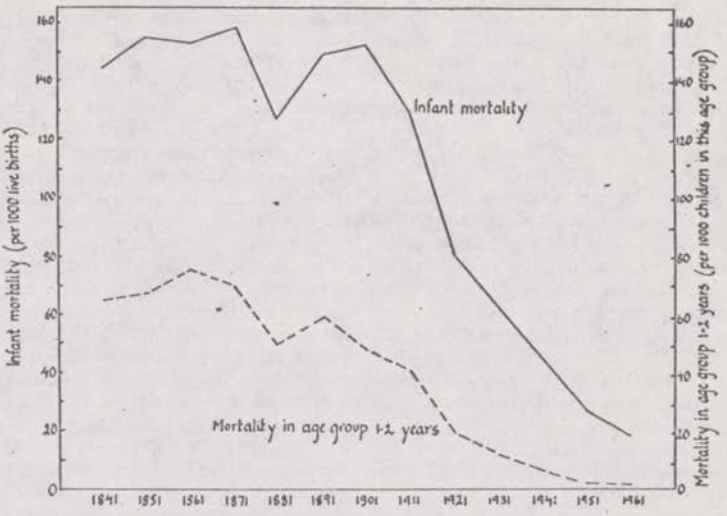

FIG. 1 Infant mortality rates and mortality ratios in age group 1 to 2 years in England and Wales, 1841 to 1961.

deal higher. Norway and Sweden had, however, substantially lower rates, and within the British Isles both Ireland and Scotland had (surprisingly) the same advantage. The model country was New Zealand where, as Newman said, the rate in 1903 stood "at the proud figure of 81." In England and Wales, the rate varied considerably from area to area and Newman observed that "two features were common to high mortality districts, namely a high density of population and a considerable degree of manufacturing industry." A typical comparison was between the largely agricultural county of Hampshire (rate 110), and the largely industrial county of Lancashire (rate 163). The differences between urban and rural rates in France were even more striking. Those who wrote about infant mortality early in the century were very much aware of this divergence. Brend (3) expresses astonishment that in 1914 the miserably poor and illiterate of the county of Roscommon in the West of Ireland had the lowest infant mortality rate in the British Isles. He runs through various probable causes of infant mortality, i.e., poverty, bad housing, poor diet, lack of skilled medical attention, maternal ignorance, and cannot believe that these are more operative in urban than in rural areas. Hence he was led logically to the conclusion that the higher urban mortality must be due to the polluted state of the atmosphere. Logic can sometimes be an unreliable tool in the hands of the epidemiologist.

TABLE 1

Death rates and infant mortality rates, England and Wales, 1841 to 1905

Period	Death rate	Infant mortality rate
1841 to 1850	28.8	157
1851 to 1860	22.2	154
1861 to 1870	23.5	154
1871 to 1880	21.4	149
1881 to 1890	19.1	142
1891 to 1900	18.2	154
1901 to 1905	16.0	138

Newman discusses this aspect of the problem at length. There was much to show the dependence of infant mortality on economic status, for example, striking differences in mortality were evident in the slums and

prosperous areas of certain cities. The economic factor could not, however, in itself explain the advantage of residents of rural and semirural communities in respect to infant mortality, as they were no better off, in terms of pounds, shillings and pence, than poor urban dwellers. The alcoholism of parents, particularly common in cities, was regarded by some as an important cause of infant mortality; this idea was comforting to the well-to-do in that it enabled the parents to be directly blamed for infant deaths. Newman does not, however, support it. Nor does he think that giving infants brandy and other spirits to keep them quiet was a common and lethal practice.

A significant passage in Newman's book is a quotation from a report written in 1861 by Sir John Simon, one of the great pioneers in the field of public health. In discussing female industrial employment and infant mortality, Simon wrote:

"Factory women soon return to labour after their confinement. The longest time mentioned as the average period of the absence from work in consequence of child-bearing was five or six weeks; many women among the highest class of operatives in Birmingham acknowledged to having generally returned to work as early as eight or ten days after confinement. The mother's health suffers in consequence of this early return to labour... and the influence on the health and mortality of children is most baneful.... Mothers employed in factories are, save during the dinner hours, absent from home all day long, and the care of their infants during their absence is entrusted either to young children, to hired girls, sometimes not more than eight or ten years of age, or perhaps more commonly to elderly women, who eke out a livelihood by taking infants to nurse.... Pap, made of bread and water, and sweetened with sugar or treacle, is the sort of nourishment usually given during the mother's absence, even to infants of a very tender age.... Illness is the natural consequence of this unnatural mode of feeding infants.... Children who are healthy at birth rapidly dwindle under this system of mismanagement, fall into bad health, and become uneasy, restless and fractious...

Abundant proof of the large mortality among the children of female factory workers was obtained." [1]

Disease and infant mortality

Much thought was given by Newman and others to the recorded causes of infant deaths. Some salient points arising from the analysis of these causes in England and Wales will be mentioned. In 1904, ten principal causes were statistically responsible for 84% of infant deaths. "Prematurity and congenital conditions," most fatal in the early weeks of life, head the list, closely followed by "atrophy and debility," which show a similar age incidence. The next largest cause of death, "diarrhoea and enteritis," was a killer throughout the whole of the first year; this condition was more common and severe in urban than in rural areas. "Pneumonia and bronchitis" were important causes of death, but they contributed a smaller proportion of deaths than "diarrhoea and enteritis," and also came behind the mysterious condition called "convulsions," which Newman regarded as a manifestation of a number of different pathological states; it was most fatal in the early months of life. Only 4.6% of the total were ascribed to "all tuberculosis diseases." Both whooping cough (3.91%) and measles (1.7%) appeared among the 10 principal causes of death. The annual death rate from measles (relating to the whole population but of course mainly to children) had not declined between 1866 and 1900. The death rate from whooping cough, on the other hand, had declined by about 40% during the same period.

"Epidemic diarrhoea" is given a chapter to itself in Newman's book. It is defined as "an acute infective disease affecting chiefly children under two years of age, occurring during the summer months in epidemic form, and characterised as a rule by the occurrence of diarrhoea, vomiting, convulsive phenomena and wasting, accompanied in severe cases by toxaemia and collapse." Newman says it was a highly fatal disease, increasing in prevalence. It was uncommon in infants under 3 months, after which it "definitely increased up to a varying time between the first and second year." In view of the marked seasonal incidence of severe diarrhea, attempts had been made to correlate mortality from this cause with temperature and rainfall. Newman quotes some findings on this point, but he himself had no doubt that epidemic diarrhea

[1] Simon, John. Fourth Report of the Medical Officer of the Privy Council, 1861.

was due to the contamination of water and food, particularly milk, by noxious bacteria. Higher summer temperatures simply favored the dissemination and growth of such organisms. If the temperature of milk, he says, be raised to that of summer heat, the increase in the number of organisms is extremely rapid. Moreover, summer heat encouraged the breeding of flies on horse dung in the streets.

Apart from seasonal factors, epidemic diarrhea was most common in overcrowded urban areas, in fact seven or eight times more common than in the country. In cities it killed mainly infants and young children in the slums; the children of the well-to-do rarely died of it. The important fact that breast feeding conferred some protection had already been recognized.

Feeding practices

There was much evidence at the time of Newman's study that "hand-fed" infants had a lower chance of survival than breast-fed infants. The mortality ratio was 3 to 1. The excess affected nearly all causes of death, but was particularly large with "diarrhoea." In certain communities living in British cities, e.g., the Jews and the Irish who maintained the practice of breast feeding, infant mortality was below the usual levels of the day. No doubt the peasantry of County Roscommon still practiced breast feeding.

Infants deprived of breast milk were given various substances as the principal article of diet: fresh milk diluted to different degrees; condensed milk, especially skimmed, sweetened, condensed milk; "starchy" foods such as bread, biscuits, oatmeal, and arrowroot; "patent" foods, usually consisting of malted starch, sugar, and some dried milk. All these foods and food mixtures were associated with high infant mortality. The worst were sweetened, skimmed, condensed milk and the starchy foods; diluted fresh milk gave somewhat better prospects of survival, but was usually lethal enough because of pollution and ignorance on the part of mothers of the proper degree of dilution. The "patent" foods varied in their effects; some were rather better than others. The quantities of substitutes for breast milk given to hand-fed infants were often insufficient, so that undernutrition as well as malnutrition resulted. The well-to-do had little confidence in current methods of hand or artificial feeding. If for any reason a baby in a prosperous family was deprived of its mother's milk, a foster mother was promptly found. The profession of wet nurse still flourished. A Directory of Wet Nurses was maintained in the United States until 1910.

His survey of infant mortality convinced Newman of the extreme importance of suitable infant feeding. "It is not everything," he said, "but a greater factor than any other thing. . . . Even the domestic and social conditions are reducible to terms of nourishment." Since mothers were responsible for the feeding and care of their infants, the problem of infant mortality must be solved mainly "through the mothers." The preventive methods outlined in the concluding chapters of the book are nearly all designed to improve infant feeding with respect to both nutrition and hygiene. In general, these methods are standard practice today in the affluent countries.

Mortality in early and later infancy

The preponderance of deaths in the first weeks of life has long been recognized. Newman drew attention to the concentration of mortality in the first 3 months, and to the fact that within these months mortality was greatest in the 1st week of the 1st month. He provided a table giving the distribution of infant deaths by trimesters in 45 countries; this showed that the percentage of total infant mortality occurring in the earliest months of life varied with the total infant mortality rate; the lower the rate, the higher this percentage, and vice versa. This meant that the urban mortality rates were most in excess of the rural rates in the later months of the first year. In the 1930's, Richard Titmus (4) made some significant studies based on the neonatal and post neonatal death rates. These showed, in effect, that trends in infant mortality differed in the Registrar General's five Social Classes; in Classes 1 and 2 post neonatal mortality was falling more rapidly than in the lower Classes 3, 4, and 5. Because of this, there

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was greater inequality in infant mortality according to social class in 1930 to 1932 than in 1911, despite the fall in the national infant mortality rate.

Gordon, Wyon and Ascoli (5) have shown that the ratio of neonatal to post neonatal deaths differs strikingly in the developed and the underdeveloped countries, and have concluded that this ratio is as significant as the total infant mortality rate itself. The observations quoted above show that similar differences are to be found between social and economic groups within a country.

Mortality in early childhood

There is little mention in Newman's book of morbidity and mortality in children in the period after infancy. It is as though the child, having attained the age of 12 months, passed through a door on to a different plane of existence. This was at a time when the mortality between 1 and 2 years was between a quarter and a third as large as infant mortality. One reason for ignoring mortality in the 2nd year was no doubt that the figures were less accessible than the infant mortality figures. Some extensive research in the Registrar General's office would be needed to obtain them. Figures for the age group 1 to 4 years were published, but it was not realized that mortality in this age group was largely concentrated in the 2nd year. The concept that the main cause of mortality from the post neonatal period until the end of the 2nd year was a complex of malnutrition and infection had not been formalized. But it is of interest that Brend (3) proposed dividing mortality as follows: "birth mortality," to the end of the 1st month; "mortality of early childhood," from the end of the 1st month to the end of the 3rd year.

As has been shown (Fig. 1), infant mortality and mortality of children between 1 and 2 years fell simultaneously in England after 1910 or thereabouts. This suggested to some that the fall in infant mortality did not result from the measures deliberately designed to produce the decline because without such measures a parallel fall did take place in the 1- to 2-year age group.

Comparisons are often drawn between infant and child mortality in the developed and developing countries. It is shown that although mortality in infancy in the former is often 4 to 6 times greater than in the latter, mortality in the period of 1 to 2 or 1 to 4 years is often 30 to 40 times greater. This contrast gives a spurious impression, because it masks the fact that mortality between age 1 and 4 in the developed countries is now almost negligible, whereas infant mortality, because of the intractable neonatal mortality, remains at a point not much below 20.

Past mortality trends in affluent countries and the current problem of PCM

In this context, to justify applying knowledge and experience gained in affluent countries, it is necessary to consider how far the health picture in infants and young children seen in countries such as England 50 to 70 years ago can be equated with the present picture in the developing countries.

There are obvious similarities in mortality patterns. The infant mortality rate is high in each case, and the ratio of neonatal to post neonatal mortality is of a similar type, with a predominating percentage of deaths in the post neonatal period. Common to both is high mortality in the 2nd year of life, which no longer occurs in the affluent countries. Much of what Newman says about the diseases of infancy in England 70 years ago could be said about diseases of infancy in developing countries today. "Atrophy and debility" perhaps can be regarded as analogous to the marasmic form of PCM. "Diarrhoea and enteritis" were a major cause of death in the 1st year of life, and more prevalent in urban than in rural areas; this conforms with current experience and also with much that has recently been written about "weanling diarrhoea" and the synergistic relationship between faulty feeding and intestinal infection. Measles was a serious disease in infants and children in Edwardian England, as it is in many tropical countries today. The early cessation of breast feeding endangers the infant's life in both kinds of environment, because hand or artificial feeding increases the hazard of infection, and because of the unavailability to most mothers of satisfactory infant foods other than breast milk.

There are thus many similarities, but one important difference needs consideration. No reference can be found in British writings on infant mortality and child health to anything resembling kwashiorkor, a manifestation of PCM in which protein deficiency is the principal etiological factor, and which is seen mainly in children aged 1 to 3 years. The diet of the weaned infant and young child as described by Newman and earlier by Simon (bread or biscuits soaked in water and sometimes a little sweetened, skimmed, condensed milk) would seem to be suited for producing kwashiorkor.

It is uncertain whether the *Mehlnährschaden* described by German pediatricians, notably Czerny and Keller, is identical with kwashiorkor. This question is discussed at length by Trowell, Davies and Dean (6), who translated *Mehlnährschaden* as "damage by cereal flours." In Germany, at the beginning of the century, it had become usual to replace milk by cereal gruels in the diet of a child suffering from a gastrointestinal upset. Czerny and Keller believed that in these circumstances excess of cereal flour could cause dangerous disease. Later (in 1928) they gave a fuller account of *Mehlnährschaden* and its treatment. The patients had diarrhea, muscular atrophy, and often edema and fatty livers. Death from infection was frequent. For treatment, human milk was thought to be specially effective. Cow's milk and eggs were also given, together with fruit and vegetable juices and cod liver oil. The cereal gruels were reduced in quantity, but not entirely removed from the diet. It was recognized that dietary treatment was long and difficult.

With respect to the identity of the two conditions, Trowell and his co-authors (6) comment as follows:

> "If the reader continues to read this book, he will become aware of many similarities between *Mehlnährschaden* and kwashiorkor. Details of etiology, pathology, and treatment, apply equally well to both; the German authors did not describe the alterations in the color or texture of the hair, or the dermatoses of kwashiorkor, but both of these are known to be subject to great variability. It seems likely that Berlin-trained doctors would have recognised kwashiorkor if they had seen it in tropical countries, and it is possible that accounts of it are buried in the records of observations made in Tanganyika, the Ruanda-Urundi and other territories at one time under German administration."

No explanation is offered by Trowell and his co-authors of the apparent commonness of *Mehlnährschaden* in Germany, and its infrequency in, or absence from, other countries in Europe. Rather similar conditions were indeed observed somewhat later in Switzerland and Italy and ascribed to excess of carbohydrate or lack of protein. There does not seem to be any record of the occurrence of a syndrome resembling kwashiorkor in England and or the United States.

Whereas there may be a few discrepancies, it is reasonable to suppose that something like the complex of malnutrition and infection that we now call protein–calorie malnutrition was prevalent in the affluent countries until recently, with disastrous effects on infant and child health. Clinical observations and vital statistics show that it has almost entirely disappeared from these countries. Its disappearance has been hastened by the establishment and development of maternal and child health services and centers (which began between 1900 and 1910), better housing and sanitation, and higher levels of education accompanied by a general rise in living standards.

The most important factor has been improvement in infant and child feeding, associated with the introduction of safe milk, processed infant foods, mixtures based on cow's milk, and the education of mothers in hygienic feeding methods. Greater reliance on breast milk has played no part in reducing infant mortality in the affluent countries, though it was strongly advocated by Newman and other authorities. In fact breast feeding has declined almost to the vanishing point during the last 40 to 50 years in most of these countries, a period that has seen a transformation in infant and child health.

Experience thus suggests that PCM can be eliminated in a few decades by the establishment of adequate maternal and child health services, rising standards of living, and hygienic artificial feeding. Examples of this can be found not only in highly developed countries in the temperate zone, but also in poor countries in the tropics, e.g., Barbardos

and Puerto Rico. In unusual circumstances, the change can actually take place "at one bound," so to speak. With M. A. Hossain (7), the author showed that when a community from an underdeveloped country was transferred to a well-developed country and adopted the infant feeding practices of the latter, its infant mortality rate immediately fell to something near the level prevailing in the new country. In this instance the fall took place in a Pakistani community that migrated to Bradford in Yorkshire, and affected the first infants born to women who had left home to join their husbands. The infantile mortality rate in the part of Pakistan from which the families came was about 150. In Bradford it was 45. The new environment meant, among other things, an abundance of cheap cow's milk in various forms and an absence of serious intestinal infections. Perhaps the most remarkable thing was the immediate and almost complete abandonment of breast feeding by the immigrant mothers, in spite of the fact that in Pakistan breast feeding is the accepted and traditional infant feeding practice, and an infant who is not breast-fed has little chance of survival.

With reference to these observations Gordon (8) has commented:

> "All of this happened when a Pakistani community transferred to Britain. To transport a British environment to Pakistan is another matter. That problem remains as formidable as ever."

Certainly one aspect of the British environment cannot be transferred to Pakistan or other developing countries, namely an abundant cheap supply of cow's milk in different forms for artificial feeding of the great majority of infants. No doubt something is being done to increase the supply, and more can be done, but for many reasons it is difficult to visualize most infants in Pakistan being artificially fed like infants in Bradford. In a few small countries or territories, e.g., Puerto Rico, Barbardos, the American Virgin Islands, and Curaçao, it is possible to rely almost entirely on imported processed milk for infant feeding. But in large countries such as India, Pakistan, and Brazil, imports on a scale needed to supply most infants are out of the question. Moreover, successful bottle feeding demands exacting standards of hygiene.

Given these facts, the best approach to the problem of PCM seems at first sight to be to encourage breast feeding, to promote its retention where it still persists, or to promote a return to the practice where it has been abandoned. This is in line with the teaching of many authorities. But hitherto all attempts to do this have failed everywhere in the world, for reasons that have not been adequately studied. There do not seem to be any real prospects of retaining breast feeding in the spreading urban areas in the tropics where malnutrition is common and serious. Further, in the affluent countries, the virtual disappearance of breast feeding, the general use of processed cow's milk in the feeding of infants and young children, and the elimination of protein–calorie malnutrition have all coincided.

A more promising method of preventing PCM in the developing countries is to encourage the production and use of cheap feeding mixtures, based largely on plant foods that can fulfill the needs of the growing infant. A small percentage of milk powder enhances the nutritive value of such mixtures. Maternal and child health services and centers would, of course, be needed to teach mothers how to handle these mixtures and how to avoid infection. In other words, the aim would be a satisfactory artificial infant food made without cow's milk or with very little of it. The general adoption of this method of infant feeding in developing countries would not prevent the use of processed cow's milk preparations by those who could afford them nor breast feeding by mothers who favored it.

Summary

1) In England (and other affluent countries) the infant mortality rate has greatly decreased during the last 60 years. During the same period the rate in the age group of 1 to 2 years has become almost negligible. In 1906 the causes for the high infantile rates in England were examined by George Newman, who showed that these were specially characteristic of industrial urban areas. Among the important recorded causes of

death were "diarrhoea and enteritis" and "atrophy and debility." Breast feeding offered better chances of survival than "hand-feeding." The hand-feeding (artificial) methods of the day were disastrous because the foods given were unsatisfactory both in quantity and quality, and often carried infection. Newman believed that faulty feeding was the most important cause of infant mortality.

2) The factors adversely influencing infant and child health in England 60 years ago were in many respects similar to those operating in the developing countries today. In other words, something like the complex of faulty diet and infection now called protein–calorie malnutrition was of key importance in the child health picture. Similarities can be found in mortality patterns, epidemiology, disease, and feeding practices.

3) Experience in the affluent countries has shown that this complex can be rapidly eliminated by efficient health services, rising standards of living, and hygienic artificial feeding. Greater reliance on breast feeding has played no part in its disappearance. The most promising method of attacking PCM in the developing countries is to promote the production and use of cheap feeding mixtures, based on plant foods that fulfill the infant's needs for calories, protein, and other nutrients.

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SUMMARY

1. The rate of growth of Gambian infants in Keneba and surrounding villages falls rapidly away from accepted norms from 3 months of age; by 10 months 50% could be classified as undernourished (below 80% weight for age)

2. The field data indicates that this is due mainly to two factors (i) the nutritional inadequacy of the monos (local gruels) which are used to supplement breast feeding, and (ii) diarrhoeal disease

3. The ward data also shows that an inadequate nutrient intake during the later stages of breast feeding and dehydration associated with diarrhoeal disease are the principle reasons for admission

4. Outline plans are provided for a pilot intervention scheme designed to correct the factors responsible for inadequate growth performance

SUMMARY: A Brief Account of the Work of the MRC Dunn Nutrition Unit in The Gambia from April 1974 - November 1975.

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This document was prepared specifically for the meeting of the Joint Committee of the Gambian Government and the Medical Research Council, January 1976.

A BRIEF ACCOUNT OF THE WORK OF THE MRC DUNN NUTRITION UNIT IN THE GAMBIA FROM APRIL 1974 - NOVEMBER 1975

BY

R G WHITEHEAD AND M G M ROWLAND

This document was prepared specifically for the meeting of the Joint Committee of the Gambian Government and the Medical Research Council, January 1976

THE LANCET, NOVEMBER 27, 1976 #20

THE INFANT-FOOD INDUSTRY

SIR,—The infant-food industry, milk products, and their sale in developing countries have become such an emotional subject that one hesitates to comment further. The renewed outbreak of skirmishing between Dr Müller and Dr Fookes of Nestlé (Oct. 23, p. 912) and Mr Muller (Nov. 6, p. 1018), following your editorial (Sept. 4, p. 503), testifies to a highly undesirable situation. I write in the hope of stimulating a more objective forum for discussion.

Is there a widespread need by young infants in the developing countries for supplementary feeding in addition to breast milk and, if there is, how best can this be satisfied without inhibiting existing traditions for long-term breast-feeding?

Dr Millard (Nov. 6, p. 1018) reiterates a misconception when he says "malnutrition, although common after weaning, was rare in breast-fed children". It is perfectly true that frank clinical malnutrition has its greatest incidence in the second year of life. In Uganda, for example, the peak age for kwashiorkor is around 21 months, and in The Gambia the comparable age for marasmus is 18 months. However, analysis of community data from many parts of the world is now indicating that the growth retardation which precedes such severe malnutrition begins much earlier, indeed, in both Uganda and The Gambia it is as early as 3 months. Fig. 1 summarises some

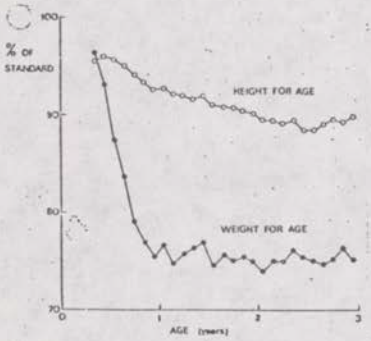

Fig. 1—Mean weight and height as percentage of the W.H.O. standards (Jelliffe[2]) in a West African rural village in The Gambia.

of our results from The Gambia.[1] In early infancy rates of growth are normal, and by 3 months the average child's weight for age is only slightly below the Boston 50th centile[2]; but by 9 months the growth has been so impaired that it is only 78% of the standard. Growth in height also exhibits the same early onset of faltering.

There is a growing consensus that the high rates of growth during the first 9 months of infancy are of critical importance to the ultimate stature of the child. There is little evidence, either from the industrialised or developing countries, of subsequent accelerated catch-up in height growth during childhood once a height deficit has been created. Maturation may be delayed, which affords some opportunity for the individual to achieve his genetic potential, but throughout childhood at least the deficit remains.

Why is growth impaired in this way? There are many reasons, but dietary insufficiency is important. 850 ml of breast milk output per day is often given by nutritionists as an ideal target, although very few women indeed achieve such a level, especially after 3 months. Even so, it can be shown (see table) that all the nutrient needs of the child will fail to be achieved even on 850 ml milk after a weight of about 5 kg has been reached, which corresponds roughly to an age of 3 months. The *average* output of milk by mothers in Africa is certainly not as high as 850 ml. In Uganda, for example, up to 6 months of age, the mean value is 660 ml and in The Gambia it is 500 ml. Clearly, everything should be done to raise breast-milk

1 Rowland, M. G. M., Whitehead, R. G., Cole, T. J. *Br. J. Nutr.* (in the press).
2 Jelliffe, D. B. *Wld Hlth Org. Monogr. Ser.* 1966, No. 53.

OF BREAST MILK

Child's weight (kg)	Nutrients available*		Requirements†	
	Energy (kcal kg^{-1})	Protein (g kg^{-1})	Energy (kcal kg^{-1})	Protein (g kg^{-1})
3	221	3·4	120	2·4
4	166	2·6	120	2·4
5	133	2·0	120	2·4
6	111	1·7	115	1·9
7	95	1·5	115	1·9

*Calculated on the basis of breast milk containing 1·2 g protein and 78 kcal dl^{-1}.
†Based on W.H.O./F.A.O.[3]

Fig. 2—A marasmic child in The Gambia being breast-fed.

output by attending to the nutrient needs of the mother during pregnancy and lactation, but one must be realistic. Over a litre of breast milk would be required by the average child after 6 months. This, I believe, emphasises the critical need for the development of adequate pre-weaning foods.

Although rural African mothers recognise that their breast milk does not completely satisfy their children the majority still continue breast-feeding well into the second year of life. They supplement their breast milk with traditional pre-weaning foods, usually relying on modified adult foods. In The Gambia our surveys have shown that over half the children are receiving extra food by 4–6 months of age. The mother knows that such a small child prefers a more liquid food and she prepares a thin gruel with an average *total* energy concentration of only 380 kcal kg^{-1} food, which compares with the 780 kcal of *available* energy in 1 litre of breast milk. Not until after 18 months of age does the concentration of this weaning food rise above 1000 kcal, which is about the same available energy content as there is in breast milk. It is not surprising that children still being breast-fed in the second year of life present with marasmus (fig. 2). In our ward in The Gambia we found that 49% of children with severe P.E.M. were still being breast-fed. In the village where we work over 50% of children die before they reach 5 years.[4]

I should like to emphasise that the results from The Gambia come from a rural community in which commercial baby foods have not influenced child growth and development. Gastroenteritis is nevertheless a major problem, and our analysis has shown that at the worst times of the year the average young child is affected by gastroenteritis for 20% of the time.[1] The reasons for this high incidence of gastroenteritis are complex, but most are associated with poor hygiene. Commercial milk products are thus not the only type of pre-weaning foods to be associated with such problems.

Such situations must be met by an inter-disciplinary approach. A whole range of people, including politicians, economists, and Civil Servants, must be involved. It lies quite outside the scope of the nutritionist and pediatrician to deal

3. W.H.O./F.A.O. Expert Committee. *Wld Hlth Org. tech. Rep. Ser* 1973, no. 522.
4. McGregor, I. A. *Oikos*, 1976, 27, 180.

with the whole problem, but health workers must come to terms with the development of better pre-weaning diet. There is a place for both the infant-food industry and public-health nutritionists in the achievement of this end. Organisations like War on Want and the Third World Action Group and individual scientists and doctors have made their point, but they must now stop scrapping and begin to think more positively. The same is true for the baby-food industry. They need to swallow their pride and work together, preferably through their own trade associations, such as the International Committee of Infant Food Industries (I.C.I.F.I.) to develop both infant foods and advertising and educational procedures more in keeping with the problem as defined by the nutritionists and doctors working in the developing world.

Surely it would not be too much to hope that out of the ashes of the recent verbal and legal battles on this subject there might develop a closer collaboration between the baby-food industry and the health workers. No-one has the complete answer about what needs to be done. More applied and operational research is required. Such research would have to be international and it could be coordinated in an unbiased way by one of the U.N. agencies. An obvious choice would be the World Hunger Programme of the U.N.'s new research agency, the United Nations University. I know they would be prepared to function in this capacity; can they not be given the opportunity?

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EFFECT OF IMPROVED NUTRITION DURING PREGNANCY AND LACTATION ON DEVELOPMENTAL RETARDATION AND INFANT MORTALITY*

DDH-#92

Aaron Lechtig, Herman Delgado, Robert Lasky, Charles Yarbrough, Reynaldo Martorell, Jean-Pierre Habicht, and Robert E. Klein†

It is widely known that children born in developing countries have high mortality rates, high prevalence of physical growth retardation, and that they frequently perform poorly in psychological tests.[1-5] Maternal and child malnutrition have been implicated among several environmental factors contributing to these high rates of developmental retardation and infant mortality. However, in populations with chronic moderate malnutrition this assertion has been difficult to substantiate.[3]

This paper reports the results of an experiment in which two nutritional supplements were made available to a chronically malnourished population in four rural villages of Guatemala. We will discuss specifically the effect of food supplementation during pregnancy and lactation on the prevalence of: (a) physical growth retardation; (b) low psychological test performance; and (c) infant mortality.

METHODS

Experimental design The data presented here are drawn from a longitudinal study of the effects of chronic malnutrition on physical growth and mental development.[6] Two types of food supplements were provided: *atole* (gruel commonly made with corn) and *fresco* (cool, refreshing drink). Two villages received atole while the other two received fresco. The volume of supplement ingested was recorded for each individual. Attendance at the supplementation center was voluntary and consequently a wide range in volume of supplement intake was observed.

Table 1 presents the nutrient content for both atole and fresco. Of particular importance, the fresco contains no protein and it provides only one-third the amount of calories contained in an equal volume of atole. The two preparations contain similar concentrations of the vitamins and minerals that are possibly limiting in the diets of this population.

The experimental design and the principal examinations made during the pre- and postnatal periods are presented in Table 2. In addition to physical growth and psychological test performance, the home diet, health status of mother and child, duration of lactation, and socioeconomic status were also assessed. Data on these variables were carefully standardized and the data collectors were systematically rotated among the four study villages.

Description of the population The inhabitants of the villages are very poor. Median family income is approximately $200 per year. The typical house is built of adobe and has no sanitary facilities. Drinking water is contaminated. Corn and beans are the principal staples of the home diet; animal protein comprises 12% of

*This research was supported by Contract PH43-65-640 from the National Institute of Child Health and Human Development, National Institutes of Health, Bethesda, Maryland.

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Table 1
Nutrient Content per 180 ml*

	Atole	Fresco
Total calories (KCal)	163	59
Protein (g)	11	—
Fats (g)	.7	—
Carbohydrates (g)	27	15.3
Ascorbic acid (mg)	4.0	4.0
Calcium (g)	.4	—
Phosphorus (g)	.3	—
Thiamine (mg)	1.1	1.1
Riboflavin (mg)	1.5	1.5
Niacin (mg)	18.5	18.5
Vitamin A (mg)	1.2	1.2
Iron (mg)	5.4	5.0
Fluorine (mg)	.2	.2

Source: Incap 73-1473.
*Review date: October 11, 1973; figures rounded to the nearest tenth.

total protein intake. It should be stressed that this is a free-living rural population in which moderate malnutrition and infectious diseases are endemic.

The averages for height and weight of the pregnant and lactating women were low, and the number of previous deliveries ranged between 0 and 13.

Table 2
Experimental Design

Four Villages	—Two Villages: Atole* = Protein-Calorie Supplement —Two Villages: Fresco† = Calorie Supplement

A. *Maternal and Child Information Collected from Conception to 15 Months of Postnatal Age*

1. Obstetrical history‡
2. Measurement of attendance to feeding center and amount of supplement ingested
3. Clinical examination
4. Anthropometry
5. Dietary survey
6. Morbidity survey
7. Socioeconomic survey of the family
8. Information on delivery
9. Assessment of mental development

Source: Incap 74-798
*The name of a gruel commonly made with corn
†Spanish for refreshing, cool drink
‡Diagnosis of pregnancy by absence of menstruation

Procedure For the analyses, the infants were divided into two groups: children defined as either High or Low supplemented from conception to 15 months of age. Table 3 details the criteria for defining the High and Low supplemented groups (HSG and LSG respectively). Caloric ingestion was selected as the criterion for assessing supplement intake because the home diet appears to be more limiting in calories than in proteins.[9] It was also assumed that caloric supplementation of the lactating mother would improve the child's nutritional status by increasing the total nutrient intake from breast milk. In other words, calorie supplementation was the experimental treatment and the two groups of children studied were defined by the amount of supplemented calories ingested either by the mother during pregnancy and lactation, or by the child.

The main outcome variables were the prevalence of physical growth retardation (PGR) at birth and 15 months of age, the prevalence of children with low psychological test performance (LPTP) at 15 months of age, and infant mortality. Table 4 lists the criteria used to define these outcome variables. PGR was defined at birth by birthweight equal to or less than 2.5 kg and at 15 months of age by attained weight below the tenth percentile of the population distribution. LPTP was also defined by a score below the 10th percentile on the Composite Infant Scale, a scale constructed from four widely used scales of infant behavioral development.

Sample size The total sample (Table 5) followed from the time of early pregnancy consisted of 671 births that occurred in the four villages from January 1969 through February 1973. This paper analyzes results observed in the total sample up to 15 months of age. The last baby of the sample reached this age on May 31, 1974.

RESULTS AND DISCUSSION

A. Effects of Food Supplementation on Physical Growth Retardation

At birth Figure 1 shows the percentage of low-birth-weight (LBW) babies for the LSG and HSG. The percentage is consistently greater in

Table 3
Definition of the High Supplemented Group (HSG) Through Pregnancy to 15 Months of Age

Age	Amount of Calories	
	Child	Mother
A. Fetus	—	20,000 during pregnancy
B. From 0 to 6 months	—	10,000 per trimester
C. From 6 to 15 months		
Breastfed	10,000 per trimester†	10,000 per trimester†
Non-breastfed	10,000 per trimester	—

Source: Incap 74-799.
To be included in the HSG a child should fulfill the conditions detailed in A., B., and C.
The low supplemented group (LSG) is formed by those infants who do not fulfill these requisites.
†At least one of these two criteria is required (either child or mother supplement intake).

Table 4
Definitions of Developmental Retardation Used for the Present Analyses

Variable	Age of Examination	Criteria	Definition
Physical growth retardation (PGR)	Birth	Low birthweight (LBW)	≤2.5 kg
	15 months	Low weight for age*†	≤7.2 kg (m) ≤6.5 kg (f)
Low psychological test performance (LPTP)	15 months	Low score in the composite infant scale (CIS)*	<51%‡
Infant mortality	12 months	Death	

Source: Incap 74-862.
*Ten percentile of the population distribution.
†Equivalent to 66% of Denver standards in weight for age.
‡Less than 51% of the items that were administered were passed.

Table 5
Sample Size—Cohort Followed Through Pregnancy up to 15 Months of Age
(Number of births:671)

Variable	n	Coverage (%)
Physical growth (weight)		
a. At birth	405	63
b. At 15 months	457	68
Psychological test performance		
At 15 months of age	455	68
Infant mortality		
(First 12 months of age)	661	99

Source: Incap 74-801.

the LSG than in the HSG in both the fresco- and the atole-supplemented populations. Thus, it is clear that the risk of low-birth-weight babies among low supplemented mothers was almost twice that observed among high supplemented mothers. Since the home caloric intake was similar in both groups, the supplemented calories ingested by the HSG produced a mean increment of about 35,000 calories in the total intake during pregnancy. The decrease in LBW babies can not be explained by other important maternal variables such as size, home diet, morbidity, obstetrical characteristics, and socioeconomic

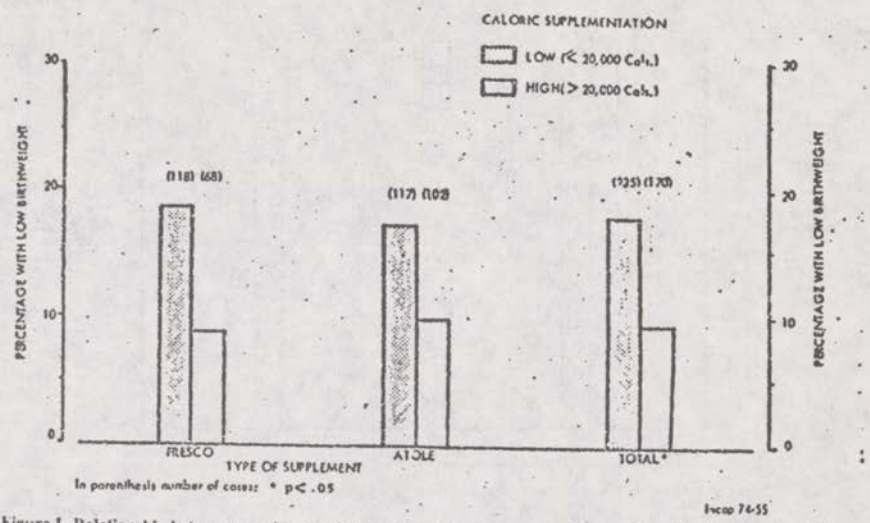


Figure 1. Relationship between supplemented calories during pregnancy and proportion of babies with low birth weight.

status. Most importantly, the decrease was not produced by undetected confounding factors related to the mother (like a tendency to have bigger babies) since it was also observed between two consecutive siblings of the same mother. We therefore concluded that caloric supplementation during pregnancy *caused* the observed decrease of the proportion of LBW babies in this population.[1]

At 15 months of age Figure 2 shows the proportion of children with PGR at 15 months of age for the LSG and HSG. There was a higher proportion of PGR among children in the villages where fresco supplementation was used than among children in villages where atole was given. We are at present exploring the causes of these differences. However, it should be stressed that in both populations there is a difference in the proportion of children with PGR in relation to the level of caloric supplementation. This proportion was consistently greater in the LSG than in the HSG in both the fresco- and the atole-supplemented populations. In the total sample, the risk of PGR is approximately two times greater in the LSG than in the HSG. We are presently examining the cause of this. Maternal size and the presence of high levels of IgM in the cord blood were also associated with PGR at this age.

LBW babies have higher rates of infant mortality than babies with better birth weights.[3] This means that the efficiency of nutritional programs aimed at decreasing infant mortality could be greatly enhanced if these programs were focused on mothers at high risk of delivering LBW babies. For this purpose, several risk instruments, feasible for use in populations with inadequate health services, have recently been proposed.[13]

B. Effect of Food Supplementation on the Proportion of Infants with Low Psychological Test Performance (LPTP) at 15 Months of Age

Figure 3 shows the proportion of children with LPTP at 15 months of age for the LSG and the HSG. Again, it appears that the proportion of children with LPTP is higher among populations receiving fresco than among those receiv-

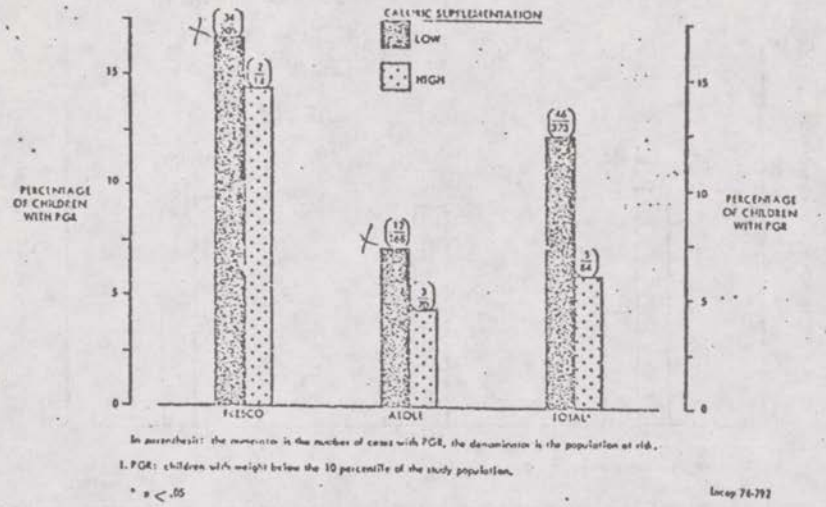


Figure 2. Effect of caloric supplementation during pregnancy and lactation on the proportion of children with severe physical growth retardation (PGR)[1] at 15 months of age.

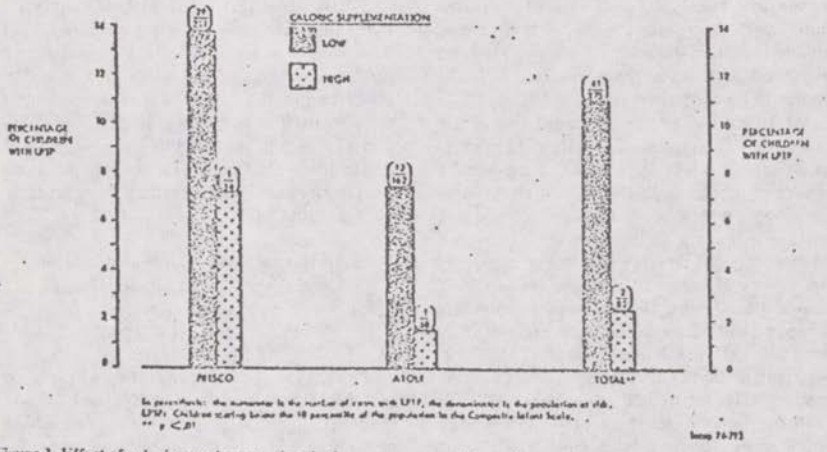


Figure 3. Effect of caloric supplementation during pregnancy and lactation on the proportion of children with low psychological test performance (LPTP) at 15 months of age.

ing stole. In both populations the proportion of children with LPTP was consistently greater in the LSG than in the HSG. The difference in this proportion is such that, in the total study population, the risk of having LPTP is five times greater in the LSG than in the HSG. Further analyses have shown that the mean performance is also higher in the HSG and that this association can not be explained by socioeconomic status, maternal characteristics, or morbidity of the child. These results support the hypothesis that caloric supplementation during pregnancy and lactation produced a decrement in the risk of LPTP in this population.

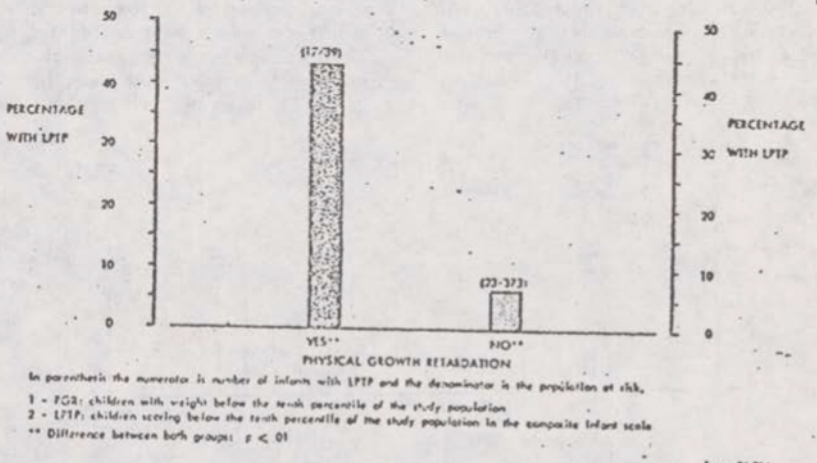
It has been reported that a low score on an infant scale such as the CIS is more predictive of later intellectual functioning than average or high scores.[11] In our population, low scores on the CIS also seem to be predictive of extremely impaired functioning. Infants who died in the first three years of life had significantly lower scores at six months of age than did infants who survived.[8]

LPTP at 15 months of age was also associated with PGR (Fig. 4). Infants with PGR were seven times as likely to fall into the category of LPTP as infants with better growth. Similar results have been observed between LBW and LPTP at 6 months of age and this finding was replicated with pairs of siblings.[8] Since PGR is common in poor communities, the relationship presented in this Figure suggests that the problem of behavioral retardation is greater in economically poor societies than in developed societies.

C. Effect of Caloric Supplementation during Pregnancy and Lactation on Infant Mortality

Figure 5 shows the association between caloric supplementation and stillbirths and infant deaths during the first, second, third, and fourth quarters of the first year of life. It is clear that in all the five comparisons made, the proportion of deaths in the LSG was greater than in the HSG. The magnitude of the differences is such that the risk of dying during the first year of life in the HSG is half of that observed in the LSG.

The observation that improved nutrition during pregnancy and lactation decreases infant mortality by nearly a half deserves consideration. Intervention programs designed to re-



In parenthesis the numerator is number of infants with LPTP and the denominator is the population at risk.
1 = PGR: children with weight below the tenth percentile of the study population
2 = LPTP: children scoring below the tenth percentile of the study population in the composite infant scale
** Difference between both groups: $p < .01$

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Figure 4. Relationship between physical growth retardation (PGR)[1] and the percentage of infants with low psychological test performance (LPTP)[2] in the composite infant scale at 15 months of age.

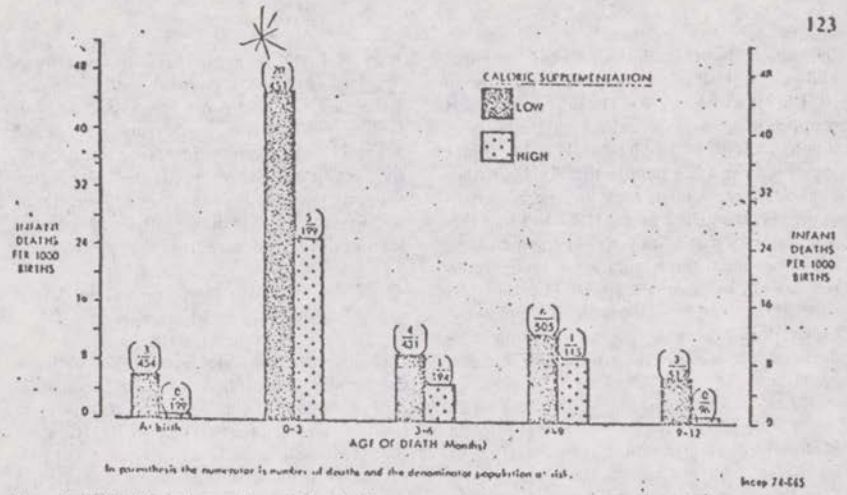

Figure 5. Effect of caloric supplementation during pregnancy and lactation on infant deaths.

duce infant mortality have generally focused on the control of infectious diseases through adequate health services and paid little attention to nutrition. These results demonstrate that nutritional interventions can help to reduce infant mortality in poor rural populations.

Other variables were also associated with infant mortality. These variables have been divided into two groups: maternal characteristics that can be assessed even *before* pregnancy and infant characteristics that can be detected at *birth*. The proportion of deaths during the first year of life is higher in children born of mothers with two characteristics: low socioeconomic status and low maternal height (Fig. 6). Infant death rates are also higher among those infants who were below normal in gestational age, who suffered severe hypoxia at birth, and who had low birth weight (Fig. 7).

Thus, we know two pre-pregnancy characteristics (socioeconomic score and maternal height) and three variables observed at birth

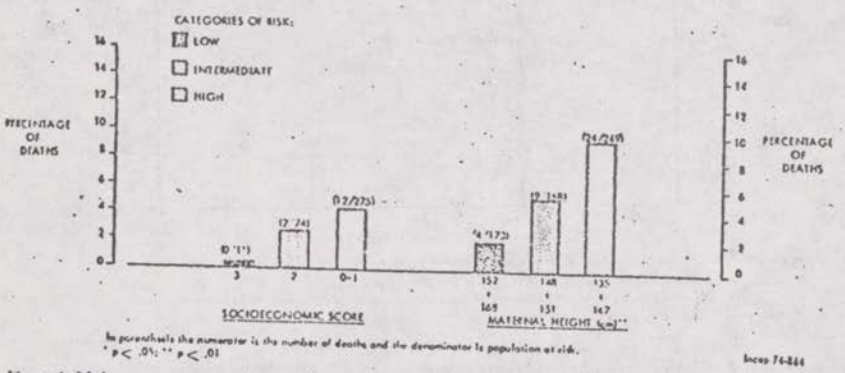

Figure 6. Main pre-pregnancy characteristics associated with risk of death during the first year of life.

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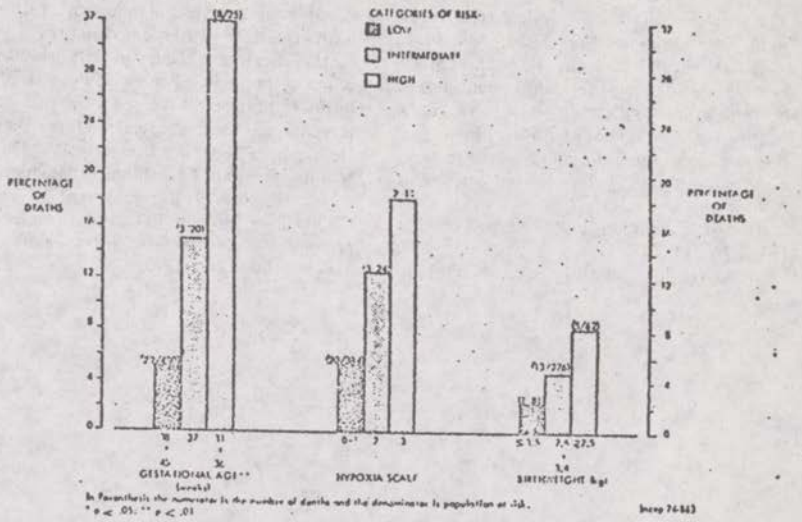

Figure 7. Main characteristics at birth associated with risk of death during the first year of life.

(gestational age, hypoxia, and birthweight) that are associated with risk of death during the first year of life. These five variables, either alone or combined, can be useful as early indicators of children who need special medical care. The use of these indicators would improve the efficiency of public health programs and would allow for a more rational utilization of the available resources.

CONCLUSION

In these rural populations, improved nutrition during pregnancy and lactation was associated with an important decrease in the prevalence of physical growth retardation, low psychological test performance and infant mortality.

It should be emphasized that the technique of food supplementation was implemented as a research procedure and that programs of this type are inappropriate for large populations over long periods of time. In many preindustrial societies, the elimination of poverty itself will be the most effective way of improving nutritional status and reducing developmental retardation and infant mortality.

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Chapter 17

PROGRAMS FOR COMBATTING MALNUTRITION IN THE PRE-SCHOOL CHILD IN CHILE

Fernando Mönckeberg

Basic Information

Chile, with its 8,229,000 inhabitants, presents many of the problems inherent in underdeveloped countries. Its population is young, with a rapid growth rhythm (2.5 per cent)[1]. Almost 40 per cent of the population are children under 14 years of age[1]. This high percentage affects the economy of the country, especially when the children do not participate in its active and productive life.

Chile's population is in the process of urbanization; there is a tendency to great migration of the rural population towards the bigger cities. The rapid growth of the population, together with this displacement of people, has aggravated a series of sanitary problems: there is a shortage of more than 300,000 dwellings[2] and only about 56 per cent of the present population has a public water supply, while sewers are available to only 44 per cent[1].

On the other hand, illiteracy is almost 20 per cent[1] and the income per capita is less than 300 U.S. dollars a year. Food production is low and insufficient to meet the needs of the growing population[3]. As a consequence, the supply of calories and proteins per capita is less than that recommended by the National Research Council[4]—reaching an average of 2,450 calories and 68 g of protein a day[5].

It is a well-known fact that bad sanitary and nutritional conditions cause the greatest damage among the infantile population. The child depends on his parents for protection and care, which are very frequently not provided because of ignorance, poverty, and certain traditional beliefs.

On the other hand, the biological requirements of growth and development pose more specific demands that are not easy to meet. Forty-eight per cent of death casualties came to people under the age of fifteen[6].

The lower-income class of city and peasant workers represents approximately 75 per cent of the total population[1]. Among these, infant malnutrition is very frequent and can be noticed in the first trimester of life. Though weight and size of newborns do not differ from those observed in infants born in more advanced countries, a noticeable difference can be observed in the first year of life[7] (Figure 2) and this continues during the pre-school and school ages[8, 9] (Figure 3).

An indirect index of the population's nutritional condition is the infant-mortality rate, which is notoriously high in Chile in infants of less than a year old though it is considerably lower in the pre-school children[6]. In 1960, mortality among the children under one year of age was 135 per 1,000 and declined to 105 per 1,000 during 1963, while mortality in the pre-school children in 1960 was 11.5 per 1,000 descending to 7.5 per thousand in 1963[6]. (Figure 3) The total number of deaths was 32,920 infants less than a year old and 7,481 pre-school children[6]. These statistics are quite different from those observed in other underdeveloped countries whose statistics show a lower mortality of infants and greater mortality of pre-school children[6-10]. (Figure 4)

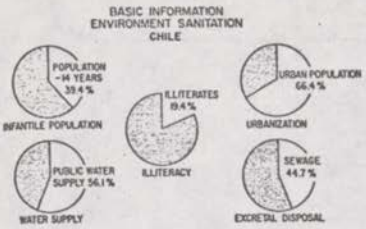

Figure 1. Basic information environment sanitation Chile.

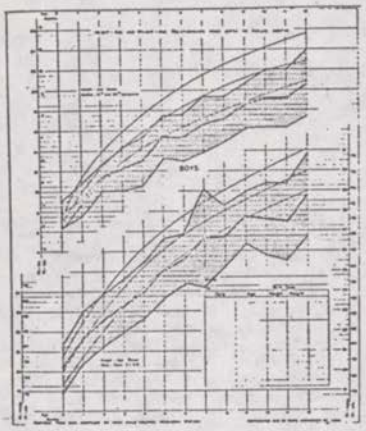

Figure 2.

From these data it may be inferred that in Chile malnutrition causes the greatest damage among children under one year of age. At the Manuel Arriaran Hospital in Santiago, the marasmic type of malnutrition, typical of the first year of life, is much more frequent than the kwashiorkor type, which is characteristic of the older child. Of every 100 malnourished patients, 92 are marasmic and six have kwashiorkor[11]. We have no clear explanation for this preponderance of infant malnutrition in relation to what has been observed in other underdeveloped countries. It might be due, as Gabaldon states[12], to climatic conditions. He postulates

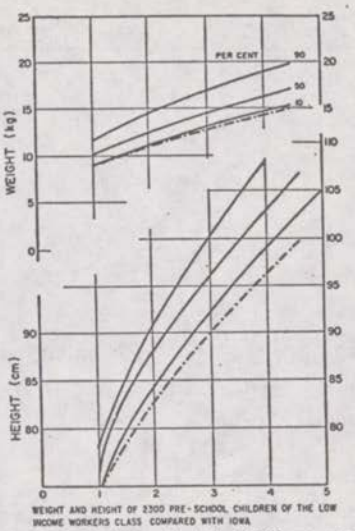

Figure 3. Weight and height of 2300 pre-school children of the low income workers class compared with Iowa.

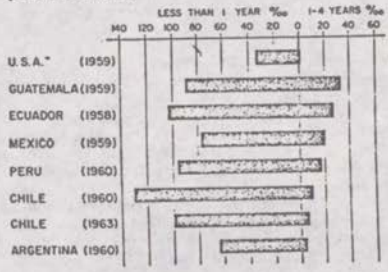

Figure 4. Infant mortality rate.

that, in tropical countries, the death casualties are more among children one to four years old, while in countries of a temperate climate, as in Chile, the opposite happens.

Another reason might be the short breast-feeding period frequently observed in Chilean

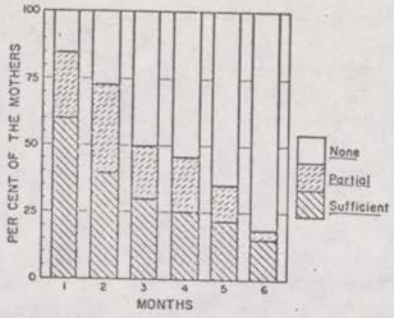

Figure 5. Lactation period of 325 mothers of the low income class (Santiago, Chile).

mothers. In a group of 325 mothers studied, it could be observed that at the third month only 30 per cent had enough milk for breast-feeding[13] (Figure 5). This means that hypo-alimentation and intestinal infections may set in at a very early age.

It is also possible, as it has already been said[14], that in some countries deaths among children under one year of age are not officially reported and that many babies are born and die without their existence being known.

Program for the Prevention of Malnutrition

It is clear to all that bad nutritional conditions in any country are the results of its limited economic resources. Therefore, any program designed to reduce malnutrition is hampered by a deficit that is impervious to medical aid. A complete and favorable solution will be achieved (a) when national production is increased; (b) when greatly increased agricultural production is achieved; (c) when there is visible improvement of the surrounding areas; (d) when income per capita is high; and (e) last but not least, when a better, up-to-date educational standard is established. However, the better utilization of facilities and personnel and the rational planning of a health program might achieve noticeable improvements. In this regard, it is helpful to know the experience gained in Chile and to analyze its advantages and defects.

At the beginning of this century, infant mortality was extraordinarily high and almost a third of the children born died before reaching

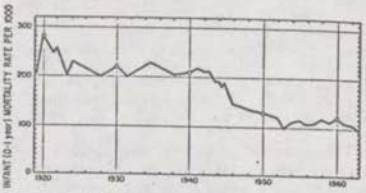

Figure 6. Infant mortality rate (per 1000) during the last forty five years in Chile.

their first year of age. Since 1936, however, there has been a noticeable decrease in deaths[15] That is when the Health Department paid special attention to infants and pregnant mothers belonging to the working class (Figure 6). A plan was elaborated including medical care, financial assistance, and free distribution of milk. During the subsequent years, some other agencies or departments were created in order to extend this medical attention to other low-income groups. In 1952, these various agencies and departments were united under one name, the National Health Service (NHS), in order to render more effective service. At present, the NHS is servicing two thirds of the population, covering especially those of the low-income class[16]. In order to achieve its aims, the NHS currently spends more than 13 per cent of the nation's budget; in addition, 85 per cent of doctors work for the NHS and are paid for their services.

According to a plan of medical care, the country is divided into zones and areas. Thus, for example, in Santiago, the capital, with more than 2,000,000 inhabitants, there are five zones; each has a hospital, a maternity hospital, and a children's hospital. Out-patient departments are located outside the hospital in different districts. Thus, certain families living in given sectors must be attended by their neighborhood out-patient departments. Individuals requiring hospitalization are sent to the neighborhood hospital. The NHS has 250 hospitals, totaling 29,000 beds, throughout the country[17].

Within the organization, special importance is attached to the mother and child department. In this department, programs directed to the care of the pregnant mother, the infant, the pre-school and school-child are elaborated. Control starts from the first months of preg-

nancy and continues through the delivery and post-partum period. Currently more than 70 per cent of deliveries occur at hospitals[18]. In addition, these programs cover free distribution of powdered milk (20 liters a month), an extra allotment and two months' rest before delivery and three months after it, and the payment of the salary that the mother fails to receive.

The control of the infant and pre-school child is also carried out through the out-patient departments. A monthly medical check-up is given to a child during the first year of life. This check-up is given every three months when the child is between one and two years old, and every six months when he is between two and four years old. Taking advantage of the presence of mothers at the out-patient departments, a program of sanitary education is followed.

Vaccination is given to infants and pre-school children as follows:

1. BCG shots at birth and PPD check-up when the child is six months old.
2. Whooping cough and dyphtheria shots for children three to five months old. Subsequently, they are given when the child is two and four years old.
3. Smallpox shots when a child is six months old.
4. Oral polio shots at the ages of three and five months.
5. Measles shot when the child is six months old.

In respect to this program, the number of infants and pre-school children under medical control has increased noticeably. In 1945, 38 per cent of the infants and 4 per cent of the pre-school children were subject to the control of different organizations. In 1962, 70 per cent of the infants and 50 per cent of the pre-school children were so controlled[19,20].

One of the essential elements of the medical control of the infant and pre-school child is the free distribution of powdered milk. Infants receive an equivalent of 20 liters a month. The pre-school child receives 15 liters a month, and the nursing mother receives 10 liters a month. This program has been carried on progressively, so that in 1963 almost 100,000,000 liters were distributed[19] (Figure 7).

It is hard to measure the value of the program, but it can be seen in the decrease of the infant-mortality rate: (Figure 8) mortality during the first year of life has remained more or less stable. The change occurred during these

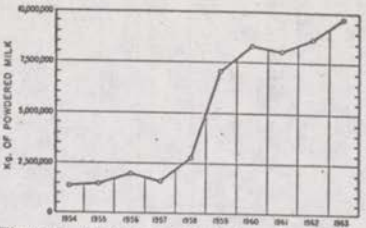

Figure 7. Amount of milk delivered by the "Servicio Nacional de Salud" during the infant nutrition program.

past three years, when infant mortality decreased from 126 per 1,000 to 105 per thousand, which is still a high rate, of course. Mortality in the pre-school child has decreased by a larger percentage, from 12.5 to 7.1 per thousand, and has remained constant[6]. These data shbw that the results have been only fair in spite of the program developed. This partial failure is due to two main reasons: 1) During the past 10 years the population growth has continued rising at a higher rate than the production, and the income per capita has not suffered many variations, which means that the economic standard has not improved noticeably. 2) It has not been possible to finish the outlined program completely, due to the limitations inherent in underdevelopment. In this regard, we must analyze the following points:

1. Shortage of medical and para-medical personnel. At present, there are 4,600 doctors in Chile, a proportion of 6.2 for every 10,000 inhabitants[21], whereas it is estimated that 10 doctors for every 10,000 inhabitants are required. The NHS has 1,147 nurses, when the need is for 2,300. There are 8,850 auxiliary nurses at work, whereas twice this number is required[21]. Moreover, the shortage of professionals is aggravated by their distribution in relation to need; most of them are in the urban areas. In view of the impossibility of an immediate increase in the number of doctors, the NHS is trying to redistribute their appointments by making it compulsory for doctors who have just graduated to serve at least three years in rural zones. The shortage of professionals is reflected, therefore, in programs of infant and pre-school child care.

A staff of new professionals who, in addition

to their technical training, have knowledge of the preventive aspects of infant medicine and ability of leadership within the health team is urgent.

Medical control of the infant has been successful in the urban areas but it faces great difficulties in the rural populations because of the lack of means of communcation, the enormous longitude of our territory, the geographical accidents, and a number of similar problems. All these make it very difficult for the rural population to have any access to medical control. The solution of this problem is beyond the capacities of the NHS and is closely related to the economic development of the country. Well-trained auxiliary nurses and social educators are of great help in these rural areas, in view of the small number of doctors in service.

2 Milk distribution program. Although the amount of milk distributed has been increased, it has not yet reached the goal of this program, which is to triple the volume of milk now being given away[22].

In this regard, we must add that only a fraction of the powdered milk supplied for the alimentation of the child is well utilized in practice. It has been observed through surveys[23] that only 50 per cent of the mothers who receive milk from the NHS make proper use of it for their infants and pre-school children. Often it is served diluted, so the whole family can share the benefits of it; also, a small percentage of the milk is sold in order to buy tea, which is thought to be better for the child.

From what has been observed, it can be inferred that in order to obtain a greater yield from the milk-distribution program, the child must be considered as part of a family group and not as an isolated being. It will probably be better if the milk is distributed in accordance with the social status of the family and the number of persons in it.

It is not easy to reach the goals of the milk-distribution program, both because of its high cost and because milk production in Chile is not enough to meet the need of the population. Furthermore, during the last few years the increase of the population has been greater than the increase of milk production[24]. (Figure 9)

The production of powdered milk has undergone a considerable increase due to a plan to produce it in manufacturing plants[25]. However, the total amount of production is still below actual needs, that is, if we consider the requirements of both the mother and child programs. Currently, a governmental plan for the increasing milk production is intended, by various means, to produce a sufficient amount of milk to supply the needs of the country for eight years[26].

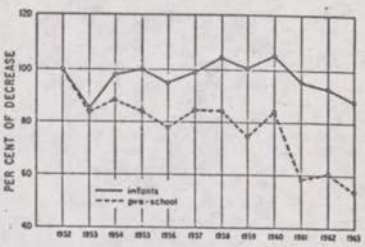

Figure 8. Variations of infant & pre-school mortality (per cent) during the last 10 years.

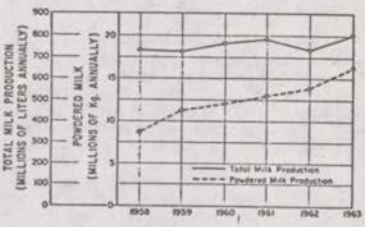

Figure 9. Milk production during the last seven years in Chile.

It seems essential to stimulate the utilization of some new sources of protein in the child's food and thus be able to replace, if only in part, the sources already known. To this end, we have been working at our laboratory with fish flour, and we shall present the results later on.

3. Control of infections. From the analysis of the causes of death among infants and pre-school children, it can be inferred that a major part of them occur after infectious illnesses and acute diarrheas. It is obvious that this loss by death is a result of a bad nutritional condition among infants. For instance, while acute dehydration due to diarrhea causes 30 per cent mortality in the malnourished, it is only 5 per cent in normal children[26]. The severest cases of acute dehydration are ob-

served precisely in infants suffering from severe malnutrition, because of their regulatory mechanisms being previously impaired.

Diarrhea causes 30 per cent of deaths among children under five years of age, because of the background of malnutrition and defective hygienic environmental conditions[6], problems such as water supply, sewage and garbage services, and inadequate lodgings, which are difficult to solve within a short period of time. The NHS currently has a plan to increase pipe constructions for sewers and for drinking water, especially in villages. There is also a government program of public housing; 125,000 houses have been built under this program during the last three years, a number that is expected to be increased in the future, as there is a shortage of approximately 300,000 dwellings[2].

Parallel to these solutions, which are undoubtedly long-term ones, the plans for sanitary education must be intensified. The teaching of simple hygienic measures must be conducted by doctors at out-patient departments and reinforced by the para-medical personnel visiting the homes of low-income classes. In this respect, it is important to simplify the formulas and at the same time to teach avoidance of food contamination.

Infant diarrheas have an epidemiological sequence in Chile; they are much more frequent during the summer months. This implies a series of limitations in the treatment of the severe cases, as there are not enough beds available for hospitalizations. Pilot plans for ambulatory hydration centers have been established[27], at which children are hydrated during the day by means of electrolytic solutions, in which electrolytic composition has been adjusted in accordance with alterations inherent in infantile malnutrition[28]. In view of the experience so far, this practice is being spread to all parts of the country. An important decrease in deaths by diarrhea has been noticed in the last few years, in spite of the population increase: in 1955, 5, 744 children died, while this year 4,661 children died[6].

The high percentage of deaths due to infectious illnesses is also a consequence of malnutrition among infants. Of these illnesses, we must point in a very special way to measles, which caused 2,243 deaths in 1963[6], most of them children under five years of age. It is especially noticeable that, among children suffering from bad nutritional conditions and belonging to lower-income classes, measles is very serious, as it is frequently accompanied by laryngeal obstruction and pulmonary complications.

It is extremely important to intensify the vaccination campaigns, with measles shots as well as dyphtheria and whooping cough shots, which in 1963 causes 246 and 371 deaths, respectively[6].

4. Illegitimacy. It is estimated that 17 per cent of the children born in Chile are illegitimate[1], and a high percentage of them are malnourished[29]. They are unwanted by their mothers, they do not have the father's financial support, and they are not well received in their communities. It is important, therefore, that solutions be sought through adequate sex education and intensification of the ministry of social workers.

5. Mothers who must leave their homes in order to work. It is estimated that currently 20 per cent of mothers are working outside their homes[30], and it is to be expected that this percentage will increase. This condition affects heavily the malnutrition of infants and pre-schoolers, as children are left in the care of inexperienced and sometimes ignorant and irresponsible people. In order to find a solution to this problem, which will become more serious in time, the Parliament is currently discussing a law creating adequate creches.

6. Alcoholism in the life of parents. This problem tends to hinder malnutrition programs.

All the problems I have discussed here constitute a great hindrance to programs designed to eliminate infant malnutrition. However, the full development of our health program, reaching all sectors, may obtain important results, even without substantial modification of the economic development of the underprivileged class. In this regard, a pilot experience has been carried out in Santiago in a community center of 80,000 inhabitants of the lower-income class, taking into consideration all the factors I have discussed[31]. This community is in an urban district with water supply and sewers. The results obtained after six years of work have been quite satisfactory. Mortality among children under one year old has come down to 40 per thousand, whereas it is 80 per thousand in the rest of Santiago. Mortality among the pre-schoolers is 2.2 per thousand. The development of the weight of infants and pre-school children does not differ substantially from that observed in the United States (Figure 10).

We may conclude from this that a health program including adequate medical care, sanitary education, and effective food distribution may yield beneficial and rapid results with-

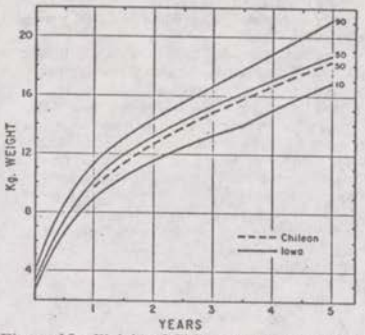

Figure 10. Weight of Chilean boys from one to four years age (pilot plan C.A.I.M.I.) comparated with Iowa boys (1964).

in a restricted area. The extension to all parts of the nation to meet the needs of the total population, however, meets with great difficulties.

If the work plan is multi-professional, including doctors, nurses, auxiliary nurses, and social workers, valuable progress may be obtained in the first stage of the work, but it will soon meet with great difficulties, typical of economic underdevelopment, and in these circumstances progress will be slowed down and will require, in part, resources other than medical.

Resources of High-Protein Food to Human Nutrition

We have pointed out that the average Chilean diet is lacking in proteins[5]; the production of habitual protein foods—milk and others—is insufficient for the present population. These circumstances force us to look for new resources of high-protein food in order to cover the present shortage and forestall a future deficit.

For the past three years, we have been working at the University of Chile (in the Laboratorio de Investigación Pediatrica y Centro de Estudio de la Nutrición) on the adaptation of fish flour for human nutrition and, especially for consumption by the infant population.

Our coastline is extraordinarily rich in a [illegible] of the ocean currents system[32].

There is a six-year governmental plan for a remarkable increase of fish flour production. In 1958, Chile produced 18,000 tons of fish flour, and in 1964 the production has reached 400,000 tons; it is expected that one million tons will be produced in 1965[32].

Sixteen fish flour plants are already in operation, and the total plan calls for 60 plants[32]. Up to the present, all the fish flour produced has been used in animal alimentation.

At present, and in agreement with UNICEF, a plant has been set in operation to produce a lean, odorless fish flour that is theoretically suitable for human use. This pilot plant produces 400 tons a year, employing a lean fish (haddock) weighing approximately 500 g.

"Net protein utilization" has been established as an indicator of the protein biological measure of quality, in accordance with the method described by Miller and Bender[33]. Results have shown an excellent net of protein utilization—at 10 per cent—giving a value of units similar to that obtained with casein. The available lysine determined by the method of Carpenter[34] is high, proving that the elaboration of this flour does not cause any reduction in protein quality. The limiting amino acid of this protein was found to be methionine and not lysine, which is important in considering other possible protein supplements[35].

Toxicity tests have also been studied in a reduced group of animals, by feeding rats with fish flour for a period of four generations. In one group, it was used at a level of 10 per cent and in another at a level of 25 per cent. The development and aspect were normal in both tests and the histological aspect of kidney and liver did not show any alterations[35].

The utilization of fish flour as a food for human use creates some problems, both with children and with adults. If this protein is to be introduced, it is very important to consider the food habits of the population. In order to achieve rapid results, it is important not to try to introduce new kinds of foods, but to make use of those already in use and enrich them by additional protein like this. In Chile, for example, 50 per cent of the calories come from bread, noodles, spaghettis, and other variations[36]. Therefore we have tried to enrich some of the food such as bread and spaghetti.

In the case of bread, it is observed that an addition of 6 per cent of fish flour produces an increase of the protein value, expressed as CPN[37]. (Figure 11) This increase is lower

	NPU ca	NPU st	A A Score	P	NDP c %
Bread	35 4	35 4	45	10 4	3 7
Bread + 6% F F	42 8	48 9	72	14 3	6 1
Bread + 6% F F + 0 5 Lysine	58 8	71 4	70	14 6	8 6
Bread + 12% F Milk	44 5	50 4	71	13 5	6 0
Noodle	38 4	40 2	47	11 9	4 6
Noodle + 10 F F	47 0	64 4	73	13 2	9 0

NPU ca - Net Protein Utilization (operative)
NPU st - Net Protein Utilization (standardized)
A A Score - Amino Acid Score
P - Protein concentration in protein calories %
NDP c % - Net Dietary Protein calories %

Figure 11. Effect of the addition of fish flour on the protein quality and protein value of bread and noodles.

than that estimated through the amino acid score, however, because the baking procedure alters the biological utilization of the amino acids, as temperature rises over 200 Celcius degrees. This phenomenon occurs not only with fish flour protein, but also with some other proteins that might be added to bread, such as powdered milk. (Figure 11) The altered amino acid is lysine, as the subsequent addition of lysine increases the biological value until it rises to the estimated theoretical biological value and even improves, through complementation, the utilization of wheat protein[36]. A considerable increase of the biological value is achieved as well by adding fish flour to spaghetti, but when it comes to bread, the opposite happens and the biological value is less than that estimated theoretically, so it is clear that baking procedure does not alter the amino acids utilization in the case of spaghetti[36].

The acceptance of bread and spaghettis has been studied in small groups of pre-school age children[37,38]. In the case of bread, the results have been quite satisfactory, provided the amount of fish flour added does not exceed 6 per cent. Spaghetti has also been well received with an addition of 10 per cent fish flour.

These data show that the ideal foods for introducing fish flour are spaghettis, noodles and similar products, since there is no amino acid damage in their preparation. Fish flour can be added to these foods in a larger proportion without altering the taste or other aspects. The spaghetti food may be kept for a long period before it is eaten, but the opposite is true of bread. The culinary procedure is simple and thrifty.

Fish flour has been tested in the pre-school child's alimentation, especially in soup, with an amount of 20 per cent mixed with wheat flour, flavoring agents, dry vegetables, vitamins and minerals. Acceptance, studied in small groups, has been excellent.

As we have pointed out before, malnutrition in Chile affects mainly the infant and the pre-school child. For this reason, we have tried to utilize fish flour in these age groups. With this purpose, studies have been made in infants whose ages ranged from three to six months, using a formula in which fish flour was the only source of proteins. This test has been performed during two-month periods, supplying 3.4 gr of proteins per kg a day. Tolerance and digestibility have been good. Weight gain has been normal (Figure 12).

Our intention is to prepare a complete food, easily stored and of low cost, whose components are produced in Chile and which is acceptable to local food patterns of taste and smell. Approximate estimations permit us to state that its cost price would be approximately one fourth that of powdered milk. It might be even lower, since new procedures for the elaboration of fish flour are being researched. One of them is the autolysation of fish through the proteolytic enzymes in the fish's own blind gut, and inducing fermentation through the addition of lactobacillus, obtaining a liquid from which fats may be separated by centrifugation[32].

In short, the utilization of the protein from fish in human consumption seems perfectly feasible, thus filling in the protein deficit in our infant population. The production of fish flour may reach unanticipated volumes and thus also be used for human nutrition in many other countries.

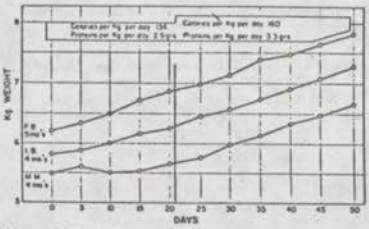

Figure 12. Weight curve of three infants who receive fish flour only, as protein source.

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#23

PROTEIN ADVISORY GROUP OF THE UNITED NATIONS SYSTEM

18 July 1972

PAG Statement No. 23
Rational Promotion of
Processed Foods

PAG RECOMMENDATIONS FOR THE PROMOTION OF PROCESSED PROTEIN FOODS FOR VULNERABLE GROUPS

SUMMARY

The statement emphasizes the critical importance of breast feeding under the sociocultural and economic conditions which prevail in many developing countries. Infants of more affluent socioeconomic groups in industrialized and developing countries, in the absence of breast feeding, suffer no disadvantage when fed properly constituted and hygienically-prepared processed commercial formulas. However, the early abandonment of breast feeding by mothers among lower socioeconomic groups can be disastrous to infants, particularly when this occurs without knowledge of the resources and hygienic practices necessary to feed their infants adequately and safely with breast milk replacements. Under such circumstances and where animal milk as a supplementary protein resource is expensive or in short supply, an important function of the food industry, in close cooperation with governments and physicians, should be the development and marketing of relatively low-cost nutritious protein foods which fulfill the nutritional role of milk among more affluent societies.

To assist the various interests concerned with these problems to deal with them objectively and effectively, the PAG proposes three sets of coherent recommendations: one for governments and United Nations agencies, a second for pediatricians, physicians and others caring for children, and a third for the food industry.

PAG Statements and Guidelines may be used and quoted freely. Copies may be obtained without charge from the Protein Advisory Group of the United Nations System, United Nations, N. Y. 10017, USA.

Background

To aid in developing this statement the PAG convened a meeting of leading pediatricians and representatives of the food industry in Paris, France, 16 and 17 June, 1972. In its deliberations this group took note of a preliminary meeting of pediatricians and the food industry which was convened in Bogota, Colombia, in November 1970 by the Pan American Health Organization/World Health Organization and UNICEF at the suggestion of the PAG. Note was also taken of the recommendations of a workshop on nutrition for "new urban families" held by the International Pediatrics Association in Vienna, 28 August 1971. Among the topics discussed at the June 1972 meeting were: purchasing power of African and Asian consumers in relation to meeting the nutritional needs of the child through commercial channels; problems facing governments in stimulating the supply of nutritious foods and supplements for infants and young children; role of industry in providing low-cost, nutritious foods for infants and young children and problems related to marketing and promotion practices of foods for infants and young children.

The PAG is grateful to those who have contributed to these efforts.

PAG Statement No. 23
Rational Promotion of
Processed Foods

1. Introduction

The widespread occurrence of protein-calorie malnutrition among infants and preschool children of developing countries has been extensively documented (1) and its consequences in increased morbidity and mortality, impaired physical growth and effects on learning and behavior emphasized. The high incidence of inadequate nutrition during pregnancy and lactation in these countries also contributes to malnutrition of the infant and debilitation of the mother.

Breast milk is an optimal food for infants and, if available in sufficient quantities, it is adequate as the sole source of food during the first four to six months of age. After this time the family diet should be gradually introduced. In underprivileged groups, poor health and adverse social circumstances may decrease the output of milk by the mother, while frequent infections increase the needs of the infant for protein foods. In such circumstances supplementation of breast milk with nutritionally adequate foods must start earlier than four to six months if growth failure is to be avoided.

The inherent availability of breast milk and its nutritional, biological and sanitary quality makes breast feeding eminently desirable and under the sociocultural and economic conditions of many populations in developing countries it is of critical importance. Every effort to promote breast feeding should be made through education of the population and by emphasis both in the training of professional, paraprofessional and volunteer health personnel and in the planning of a national food and nutrition policy.

Among more affluent socioeconomic groups in both developing and industrialized countries, children who are fed a properly constituted and hygenic infant formula instead of breast milk suffer no apparent disadvantage. Processed infant foods which are nutritionally complete when properly used are widely available. Among lower socioeconomic groups, however, the abandonment of breast feeding can be disastrous because alternative traditional practices tend to be unhygienic and nutritionally inadequate. Under such circumstances breast feeding should be maintained if it is at all possible to do so. Unfortunately, women migrating from rural to urban areas tend to abandon breast feeding in imitation of higher income mothers or in order to work, without having either the knowledge or the resources to feed their infants adequately without the use of breast milk.

It is this situation which poses a dilemma for the food industry. It is clearly important to avoid any action which would accelerate the trend away from

breast feeding; at the same time, it is essential to make available to the mother the foods, formulas and instructions which will meet the need for good nutrition of those infants who are not breast fed for various reasons.

The problem of meeting the special needs for children from birth to five years of age and pregnant and lactating women is complicated by the fact that animal milk, which is a major supplementary protein source for these groups in industrialized countries, is generally in short supply, of poor quality or costly for most of the population of the developing countries. For them there is an urgent need for the development and marketing of relatively low-cost protein foods which fulfill the nutritional role which milk plays in more affluent populations.

The production and marketing of appropriate and nutritious food suitable for infants and young children and for pregnant and nursing mothers is an important function of the food industry. However, special problems are faced in the developing countries which require both close liaison and cooperative efforts among industry, government and physicians concerned with the care of mothers and children as well as nutritionists and public health workers. These problems revolve around low educational and economic levels and often environmental conditions making hygienic handling of products difficult. Most food industry leaders welcome opportunities for such collaboration.

It is clear from the foregoing that the development and introduction of processed protein-rich weaning foods for the supplementary feeding of breast-fed infants and children after weaning and for use by expectant and nursing mothers is of major importance for any country in which there are not now satisfactory products available. However, the effective marketing, distribution, acceptance and proper use of these products in harmony with national needs and traditions requires the coordinated efforts of governments, international organizations, industries, health, educational and social agencies and medical personnel.

In order to guide industry, governments, international agencies, physicians and nutritionists in dealing with these issues the following principles are recommended.

2. Recommendations to governments and United Nations agencies

2.1 Governments should recognize infant and child malnutrition as an urgent problem and should be encouraged to give immediate support to studies and surveys, in cooperation with nutritionists, pediatricians and concerned industries, which will define the magnitude and nature of this problem.

2.2 Governments should give high priority to food and nutrition in development planning, and should seek the collaboration of industry which could contribute to planning for nutritional improvement. Special attention should be given to utilizing the potential of local food industries based on local supplies and to stimulating the establishment of new local ventures for the production of nutritious foods for the nutritionally-vulnerable segments of the population.

2.3 Governments should accept the fact that fostering new food innovations for nutritional improvement will demand urgent action to provide fiscal and financial incentives which will encourage industrial investment.

2.4 Governments should be encouraged, with the advice of pediatricians and nutritionists, to adopt nutritional criteria in facilitating the provision of processed foods for infants and young children in the commercial market. This can be done by rationalizing legislation and by simplifying administrative procedures which affect the infant and the weaning food trade.

2.5 Governments should take the following steps to assist the introduction of nutritious foods for infants and young children at the lowest feasible cost:

a) initiate specific legislative action to reduce direct and indirect fiscal burdens on processed infant and weaning foods.

b) consider subsidy programs to provide nutritious protein-rich infant and weaning foods to the most vulnerable and the lowest income groups. In some situations, governments should provide also for free distribution of supplementary foods to the vulnerable groups in the lowest income families.

c) provide strong support in organizing and financing educational programs to establish correct product usage, including situations where the products are provided free or at low cost. Such programs should be carried out in close collaboration with physicians caring for mothers and children and with the industry involved. Maternal and child health centers and mother-craft and nutrition rehabilitation centers should be recognized as useful channels for this educational work.

d) stimulate use of mass media channels for both educational and product promotion communication.

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c) encourage recognition of promotion as an essential component of any marketing program to establish widespread consumer use of nutritious foods for children. For approved products, governments should give active support to promotion programs, including, where possible, financial assistance as well as provision of trained personnel and communications facilities through health services.

2.6 The organizations of the United Nations system should continue to encourage the developing contacts between government officials, medical and other health personnel and industry, and to support, through appropriate channels, such as the FAO-Industry Cooperative Programme and the PAG, more extensive examination of outstanding problems of concern to both sectors.

2.7 The United Nations agencies should continue to pursue their initiatives to conduct seminars, workshops, and other training opportunities for personnel of developing countries on technical approaches to development, testing, marketing and promotion of processed infant and weaning foods and other nutritionally desirable foods.

3. Recommendations to pediatricians and other physicians caring for children

3.1 Pediatricians should foster educational programs for all health personnel, stressing the importance of breast feeding especially under six months of age.

3.2 Physicians caring for children, as well as nutritionists, should support ventures to launch protein-rich foods of plant origin to be used where traditional high-quality food resources such as milk are unavailable or beyond economic means. In preparing educational material, properly formulated protein-rich foods of plant origin should be recommended with those of animal origin for meeting protein needs.

3.3 Physicians caring for children, as well as nutritionists, should recognize the pressing need to introduce nutritious foods for infants and young children at the lowest feasible cost and the opportunities for cooperating with industry under mutually-acceptable standards to achieve improved nutrition, particularly in developing countries.

3.4 Pediatricians should be encouraged to conduct round tables and seminars to inform themselves and keep up with developments in infant and child feeding, including the promotion of breast feeding, and use of home-prepared weaning foods. The availabilityof various new and existing processed foods, including foods to meet special pediatric needs, should also be discussed.

3.5 Pediatricians and representatives from the food industry should hold meetings to discuss their respective interests and needs and progress in the field of infant and child feeding.

4. Recommendations to industry

4.1 Food industry leaders should be involved constructively in the solution of the special nutritional problems of vulnerable groups, particularly in developing countries.

4.2 The importance of breast feeding should be stressed in employee training and personnel instructed not to discourage appropriate breast feeding in any way.

4.3 Industry should train its personnel adequately in matters concerning local public health norms, needs and regulations in the implementation of national food and nutrition policies.

4.4 Industry should recognize and emphasize that the immediate postpartum period and the hospital nursery are not appropriate for any promotion of infant foods directed at other than professional personnel.

4.5 Industry should give special attention to the importance of unambiguous and standard ways of making up dry and liquid preparations for child feeding to minimize misuse. The needs of illiterate as well as literate persons should be considered in designing labels. Label design and literature should foster hygienically-oriented practices such as the use of boiled water and the proper cleansing of utensils.

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#24

The problem of malnutrition

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NESTLE S.A. 1976

1. Infant malnutrition

The most widespread nutrition disease in the world today is protein-calorie malnutrition (PCM), which means a lack of proteins and calories in the food.

In its primitive forms the syndrome is widespread in all the developing countries and leads to retarded growth and physical development. Children under five are the most affected. Only a small proportion of those affected recover from the clinical stage of the disease which may then appear either in the form of marasmus or in the form of kwashiorkor.

From the nutritional point of view, marasmus is the result of real under-nourishment, i.e. insufficient ingestion of more or less balanced food, whereas kwashiorkor appears when the food is sufficient in calories but very low in proteins (1).

From the epidemiological point of view, marasmus appears at a younger age than kwashiorkor, i.e. during the first twelve months, whereas the latter has its maximum frequency in the second and third year of life; it may also affect adults such as nursing mothers. This is an indication showing that the etiology of the two syndromes is different. Marasmus is closely associated with urban conditions and the consequences of living in these conditions such as early weaning, more frequent pregnancies, poverty and lack of food, deplorable hygiene, etc. Kwashiorkor, however, is more typical among rural populations where infants are nursed for a very long time, sometimes for two years or more, after which they suddenly switch over to the usual family diet, rich in carbohydrates.

In addition to the food, the individual faculty of adaptation plays a part in the origin of the two syndromes (2). Marasmus in fact represents an adaptability to the reduced food intake by a slowing down in growth and protection of the vital organs such as the liver, pancreas and intestines at the expense of muscular tissue. In kwashiorkor, this adaptability fails and well-known biochemical and organic changes make their appearance (3). (Edemas, dermatosis, depigmentation).

The different etiology of marasmus and kwashiorkor and a few differentiating clinical criteria are shown in plates 1 and 2. We can't dwell here on the very characteristic biochemical differences.

When these two clinical syndromes appear, they are nearly always accompanied by other factors such as infections (measles, whooping-cough and gastroenteritis), wretched family situations (illegitimate child, abandoned woman) and bad socio-economic situations (unemployment).

2. Treatment of malnutrition

A child suffering from marasmus must first be rehydrated, then an easily digestible food is administered to him in small repeated doses until digestion returns to normal. 10 to 15% concentrated skimmed milk in 100 ml quantities has proved very effective. Additions of casein and easily digestible fats are very useful to arrive at a protein ingestion of 3 g/kg/day and a calorie ingestion of at least 150 KCal/kg/day (4). In the treatment of marasmus, lactic proteins have proved to be superior to all other protein sources,

especially in very young nursing infants. After the restoring of the intestinal function and the appetite, the rehabilitation of the marasmic infant is a slow process but without major problem. Only very serious cases require artificial feeding by stomach probe.

It is more difficult to cure a child afflicted with kwashiorkor and the prognosis is less favourable than for marasmus. This is due to the very weakened intestinal function in the case of kwashiorkor, resulting in very poor digestion of the usual carbohydrates and fats. Diarrhoea linked with this poor digestion retards the cure.

Our research department has made a special study of this problem in recent years. At a missionary hospital in Yasa, in the rural province of Kwilu, Zaire, we are trying to find the best methods for curing kwashiorkor by a thorough study of the intestinal function in subjects afflicted with this disease. The work that has been carried out there points to possible ways of treating kwashiorkor more effectively (5):

– replacing indigestible manioc by rice
– replacing ordinary milk by **milk without lactose** (*al*-110)
– adding caseinate (hyperprotidine)
– adding medium chain triglycerides (MCT) resorbed immediately
– adding protein hydrolysate
– adjusting the mineral salts.

With such therapy the diarrhoea quickly disappears, the intestinal function improves and rehabilitation becomes possible without overfeeding. This treatment has one drawback, however, as it requires special imported products, although these are supplied free.

This is why, in subsequent research, we have tried to use local, vegetable or animal protein sources for treating kwashiorkor. We have tried peanuts, soya, dried fish and even caterpillars. The less satisfactory digestibility of vegetable proteins, however, may cause difficulties, especially in cases of serious malnutrition. We are now trying to increase the digestibility by suitable pretreatment of the products. Initial tests with an African food prepared from fermented soy and maize are encouraging.

Thanks to our collaboration the Yasa hospital has become a centre for the treatment of kwashiorkor for the whole surrounding area.

However, we realize that the curing of clinical cases does not solve the root problem, since prevention is better than cure.

3. The prevention of malnutrition

It would be an illusion to think that improving the food supply is sufficient in itself to get rid of malnutrition, as there are many other factors such as hygiene, education, social and political conditions and the income of the inhabitants. In fact the latter is the most important factor, as an increase in the national income always brings about an improvement in the food situation, as the history of the industrialized countries shows. Unfortunately, this development is relatively slow in some developing countries, and some sections of the population have no share in it yet. In spite of this, economic development is still the best way of improving the food situation. However, agriculture and the food processing industries should be given first priority, which unfortunately is not always the case in some of the developing countries where the authorities often prefer prestige projects, such as atomic reactors.

There is no doubt that the increase in local milk production and the development of the milk industry in the developing countries play a major role in helping to improve public health and combat malnutrition, because milk is a complete food and an excellent source of animal protein, calcium and vitamin A, three nutriments which are grievously lacking in the food of tropical and subtropical countries. In this milk production sector, Nestlé has played a pioneering role for more than half a century and has removed the spectre of disease for millions of people. Trying to make tinned or powdered milks responsible for undernutrition because they are sometimes used in poor hygienic conditions or in too small quantities, is a distortion of the facts. The aim must be to increase milk production and not the opposite, but it is clear that cow's milk must not replace mother's milk, but must be used to supplement mother's milk from the sixth month at the latest and as a building food for children, adolescents as well as expectant and nursing mothers. This in fact is the crux of the problem, as milk production in these countries is insufficient to meet the demand and the milk is too expensive for the poorer sections of the population. It follows that apart from milk one has to look for new and cheap local

sources of protein. It is easy to say this, but there are many snags on the practical side. Few people probably know that Nestlé has been involved in this sector for more than twenty years, firstly in basic research, then in the development of high-protein vegetable foods. When one talks of vegetable proteins, many difficulties of a nutritional nature must first be overcome:

– lower biological value of vegetable proteins
– pour digestibility
– presence of toxic factors in many leguminous crops and seedcakes
– undesirable colour and taste.

In spite of this, it has been possible after years of research to produce foods that meet the physiological requirements of feeding. Two sorts of products have been developed: enriched flours for preparing paps and vegetable milks. A few examples are given in plate 2 (6).

At the beginning of the sixties, two products were distributed in Brazil and Peru, through State institutions and normal trade outlets. Unfortunately, these products did not have a lasting commercial success for the following reasons:

– the taste was found disagreeable
– distribution through the State institutions had an adverse effect on the product's image
– because of the low price the immediate reaction was to regard the products as "foods for poor people".

This lack of success is very instructive however: The public and also the governments in the developing countries do not want special treatment which would best meet their immediate problems, they simply want to introduce the best and most up-to-date products as are now used in the rich countries. This is explained by the fact that the people who form the elite in these countries have often studied in Europe or in the United States and tend to copy what they have seen and experienced there. There must first be a change of mentality in these countries before cheap, locally made products are acceptable. Fortunately it seems that this change of mentality is about to occur in some countries and we are ready to assist in the local production of enriched flour and vegetable milks wherever the health authorities and the governments wish us to, and are also ready to help in the task of informing the public. We think in the long run we shall have to exploit on a very large scale such sources of vegetable protein as soya, peanuts and cottonseed flour, to mention only a few, in order to provide the poor sections of the population with the necessary nutriments, and I am not revealing a major secret when I tell you that a substantial part of our research budget is devoted precisely to this aim. However, these cheap products with a high protein content can also be used inadequately, and unfortunately there is no definite way of avoiding this. Only by patiently educating and informing the public will it be possible to prevent misuse.

Malnutrition is such a complex problem that only the collaboration of all men of good will, whether in governments, medical and health institutions, international organizations or in industry, can finally bring about success. Unobjective polemics will lead nowhere, whereas a willingness to talk and collaborate will help to solve the problems (7).

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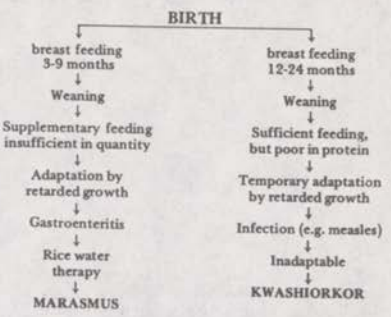
1. The genesis of the two forms of malnutrition



2. High-protein vegetable foods

	Fortifex	Peruvita	Fortiran	Soy Milk
Base	Maize	Quinoa	Wheat	Soya
Protein concentrate	Soy cake	Cottonseed flour	Chick-pea	Soya
Corrective factor	Methionine	Skimmed milk	Methionine	Methionine, Calcium

3. Clinical signs of malnutrition

	Marasmus	Kwashiorkor
Retarded growth	+++	++
Disappearance of fat reserves	+++	—
Edemas	—	+++
Depigmentation	+	+++
Dermatoses	+	+++
Apathy	–	+++
Anorexia	+	+++

Nutrition and infant mortality

Dr. H.R. Müller, Assistant Manager, Infant and Dietetic Products Department

NESTLE S.A. 1976

For some time the press has been reporting a controversy on baby foods in the developing countries, thus leading the public to believe that thousands of babies, all over the world, are dying because their mothers have started bottle-feeding them at a more or less early stage of their first year of life, instead of breast-feeding them, preferably for 2 or 3 years. The biased interpretation of fractions of certain scientific reports has enabled a whole campaign to develop; this campaign is clever at making use of the whole emotional, cultural, socio-economic and political context, but it is based on very few concrete facts.

We have therefore considered it useful to carry out a detailed analysis of scientific reports from pediatricians or authoritative bodies which have studied the relationship between nutrition and infant mortality, so as to show up certain specific facts which tend to be forgotten.

I. The evolution of infant mortality

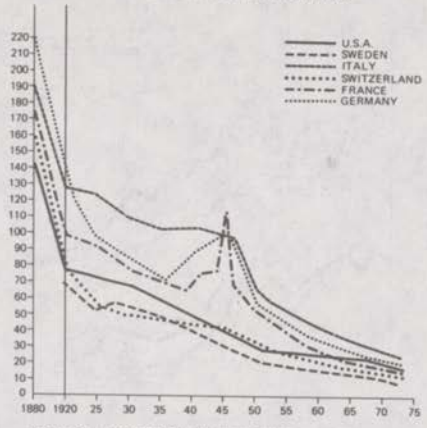
Infant mortality is falling everywhere in the world, including the developing countries.

First of all we must point out that, everywhere in the world, including the developing countries, infant mortality is falling. It is thus estimated (1) that, in the developing countries, the average has fallen from 230 out of every 1000 live births, for the 1935/39 period, to 120 out of 1000 for the 1965/69 period, i.e. a drop of roughly 50% within 20 years. Although, right now, there is no official recapitulative study, it seems reasonable to estimate the average mortality rate at 80 out of every 1000 births at present, i.e. a new drop of one third in less than 10 years.

As far as expectation of life at birth is concerned, which is mainly influenced by infant mortality, this results in a remarkable improvement:

"many of the underdeveloped and low-income countries in Latin America, Asia and Africa have shown in the last twenty years, a rate of improvement which has no precedent in the history of mankind". (1)

TRENDS IN INFANT MORTALITY : DEVELOPED COUNTRIES



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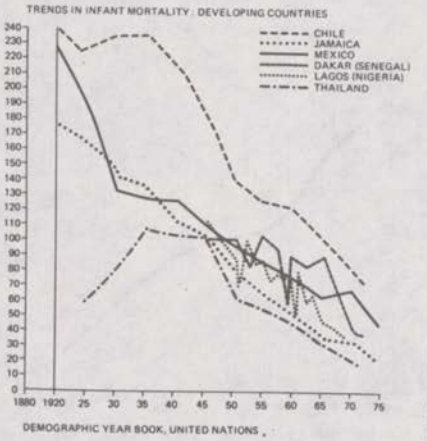
TRENDS IN INFANT MORTALITY : DEVELOPING COUNTRIES



DEMOGRAPHIC YEAR BOOK, UNITED NATIONS .

There is, however, a wide gap between them and the developed countries...

This optimistic note must, however, be corrected by comparison with the infant mortality rate in developed countries which has fallen, for the same period between 1935/39 and 1965/69, from 106 to 27 per 1000 live births, i.e. a drop which is relatively bigger than in the developing countries (75% instead of 50%).

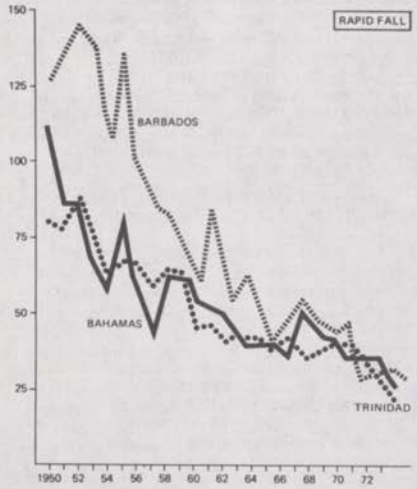
...and between Third World countries themselves there are big differences too.

We must also point out the very big differences between developing countries, both as far as the rate itself and its evolution is concerned. Thus, for example, in Latin America (2) on which very detailed studies have been carried out, we can distinguish those countries where, between 1950 and 1970, there has been a very sharp drop (Barbados, Bahamas, Trinidad) or a fairly sharp drop (Chile, Colombia, Nicaragua, Honduras, Jamaica), whereas other countries show some stagnation which is specially worrying in countries where it stands at a high level (the cases of Mexico, Guatemala and Peru, more specifically).

Infant mortality is also falling in countries where breast-feeding has fallen considerably as, e.g. in the case of Chile...

The target of the present press campaign consists in making the growing use of milk powders as infant food responsible for this stagnation in infant mortality. The most frequently quoted example is that of Chile, where a recent study (3) is said to have shown that infant mortality was 3 times higher among bottle-fed infants than among breast-fed infants, regardless of whether bottles constituted the only food or merely a supplement to mother's milk. This situation is all the more worrying as, under the drive of Government programmes for the protection of infants, it is thought that, within 20 years, the frequency of breast-feeding has fallen from 95 to 20%. If these assertions are correct, infant mortality in Chile would have had to increase considerably. In fact, this is not true. Infant mortality in Chile has fallen regularly, with even a period of rapid

MORTALITY RATE PER 1000 LIVE BIRTHS



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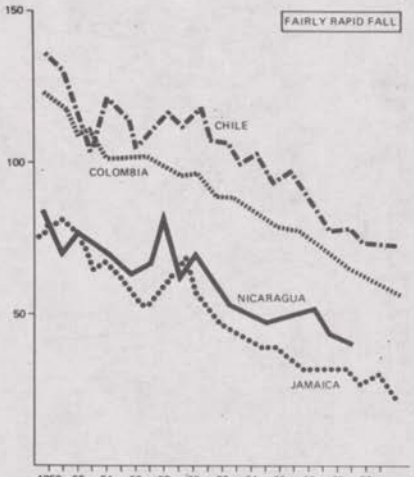

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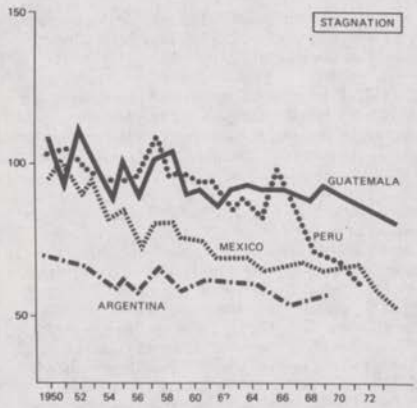
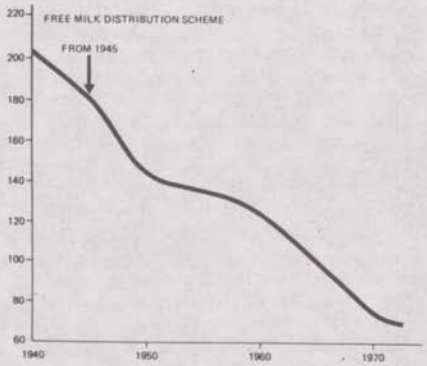


WORLD HEALTH STATISTICS REPORT, 1974, *27*, 780-781 (EXTRACT).

SPECIFIC CASE IN CHILE



WORLD HEALTH STATISTICS REPORT, 1974, *27*, 780-781 (EXTRACT).

drop between 1945 and 1955 which corresponded to the start of a system under which milk powder was distributed to all mothers of small children (4).

...of Jamaica...

Another case which is frequently quoted is Jamaica where the source is a study carried out in 1970 (5) which showed that bottle-fed babies suffer from gastroenteritis three times as often as breast-fed babies. But this same study shows that 90% of mothers stop breast-feeding before their babies are 6 months old. What do statistics show in this case? That, here infant mortality is among the lowest in South America! In 1973 (6), infant mortality in Jamaica was 26.2 per 1000 live births, which is comparable to Austria (23.8‰), Bulgaria (26.2‰), Hungary (34‰), Italy (25.7‰), Portugal (44.8‰), Roumania (38.1‰), or Yugoslavia (43.3‰).

...of Singapore...

Without wishing to multiply examples ad infinitum, we could quote the example of Singapore, for which some trustworthy data are available. The frequency of breast-feeding fell from 80% in 1951 among the higher social classes and 85% among the lower classes to 10 and 43% respectively in 1971 (7), whereas infant mortality fell from 82.2‰ to 20.5‰ (2).

...and urban areas in general.

Lastly we must remind you that infant mortality is invariably higher in rural areas than in urban areas (1, 8), whereas in these same rural areas breast-feeding remains the rule for 95 to 98% of mothers, and that it is in urban areas that it is being abandoned little by little (9, 10, 10a): "Although breast-feeding has become less generalized in cities, their infant mortality rate has fallen considerably in the last few years" (Professor A.E. Dugdale, Kuala Lumpur, Malaysia, 11).

Moreover, in developed countries the success of artificial milks is one of the reasons why infant mortality has fallen.

Moreover, experts are fairly unanimous in the opinion that the development of artificial feeding has been one of the reasons for the success in the fight against infant mortality in developed countries:

"The improvement in infant and child nutrition in the prosperous countries has been based on successful artificial feeding." (Prof. Aykroyd, WHO adviser) (12).

Among the positive factors which caused Sweden to be the country in the world where infant mortality is lowest, Professors Stig Sjölin and Bo Vahlquist mention the following:

"Nutrition is well cared for in the early years and extensive use is being made of commercial formulas and baby food of high standards." (13)

An objective breakdown of facts shows clearly that it is certainly not possible to state that the mere sales of milk powders for babies in developing countries is responsible for the high infant mortality in these countries. Before studying the possible influence of such milk in detail, we first of all have to stress two factors which have been known or at least suspected for a long time, but which had been either forgotten or underestimated and whose importance is now known. These factors are the following:

– the connection between low birth weight and infant mortality;

– the insufficiency of mother's milk in developing countries.

II. Birth weight and infant mortality

Birth weight in developing countries is low ...

The low birth weight of babies in developing countries is a well-known phenomenon; it is so well-known that it used to be considered normal and more or less the result of genetic influences. Thus, for example, in Africa, the average birth weight in villages ranges from 2.8 to 2.9 kg (14, 15). The position is similar in the Far East or in Latin America. In India and Sri Lanka, the average weight, at birth, is in fact only 2700 g (18).

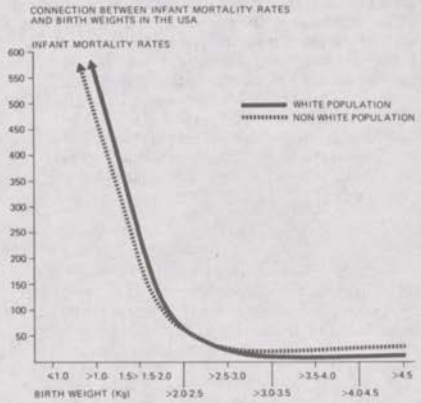
...and perhaps less than 2500 g for 40% of babies.

In a typical village in Guatemala which is fairly representative of the average position of rural communities at high and medium altitude in Mexico, Central America and South America and which has been consistently studied by INCAP (Institute for Nutrition in Central America and Panama) since 1963, we find 9% of genuine premature babies and 32% of babies which are "small for date", i.e. babies born in due time but with a very low birth weight, as a result of the retardation in intra-uterine growth (16).

Although we do not have detailed information of the percentage of babies with a low weight at birth for all developing countries, it seems nevertheless that the position described for Guatemala is identical in all developing countries. Thus, in the above-mentioned African study (15), births of babies which are "small for date" represent 14% of total births. In Chile, in the various Santiago hospitals, the frequency of births with a weight of under 2500 g is 13%; in Trinidad it is 13.7% (17). On the other hand, the low average birth weight in general means that a large proportion of babies weigh less than 2500 g.

The connection between low birth weight and infant mortality has been proved extensively.

There is a well-known universal connection between low birth weight and infant mortality. An extensive study carried out in the United States (19) has shown this connection clearly, as well as the fact that risks are already higher from 3 kg downwards.



H.C. CHASE "INFANT MORTALITY AND WEIGHT AT BIRTH: 1960 UNITED STATES COHORT". AM.J. PUBLIC HEALTH, 1969, 59, 1618.

Many other studies are available and they all concur. Thus, e.g. Prof. Sankalé (20), on the basis of statistics drawn up by Dr. Bengoa, is able to connect the percentage of babies with a weight at birth below 2.6 kg to the infant mortality rate within a given population.

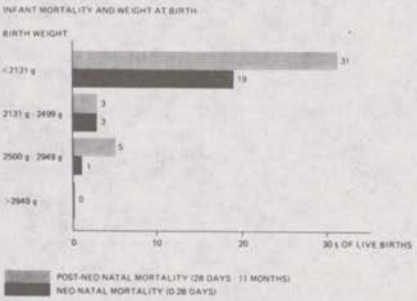
First year of life	Population A	B	C
Percentage of babies with weight of under 2600 g at birth	3	10	20
Infant mortality o/oo	25	70	150

It exists for neo-natal and post-neo-natal mortality.

The effect of the weight at birth not only affects neo-natal mortality (0–28 days), but plays **a prevailing part** in post-neo-natal mortality (28 days–11 months).

The inter-American survey carried out by the Pan-American Health Organization (21) on infant mortality between 1968 and 1972 in 15 different places and according to a standardized programmed model and which, due to its comprehensive character, has an unquestionable international significance, states that **deaths of infants weighing less than 2500 g at birth constitute between 53.9% and 78.4% of neo-natal infant mortality. And 65% of deaths which occur between the age of 28 days and 5 months affect babies weighing less than 3000 g at birth.**

The study carried out by INCAP in Santa María Cauqué also shows this negative and irreparable influence of the weight at birth (16). It is interesting to contrast the high mortality of babies with a low weight at birth with the mortality of babies weighing over 3 kg at birth which is similar to that of babies in more developed countries, in spite of an unfavourable environment.



L.J. MATA AND M. BEHAR: "MALNUTRITION AND INFECTION IN A TYPICAL RURAL GUATEMALAN VILLAGE: LESSONS FOR THE PLANNING OF PREVENTIVE MEASURES". ECOL. FOOD NUTR., 1975, *4*, 41

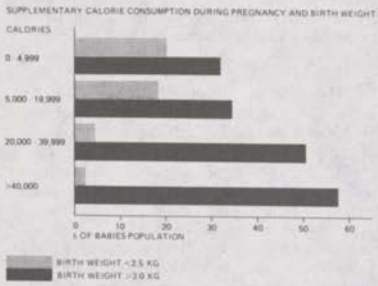
This low birth weight is not a genetic trait: it is due to malnutrition in the expectant mother.

The increase in the average birth weight and, especially, the fall in the number of babies weighing less than 2500 g (22) therefore constitutes a primordial factor in the struggle against infant mortality. Many factors have an influence on the birth weight; the parity, height, and weight of the mother before pregnancy, tobacco consumption, illness, the baby's sex, etc. It is, however, becoming clearer and clearer what the difference between women in developing countries and those in developed countries is and what explains the difference in weight at birth between their respective babies: **it is malnutrition before and during pregnancy**, further complicated by frequent infections (16).

The average weight gain in pregnant women in developing countries is 5 to 7 kg (15, 17, 23), compared to 10 to 12 kg in developed countries. It is not rare to see women who do not gain any weight at all. Traditional food during pregnancy does not, in many cases, contain any nutritional extras, but is influenced by taboos which, in some cases, help to diminish the calorie ration.

An adequate calorie supplementation is enough to reduce the frequency of low birth weight.

According to the study carried out by INCAP, the feeding of calorie supplements during pregnancy has definitely resulted in a reduction of the number of infants weighing less than 2500 g (24), from a certain level on (which varies from one population to another, depending on the pre-existing nutritional status).



M.S. READ ET AL.: "MATERNAL MALNUTRITION, BIRTH WEIGHT AND CHILD DEVELOPMENT" IN: "NUTRITION, GROWTH AND DEVELOPMENT, MOD. PROBL. PAEDIAT., 1970, 14, 203.

Another study of nutritional supplements during pregnancy, carried out in Colombia (25), also shows a significant increase in weight at birth. It appears (26) that a major reduction in infant mortality goes parallel with this, but numbers observed are too small to draw now a statistically valid conclusion.

III. Insufficient secretion of mother's milk

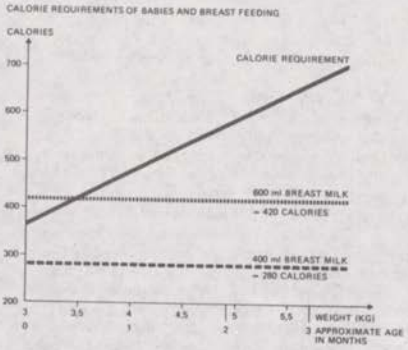
Since she is already undernourished during pregnancy, the mother cannot produce a sufficient quantity of milk.

In this general context of poverty and malnutrition, where the expectant mother, tapping reserves which are already practically nonexistant, is not even able to give birth to a baby with a sufficient weight to give it a good start in life, we may wonder whether the mother is still capable of breast-feeding. Extensive readings among the various studies devoted to the secretion of mother's milk show that, among women in developing countries, secretion is notoriously insufficient, as early as in the second month of the baby's life.

Recapitulative table of studies devoted to the volume of mother's milk

Developed countries		
Great Britain		
Morrison (29)	0– 1 month:	600 ml
	0– 6 months:	1000 ml
Developing countries		
India		
Gopalan (29)	0– 6 months:	470–530 ml
Rao (27)	0–12 months:	550–750 ml
Rajalakshmi (31)	1 month:	460 ml
	2 months:	600 ml
	3– 6 months:	710 ml
Congo (Kinshasa)		
Holemans (28)	0– 6 months:	400 ml
	6–12 months:	325 ml
	> 12 months:	290 ml
DeMaeyer (29)	0– 8 months:	350–400 ml
	8–12 months:	250 ml
	> 12 months:	300 ml
Soudan – British Somalia		
Housden (29)	10 months:	200 ml
Nigeria		
Jelliffe (29)	8–14 months:	275 ml
Uganda		
Rutishauser (32)	2–12 months:	660 ml
	13–18 months:	600 ml
	19–24 months:	530 ml
South Pacific Islands		
Jansen (30)	1– 6 months:	400 ml
	6–12 months:	400 ml
	> 12 months:	200–300 ml
Venkatachalam (30)	1– 6 months:	400–700 ml
	6–12 months:	450 ml
	> 12 months:	200–400 ml
Malcolm (30)	6–18 months:	525 ml
	> 18 months:	350 ml
Oomen (30)	6–18 months:	320 ml
Bailey (30)	6–12 months:	400–600 ml
Mexico		
Martinez (33)	2– 6 months:	540–580 ml
	8–18 months:	450 ml
	> 18 months:	350 ml

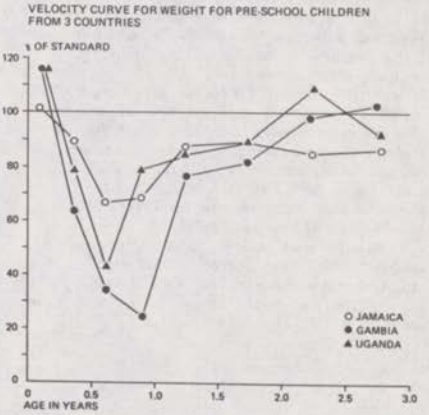
In the most favourable cases, mother's milk secretion amounts to 600 ml and very often is not over 400–450 ml, the maximum being attained at the age of one month and then progressively diminishing. Calories supplied by mother's milk (70 Cal/100 ml) must then be compared to calories required by the baby which, according to FAO/WHO experts, amount to 120 Calories/1 kg/day (34).



The calorie requirement of the baby whose mother cannot secrete over 400 ml is never fulfilled. Even if milk secretion amounts to 600 ml per day, the baby with a birth weight "normal" for under-developed countries (i.e. between 2.8 and 3 kg) will get adequate food for the first 3 to 4 weeks of its life; but, after that, a long process of undernourishment in terms of calories begins for him.

This phenomenon which has been stressed by very few authors becomes quite clear if we look at the "typical" weight curves of babies in Africa or Latin America (16, 20, 35, 36).

K. HOLEMANS ET AL. "ETUDE QUANTITATIVE DE LA RATION ALIMENTAIRE DU NOURRISSON NOIR DU KWANGO", REV. MED. LIÈGE, 1954, 9, 23, 719.



J.C. WATERLOW AND I.H.E. RUTISHAUSER "MALNUTRITION IN MAN", IN: EARLY MALNUTRITION AND MENTAL DEVELOPMENT, SYMP. SWED. NUTR. FOUND., 1974, 12, 13.

Calorie supplements, whether in the form of milk or not, depending on the baby's age and on milk secretion, are essential for ensuring the baby's normal growth.

In these circumstances, it is essential for the baby to receive an adequate calorie supplement. And, insofar as the scarceness of mother's milk shows from the second month of life, it is normal for this supplement to be given in the form of liquid, i.e. "milk". Various tests have shown the advantages of such a supplementation. We could, for instance, recall tests carried out by Gordon, Behar and Scrimshaw (37) who, in a village in Guatemala, distributed a daily supplement of milk, Incaparina and banana, and observed that post-neo-natal mortality fell from

113.1‰ before supplementation
to 18.5‰ after supplementation.

We could quote many other favourable studies, whereas those who are against the supplementation would add cases of malnutrition which have been "caused" by artificial feeding. It is indeed conceivable that, in a community where hygiene conditions are inadequate, if not non-existent, preparing a baby's bottle increases the risk of infection.

It is, however, to be noted that none of the studies used as "proof" of the harmfulness of bottle-feeding has established it convincingly.

– In the study carried out in Chile (Plank and Milanesi)(3), the authors reckon that the low birth weight factor which implies a medical prescription for milk powder is not important. Such a statement seems daring, to say the least, since we know that the percentage of babies with a low weight at birth is 14% in Santiago and that, in the rural area under examination, it is probably nearer 40%, like in Guatemala.

– In the study on Jamaica (5), the frequency of gastroenteritis is considered 3 times higher among bottle-fed babies than among breast-fed ones. A study of results shows that the respective frequency is 4.5 and 1.3%.

	Number of months	Number of gastroenteritis cases	%
Breast-feeding from birth to 4 months	151	2	1.3
Partly or completely bottle-fed from birth to 4 months of age	734	33	4.5

This low percentage, as well as the disproportion between the 2 groups, casts grave doubts on the statistical significance of the results.

– The Pan-American study (21) is also sometimes quoted as "proof" against bottle-feeding. But this study is content to analyze feeding methods of babies who died, but without studying, for the whole of the population, the respective percentages of breast-feeding or bottle-feeding. No conclusion can, therefore, be drawn.

The following will show the reasoning methods used: if, out of 10 babies who died, 2 were breast fed – i.e. only 20% of the population which died – the authors conclude a protective effect of breast-feeding, since 80% of babies who died were bottle-fed! But if, precisely, the 2 breast-fed babies were the only breast-fed ones and if the 8 deaths of babies who were bottle-fed occurred among 98 other babies of the initial baby population of 100% to have received this type of food, we have, in actual fact, a mortality rate of 100% for breast-fed babies and only 8.2% for bottle-fed babies.

Moreover, the protection given by mother's milk does not appear to be as absolute as might have been expected. For example French (38), when studying the sickness rate among babies in a poor Navajo community, found a larger proportion of cases of diarrhea among bottle-fed babies, but **an identical overall infection rate among bottle-fed and breast-fed babies.**

Conclusions

It therefore seems that, in developing countries, new progress in reducing infant mortality can only be made provided that:

– the number of babies weighing less than 2500 g at birth is reduced; it seems that such a reduction can easily be made by supplying the expectant mother with a sufficient calorie **supplement**;

– the nursing mother's diet is **supplemented**, so as to ensure more adequate secretion of mother's milk which is the infant's ideal food par excellence;

– the mother's milk is **supplemented**, as soon as it becomes scarce, i.e. very often before the baby is two months old, with a view to ensuring that the baby is in a sufficient nutritional state to resist all infections which threaten him. In this context, substitutes based on cow's milk which are prepared by industry can make an irreplaceable contribution. These are the only products to fulfill the criteria of the high biological value and easy digestibility which are essential if the baby is to make optimum use of them. The vegetable mixtures which are prepared locally (either by industry or by a well-educated mother) can constitute excellent supplements for babies aged over 6 months whose digestive capacities are already well developed. They are inadequate for younger babies, either because of the digestive problems which they may cause (indigestible cellulose coating, specific digestion inhibitors only found in vegetables) or because they do not supply enough of certain vitamins and mineral salts (vitamin A, vitamin D, calcium, phosphorus, iron) or, if they do, the baby cannot absorb them, or else because they do not supply sufficient calories (low fat content foods).

The above-mentioned factors only concern the field of nutrition. They must, of course, be combined with other influences in the field of hygiene, environment, education, etc.

The struggle against infant mortality must round up all available kinds of energy and there is no doubt about it that the food industry has a part to play in this field. The present campaign which is trying to exclude industry from the developing countries and to promote breast-feeding without any discrimination does not make any positive contribution to the fight against infant mortality.

It is, on the contrary, to be feared that, through various mechanisms (progressive depletion of the energy reserves of the population, hindrance to the mother's work and thus to the family's higher purchasing power, reduced contact with the outside world, etc.), this campaign may well result in a fresh outbreak of infant mortality.

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THE PLACE OF ARTIFICIAL FEEDING IN AFRICA

Recently attention has been focussed on the possible dangers of artificial feeding in Africa. Emphasis has unfortunately been placed on the risks of diarrhoea and vomiting which are consequent upon wrong handling of the product and the vessels for its administration i.e. bottles. Such statements wholly condemn the use of these products without fair assessment of some of the tremendous advantages of milk products in critical conditions which I shall enumerate later. In addition, it is assumed that Africans as a whole are incapable of attaining standards of hygiene which has made artificial feeding acceptable and practised in all parts of the world - including South Africa! One can only hope this is not an attempt to insult the intelligence of Africans generally!

There are certain crisis areas where artificial feeding is not only mandatory, it is life saving i.e.

1. Infants whose mothers die during or shortly after childbirth.

2. In cases where breast milk fail or is inadequate.

3. In cases where breast feeding is contraindicated as in severe maternal illness.

4. In rapid growth after three months of age when the need to supplement infant feeding is crucial to normal nutrition status in early childhood.

In later childhood as weaning is planned artificial feeding becomes really important. Too often physicians, nutritionists and other health workers have remarked about the high incidence of Kwashiokor, marasmus and general protein-energy malnutrition in African children. The correct administration of these milk products as supplementary feeding will abolish this continuous tale of woe! Kwashiokor is not known in the well educated classes of Nigerians who know the use of these products and regularly use them for <u>all</u> their babies. A brief survey

will show that all university staff and other educated class in Nigeria use these products and none of their children developed marasmic Kwashiokor. If Africa will not continue to be target for malnutrition, if our babies should ever have a chance, correct nutrition and supplementary feeding in relation to milk and other feeds must remain available.

Whilst pictures of starving marasmic children abound galore and tend to raise a lot of emotion, the stark reality is that thousands of Nigerians are using milk products to feed their very healthy and normal babies.

Instead of a destructive criticism which is aimed at depriving Africa of the milk products, efforts should be directed at EDUCATING African mothers on the correct use of these products. To this effect, many of us have approached the Food Companies in Nigeria advising that they should de-emphasize "bottle feeding" but encourage breast feeding as best for babies. However, when the need arises to supplement the feeds, cleanliness and adherence to formulas is important.

We are pleased that Nestle Products has responded favourably. They have appointed trained nurses who visit clinics in towns, villages and hamlets to help with educating the masses. They also have put out pictures encouraging mothers to breast feed their babies and announcements to this effect put out on mass communication media of radio and television. This I believe to be commendable and morally justified.

It is also important to stress that the economic development of Nigeria has produced "The Working Mother". The Nigerian woman of today is at work and NO PROPAGANDA can stop this. It will be criminal to deprive her of the only sensible means of feeding her baby while she is at work. Rather than pursue this puerile propaganda, a programme geared to educating her in the proper use of the products is both right and moral. Amongst the other methods used, mothers are encouraged to add the milk powder to "pap" and other mainly carbohydrate traditional weaning diet. This in turn enriches the food greatly and provides the much needed protein, vitamins and minerals vital to the child's development and positively prevent malnutrition.

Lastly, it will be unfortunate for Africa if a company that has done so much and has come such a long way to meeting the needs of Nigerian mothers and infants is made to suffer in

any way or libelled as murderous. Rather, it and others should be encouraged to improve their efforts to the overall advantage of our children. If Africa should not continue to produce malnourished children to feed propaganda and research of some people, the interest of food companies who are genuinely helpful must be protected.

A final note of warning, there are less scrupulous companies from other parts of the world who would flood African markets with less satisfactory products if Nestles and others lose the market. The results might be more disastrous!

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Human Protein Deficiency: Results of a Nigerian Village Study[1,2]

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ABSTRACT A skimmed milk supplement was fed to lactating women to raise the protein content of their energy adequate diet from 25 or 50 grams to 100 g/day. The amount of milk secreted, as well as the amount consumed by the child, increased significantly. The children gained more weight. There was no change in concentration of total milk solids, protein or lactose in the majority of cases. Hence, the principal effect of protein deficiency on milk secretion was a decrease in volume. Skimmed milk protein also fed as a supplement to subclinically malnourished village children caused an increase in growth rate, plasma amino acids, total body albumin (but not in plasma albumin level), albumin and gamma globulin turnover and plasma levels of insulin and thyroid hormones. There was a fall in plasma level of cortisol, growth hormone and in total body water, especially the extracellular compartment. The transition from subclinical malnutrition to kwashiorkor was associated with a further severe decline in protein synthesis and turnover and in the activities of several plasma enzymes. The essential role of hormonal changes in the adaptive responses to low protein intake has been emphasized. The level of hormones in plasma, as well as the concentration of total essential amino acids and the turnover of plasma proteins, are useful early indicators of the relative adequacy of protein intake by human population groups. J. Nutr. *106:* 312–328, 1976.

INDEXING KEY WORDS protein deficiency · milk secretion · protein turnover · hormones

In spite of a global prevalence of protein malnutrition and the extensive investigation of the subject, there is still a lack of satisfactory early indicators of protein deficiency in man. One of the reasons for this lack is that protein deficiency rarely occurs alone; it is usually associated with or complicated by deficiencies of energy and vitamins. Kwashiorkor is the end result of severe protein deficiency in children, while marasmus is caused by the combination of protein deficiency and energy restriction. The biochemical differences between these two syndromes in children (1) and when reproduced in experimental animals (2, 3) show the need for a careful description of the dietary-pattern before valid conclusions can be reached concern-

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[1] These studies were carried out during 1959–1961. Some aspects of the work such as a repeat of the performance and verbal tests of mental function to measure the effect of protein supplementation on mental development were not completed because of the civil disturbances in Nigeria during 1966. Analyses of data and publication were delayed by the same circumstances.

[2] Supported by Grant No. A-3250, Institute of Arthritis and Metabolic Diseases, National Institutes of Health, Bethesda, Maryland, and by a grant from the Rockefeller Foundation, New York, N.Y. A grant was also made by the World Health Organization, Geneva, Switzerland in support of the lactation studies.

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ing the biological effects of uncomplicated protein deficiency.

Western Nigeria presented a unique opportunity for investigating this subject. Like other communities in the rain forest areas of the world, the traditional diet was based on tubers. Cassava and yams were available in sufficient amount to meet energy requirements. Palm oil provided an abundant supply of vitamin A. Most of the other vitamins, as well as minerals, were consumed in adequate quantities (4, 5). The low protein content of the staples combined with poverty and ignorance to produce a dietary pattern of almost uncomplicated deficiencies of protein and riboflavin.

The present studies were undertaken to identify early biological effects of protein deficiency which could be used for individual or community assessment. They were also designed to elucidate the nature

Fig. 1 The elite group consisted of 250 children whose fathers were on the faculty of the University of Ibadan or were Senior Civil Servants in the Ibadan area. They were followed for a period of 3 years in a long-term growth study. Height and weight measurements were taken every 3 months. The growth curves for the village children were constructed from a single transverse study of the village children at the commencement of the investigations reported in this paper.

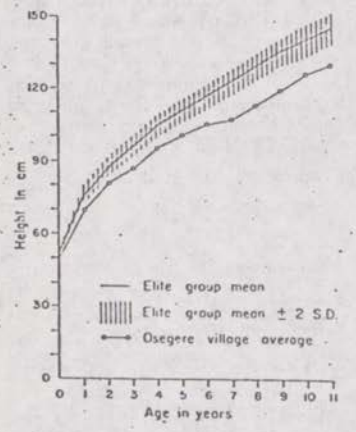

Fig. 1a Comparison of height for age curves of Osegere Village children and the children of the elite group.

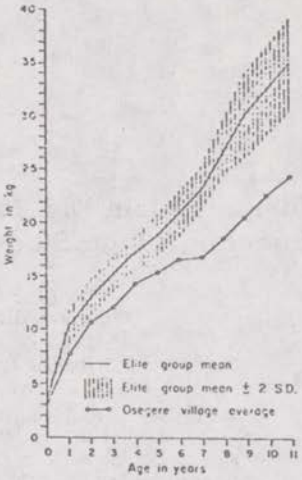

Fig. 1b Comparison of weight for age curves of Osegere Village children and children of the elite group.

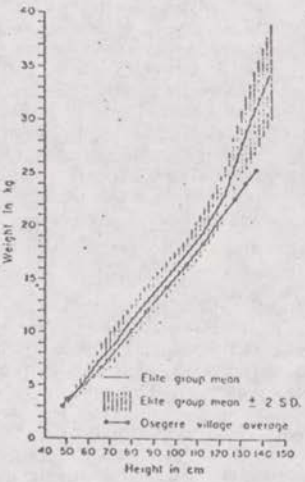

Fig. 1c Comparison of weight for height curves of Osegere Village children and children of the elite group.

of the metabolic changes which occur during the transition from subclinical malnutrition to kwashiorkor. Special emphasis was given to lactating women and to children because these two risk groups are known to have a high requirement for protein. A feeding experiment was included to confirm that protein deficiency was responsible for any observed effects and to test the reversibility of the changes.

MATERIALS AND METHODS

The subclinically malnourished subjects were from Osegere, a rural Yoruba community of about 1,500 people situated 16 miles northeast of Ibadan in the rain-forest belt of Western Nigeria. Demographic, clinical, dietary, anthropometric and laboratory studies were conducted on the entire population at the beginning of a 3-year longitudinal study of child growth and development. Some of the main characteristics of the community have been previously reported (4–6). The birth rate was 52/1,000 population and the crude death rate was 22/1,000, giving an annual rate of natural population increase of 3%. The infant mortality rate was about 180/1,000 live births and the mortality in the first 5 years was about 40%. Kwashiorkor was highly endemic, as was deficiency of riboflavin.

The mean heights of adult men and women in the village were 166.2 ± 5.2 cm and 156.5 ± 3.7 cm respectively, and the corresponding mean body weights were 57.1 ± 6.7 kg and 49.8 ± 5.8 kg. The women gained an average of 7.9 ± 2.5 kg during pregnancy and their babies weighed, at birth, 2,890 ± 550 grams (3,000 g for boys and 2,800 g for girls). The mean values for height and weight of the village children fell below the 3rd percentile values for well-fed Nigerian children from high-income families (figs. 1a and b). The differences were present at birth; the mean birth weight of the elite group children was 3,200 ± 460 g and their mothers gained an average of 12.30 ± 3.4 kg during pregnancy. The difference in height and weight

TABLE 1

Means, standard deviations, ranges and tests of significance for the Ibadan (elite "E") and Osegere village (village "V") groups

Variable	Group	No.	Mean	SD	Range
Chronological age (months)	E	17	48.41	7.64	37–59
	V	17	48.41	7.44	37–58
	Difference		Nil		
Intelligence test scores					
Full scale	E	14	49.36	11.22	25–66
	V	16	29.37	10.07	9–48
	Difference		+19.99[1]		
Performance scale	E	17	22.00	5.59	10–29
	V	17	12.76	4.89	6–22
	Difference		+9.24[1]		
Verbal scale	E	14	26.29	7.51	20–38
	V	16	17.06	6.71	3–28
	Difference		+9.23		
Height (cm)	E	17	106.84	6.03	97.3–116.9
	V	17	96.42	7.58	85.7–105.5
	Difference		+10.42[1]		
Weight (kg)	E	17	17.71	2.04	14.20–21.26
	V	17	14.55	2.50	11.20–18.26
	Difference		+3.16[1]		
Wt./ht. ratio	E	17	1.656	0.12	1.46–1.89
	V	17	1.483	0.17	1.19–1.78
	Difference		+0.173[1]		

[1] Significant difference between groups ($P < 0.05$).

of village children compared to the elite children progressively increased with age. However, until about 9 years of age, the mean weight for a given height of the village children was within −1 SD of the value for well-fed children (fig. 1c); thereafter this difference widened, suggesting that the energy consumption of the village children was inadequate to sustain the adolescent growth spurt. The height and weight figures for these elite children (7) were indistinguishable from those derived from the Harvard growth studies (8). Performance and verbal tests of mental function, using methods developed for the Nigerian nutrition survey (4), indicated that the village children were also retarded in mental development (table 1).

The main staple food was cassava (Manihot utilisima) which has a crude protein content of 2.6%. Usually, the cassava was grated, fermented and fried to produce "gari" before it was eaten and this processing reduced the crude protein content threefold (9). Gari was usually eaten with a broth or soup of palm oil, vegetables and occasionally meat or fish. Animal products were scarce and expensive. Fresh fruits available in Osegere village were sold in a market in a larger village nearby and were rarely eaten by the villagers.

Babies were usually breast-fed for 18–24 months. At about the age of 6 months, breast-feeding was supplemented by feeding a corn gruel. Small amounts of adult food, including the vegetable broth, were added at about 9 months. The interval between consecutive births was usually about 3 years, but this period was shortened when the baby died.

Analyses of the diets indicated that 5–8% of the energy was derived from protein, 10–15% from fat and the rest from carbohydrate. Energy intake was 90–120% of requirement (10) for the children as well as adults. Five-day food consumption records taken from 50 households indicated that the average daily protein consumption of adults was 42 g. This represented 65% of the safe level of protein intake for an adult man and 88% of that for an adult woman assuming that the quality of the dietary protein was 60% relative to egg protein. However, nitrogen balance studies in 45 subjects (6) suggested that this might be an overestimate of protein quality since the mean values for urinary and fecal nitrogen losses were 4.0 ± 0.5 g/24 hours and 1.0 ± 0.2 g/24 hours, respectively. It is unlikely that cutaneous and miscellaneous losses can fully account for the daily balance of 1.72 g of nitrogen (equivalent to 10.75 g protein). This discrepancy was not a surprise since the composition of several local foodstuffs was not exactly known and nutrient values obtained from other countries had to be assigned to such foods.

Twelve women between the second and 14th months of lactation were housed in the metabolic ward of the University of Ibadan Teaching Hospital and their lactation performance investigated. During the first 2 weeks eight of the women were fed a diet which was similar to their usual village diet and contained 50 g protein/day. The composition and volume of their breast milk were measured daily. Their infants were fed every 4 hours, alternately for 5 minutes on each breast until satisfied; the first feeding was given at 0600 hours and the last meal at 2200 hours. During each feeding, sucking from each breast was interrupted twice and a small sample of milk was taken for subsequent analysis. At the end of each feeding both breasts were emptied manually and the volume of residual milk was measured. The infants were accurately weighed on a sensitive scale at the beginning and at the end of each feeding. The difference in weight was taken as the amount of breast milk consumed. Total breast milk secretion was obtained by adding the volume of milk consumed throughout the day to the volume of pooled residual milk and the amount collected for analysis. The residual milk and the milk samples taken during feeding were then pooled for analysis.

Each subject was allowed 1 week to adapt to the experimental diet and to the ward environment; the mean of the seven results obtained during the second week was taken as the daily milk secretion rate for the subject. During the third and fourth weeks the mothers were fed the basic diet plus a supplement of skimmed milk powder which provided additional protein of 50 g/day. The energy equivalent of the supplement was deducted from the basic diet so that energy intake was maintained at

60 kcal/kg body weight throughout the study. The milk output studies were repeated during the fourth week. One thousand five hundred milliliters of water/24 hours was allowed throughout the experimental period. Two-day nitrogen balance studies were carried out every week on two of the women.

Three women were fed a diet containing 25 g of protein during the first 2 weeks before their protein intake was increased to 100 g/day by addition of a skimmed milk supplement. Apart from this lower protein intake initially, they were investigated for 4 weeks according to the procedure used for the first eight subjects. Nitrogen balance studies were carried out in two of these subjects.

The remaining subject was fed a diet containing 25 g protein/day for 4 weeks before the skimmed milk supplement was added to increase her protein intake to 100 g/day.

About 10 ml of breast milk was also collected for chemical analysis from each of 25 village mothers during the first 3 months of lactation and from each of 25 mothers later in lactation.

Total milk solids was estimated by drying duplicate 2 ml aliquots of milk to constant weight at 70°. Milk nitrogen was determined by the microKjeldahl method and the protein content estimated by multiplying the nitrogen value by a factor of 6.25. Milk lactose was measured by reduction of arseno-molybdate reagent. All procedures were carried out as described by Varley (11).

Two hundred forty 1–4 year old children were selected for special investigation. After an initial study to establish baseline values for several anthropometric and biochemical parameters, the village children were divided into four groups, matched for sex and age. One group (supplemented group) was fed their regular home diets plus a supplement of skimmed milk powder providing additional dietary protein of 1.0 g/kg. A feeding center was established in the village and a resident nurse who reconstituted the milk from the powder under sterile conditions ensured that each child received the supplement in two equal amounts, morning and evening. A second group (protected group) received weekly protective medication against malaria,† a third group (supplemented and protected group) received antimalarial prophylaxis and milk supplement, while the fourth group (control group) received neither antimalarial prophylaxis nor milk supplement. All the children were seen twice every day at the center and each of those who did not get the milk was given 100 ml of water containing 10 mg ascorbic acid and 7 g of lactose. All groups were followed for 12 months and the studies then repeated.

The clinical cases of malnutrition were 1–4 year old children having the typical manifestations of kwashiorkor-stunting, weight loss, skin and hair changes and edema. They were admitted into the metabolic ward of the University of Ibadan Teaching Hospital for investigation. Six of the patients came from Osegere village; the other patients were selected from the outpatient service of the pediatric department of the Hospital. During the first 10 days each patient was fed a virtually protein-free diet plus a supplement of skimmed milk powder providing dietary protein of 1.0 g/kg body weight/day. In addition, each patient was treated with anti-malarial drugs and antibiotics or other medicines according to clinical indications. A pilot study had shown that the clinical condition, plasma proteins and other blood constituents remained stable under this regimen. Only mild cases of malnutrition were accepted at first, but after it was established that the subsequent course of recovery was not altered by this procedure, more severe cases were admitted. Two days were allowed for the patient to adjust to the ward routine and the plasma protein metabolism studies were undertaken during the next 7 days. Thereafter, diets were supplemented with more skimmed milk powder to provide a total protein of 3.0 g/kg/day and this schedule was continued until complete recovery in 9–10 weeks. The studies were repeated in the recovered children prior to their discharge.

About 15 ml of blood was collected for hematological and biochemical studies from the antecubital vein of the village

† Pyrimethamine, (Daraprim), 12.5 mg once a week, Burroughs Wellcome Company, Wellcome Research Laboratories, Clinical Research Division, Beckenham, Kent BR3 3BS, England.

children or from the external jugular or the femoral vein of the clinical patients. All blood samples were taken between 0800 hours and 0900 hours after an overnight (12–15 hours) fast. About 1 ml of the blood sample was placed in a plain container and the separated serum was used for determination of total proteins and the protein fractions. The remaining sample was put into a tube containing EDTA and was used for all other determinations. Five milliliters of a solution containing 5 μCi of ^{131}I-labelled protein (albumin or gamma globulin) and 250 μCi of tritiated H_2O was then injected through the same needle. Blood was drawn 10 minutes later from another site and used for estimation of plasma volume. Another blood sample for determination of total body water was taken 2 hours after the injection. To complete the protein catabolism studies, daily blood samples were taken at 0800 hours and 24-hour urine collections were also made. Five drops Lugol's iodine was given orally twice a day for 3 days (2 days in the case of kwashiorkor patients) prior to and throughout the duration of the protein metabolism study.

The radioactivity in a 1/100 dilution of plasma was determined in a gamma well counter[8] and plasma volume was derived from isotopic dilution of the injected ^{131}I-labelled human serum albumin or gamma globulin (12). A factor of 1.015 was used to correct for loss of radioactivity into the extravascular compartment. Blood volume was calculated from the plasma volume and the whole body hematocrit. The factors of 0.96 (correction for trapped plasma) and 0.91 (correction for the higher proportion of plasma in capillary blood than in venous blood) were applied to the hematocrit to obtain the whole body hematocrit. Red cell mass was estimated as the difference between the blood volume and the plasma volume. Albumin and gamma globulin catabolic rates were computed from the measurements of plasma and urinary ^{131}I over a period of 7 days following the injections of ^{131}I-labelled proteins (12).

Albumin was prepared from pooled plasma obtained from the village children by half-saturating with ammonium sulphate and concentrating the albumin in the supernatant by dialysis against a saturated solution of high molecular weight polyethylene glycol. Gamma globulin was prepared by chromatography of pooled plasma on DEAE Sephadex (13). The technique described by MacFarlane (14) was used to iodinate the proteins. Carrier albumin or gamma globulin was added to reduce radiation hazard. Sterilization was carried out by filtration through a sintered glass filter sterilized by autoclaving. The solution was then distributed in 2 ml aliquots into sterile rubber-capped bottles and refrigerated until needed. Before use, the radioactivity was measured in a gamma counter, and appropriate dilutions prepared. The stock samples were found to be satisfactory for up to 2 weeks, but in this study they were used only during the week of preparation.

The radioactivity in a 1/2,000 dilution of the plasma collected for determination of body water was measured in a liquid scintillation counter[9] set for optimum counting of tritium in an aqueous scintillation fluid.[10] After correcting the counts for efficiency by the internal standardization method, the total body water was estimated as the volume of distribution of the injected ^3H_2O. Initially, urine was collected during the first 2 hours after administration of the isotope and allowance made for urinary loss of tritium, but this practice was abandoned when it was established that the loss of radioactivity was negligible.

To obtain extracellular fluid volume, the ^{131}I-labelled albumin or gamma globulin was replaced with 2 μCi of $^{22}Na^+$ in the injection fluid. Equilibration time of 22 hours was allowed, after which blood was collected. Urine was accurately collected and radioactivity measured to determine the amount of retained label. Radioactivity of plasma was also measured and the volume of extracellular fluid was calculated as the volume of distribution of the retained isotope. Correction factors of 1.07 and 0.91 were applied to correct for plasma protein and entry of ^{22}Na into cells (12). Intracellular fluid was taken as the differ-

[8] Auto-Gamma Counter, Packard Instrument Company, Inc., Downers Grove, Illinois.

[9] Automatic Tri-Carb Liquid Scintillation Counter, Packard Instrument Company, Inc., Downers Grove, Illinois.

[10] Aqueous scintillation solution composed of 500 ml xylene, 1,500 ml Methyl Cellosolve, 1,500 ml Dioxane, 280 g Naphthalene, 35 g PPO and 1.75 g POPOP.

TABLE 2

Nitrogen balance in four lactating women

Subject	Age of child	Nitrogen[1]					Milk consumed by baby
		Intake	Milk	Fecal	Urinary	Balance	
	days	*g/day*	*g/day*	*g/day*	*g/day*	*g/day*	*g/day*
2	30	8.0	1.94	0.70	4.85	+0.51	571± 64
		8.0	1.98	0.63	5.78	−0.39	627± 48
		16.0	2.33	3.02	7.24	+4.41	716± 82
		16.0	1.86	4.89	7.10	+2.15	726± 68
3	234	8.0	0.99	1.82	3.26	+1.93	573± 87
		8.0	1.18	1.30	5.92	−0.40	579± 90
		16.0	1.95	1.15	11.46	+1.44	619±112
		16.0	4.09	2.92	3.45	+5.54	655± 84
4	205	4.0	1.58	1.56	1.99	−1.12	753±128
		4.0	1.80	1.34	3.02	−2.16	718± 90
		16.0	2.48	1.71	6.82	+4.99	896± 84
		16.0	2.43	1.60	8.94	+3.03	883± 74
5	420	4.0	1.47	1.76	2.35	−1.58	693±118
		4.0	1.64	1.86	3.20	−2.50	852±112
		16.0	1.88	3.32	5.32	+5.49	921±105
		16.0	2.24	2.46	9.37	+1.93	1,171±160

[1] Cutaneous nitrogen losses were not measured.

ence between total body water and extracellular fluid.

About 4 ml of plasma was ultrafiltered at 4° (pressure 7.05 kg/cm²) and 2 ml of the ultrafiltrate was used for amino acid analysis by the method of Spackman and Stein (15) using an automatic analyzer.[7]

A microhematocrit centrifuge[12] was used for measurement of hematocrit. Hemoglobin was estimated by the cyanmethemoglobin method (16). Total serum protein was measured by the biuret method (17). The protein fractions were separated by zone electrophoresis on cellulose acetate strips, stained with azocarmine B and quantitated with an automatic reflectance densitometer.[13] Blood glucose was estimated by the glucose oxidase method (18), uric acid by the uricase method (19), total cholesterol by the method of Sperry and Webb (20) and alkaline phosphatase (EC 3.1.3.1) by the method of King and Wootton (21). The spectrophotometric method was used for assay of erythrocyte and serum glutamic-oxaloacetic transaminase (ECGT and SGOT, EC 2.6.1.1) (22) and glutamic-pyruvic transaminase (ECPT and SGPT, EC 2.6.1.2) (23) while cholinesterase (EC 3.1.1.8) was estimated by observing the change in pH when the enzyme source was incubated with a solution of acetylcholine (24). To prepare material for assay of enzymes in red cells, 0.5 ml of blood was mixed with 5 ml of saline and then centrifuged; the sedimented red cells were washed once with saline and hemolyzed by making the volume up to 5 ml with distilled water. The volume of red cells used was calculated from the sample volume and the hematocrit. All enzyme estimations were made at 25°.

Thyroid function was evaluated by red cell uptake of ^{125}I triiodothyronine (12), estimation of plasma protein bound iodine (25) and by uptake of ^{131}I by the thyroid gland[14] (12). The radioimmunoassay technique was used to estimate insulin (26) and growth hormone[15] (27). Plasma cortisol was measured by fluorometry (28)

[12] Beckman Automatic Amino Acid Analyzer, Model 120 B, Spinco Division, Beckman Instruments, Inc., Palo Alto, California.

[13] Clay-Adams Readacrit Centrifuge.

[13] Joyce Loebl and Company, Newcastle, England.

[14] Estimated with a Magna Scanner, Picker X-Ray Corporation, Cleveland, Ohio, 4 hours after an oral tracer dose of 5 μCi ^{131}I. Equipment was donated by the International Atomic Energy Agency, Vienna, Austria.

[15] Sample of growth hormone for use as a standard and for production of rabbit anti-human growth hormone antibody was kindly supplied by Dr. A. E. Wilhelmi, Emory University, Atlanta, Georgia.

TABLE 3

Effect of protein intake on milk secretion[1]

Variable	Daily protein intake			
	50 g Initially[2]	100 g	25 g Initially[2]	100 g
No of subjects	7	7	3	3
Total milk solids: g/100 ml	13.5[4] ±1.3	13.4 ±0.9	12.0 ±0.6	11.9 ±0.5
Milk protein: g/100 ml	1.61 ±0.15	1.57 ±0.19	1.20 ±0.21	1.25 ±0.23
Milk lactose: g/100 ml	8.1 ±0.9	7.9 ±1.0	7.3 ±1.4	8.0 ±1.8
Milk produced: g/day	742 ±16	872[4] ±32	817 ±59	1,059[4] ±63
Milk consumed: g/day	617 ±15	719[4] ±10	777 ±38	996[4] ±74
Wt. gained by baby: g/day	30.4 ±3.6	45.7[4] ±2.0	10.5 ±3.6	32.2[4] ±10.1

[1] Subjects were fed the initial diets for the first 14 days and then a diet providing 100 g protein/day for the next 14 days. Results for each subject represent the mean values for milk samples collected during days 8–14 (for initial diet) and days 21–28 (for diet providing 100 g protein/day). [2] Duration of lactation for all subjects was between 30 and 90 days. [3] Duration of lactation was over 100 days. [4] Results are mean values ± SD. [4] Significantly different ($P < 0.05$) compared to the unsupplemented subjects.

while the method of Moxham and Nabarro (29) was used to assay 17-ketosteroids and 17-ketogenic steroids in urine.

RESULTS

The milk obtained from 25 village mothers during the first three months of lactation contained, in g/100 ml; total solids 13.8 ± 0.97, lactose 7.90 ± 0.96, protein 1.72 ± 0.12. The vitamin A content was 79 ± 18 μg/100 ml. The fat content was not measured but the residual solid (total solids minus lactose minus proteins) equaling 4.18 g/100 ml indicated a value of 3–4 g/100 ml of milk fat. The milk obtained from 25 women after the 3rd month of lactation contained more lactose (9.6 ± 1.2 g/100 ml) but less protein (1.3 ± 0.2 g/100 ml) and fat (1.8 g/100 ml); and vitamin A (61 ± 15 μg/100 ml) and equivalent amounts of total solids (12.7 ± 1.7 g/100 ml). Milk yield tended to improve with increasing duration of lactation.

The women went into negative nitrogen balance when fed a ward diet containing 25 g protein/day but were in positive balance when the diet provided 50 g protein/day (table 2). This indicated that their daily protein intake was between 25 and 50 g which is in agreement with the levels estimated from dietary and urinary nitrogen studies.

The dietary protein supplement fed to the mothers produced a significant increase in milk output (table 3). The increase was usually evident by the third or fourth day and maximum response was reached by the seventh day. The supplements did not alter the concentrations of protein and lactose in breast milk. The infants also gained significantly more weight when their mothers were fed the additional protein. The volume and composition of breast milk and the rate of weight-gain of the infant remained relatively constant for 4 weeks in the case of the mother who was fed 25 g of protein all the time. When her protein intake was raised to 100 g/day, milk secretion and the rate of growth of the infant increased very rapidly (table 4).

During the year of study, five children in the control group, two in the protected group, one in the supplemented group and one in the supplemented and protected group, died (table 5). The difference in mortality rate between the control and the combined treated groups was significant, but when the control group was separately

TABLE 4

Effect of hospitalization and protein supplementation on milk secretion of one subject

Duration of study	Protein intake	Breast milk: Total solids	Protein	Lactose	Unaccounted solids	Amount Consumed	Residual milk + samples for analyses	Wt. gain of baby
	g/day	g/100 ml	g/100 ml	g/100 ml	g/100 ml	g/day	g/day	g/day
Week 1	25	11.1±0.6	1.19±0.22	5.2±0.7	4.7	733 ±113	31 ±4	+15.6
Week 2	25	11.6±1.1	1.12±0.12	5.8±1.1	4.7	712± 42	33 ±4	+7.1
Week 3	25	11.6±0.7	0.97±0.15	6.1±1.0	4.5	691± 85	20 ±3	+12.0
Week 4						700[2]	16	
						720	21	
						770	20	
	25	11.2±0.5	1.27±0.10	6.5±0.9	3.4	660	22	+10.0
						700	26	
						660	25	
						610	22	
Week 5						630	24	
						780	23	
						680	17	
	100	11.6±0.3	1.06±0.10	6.1±1.1	4.2	870	17	+36.7
						950	15	
						980	20	
						985	20	

[1] Weekly averages ± sd are given for the first 3 weeks. [2] Values given for the fourth and fifth weeks are daily amounts.

compared with each of the treated groups, the differences were not significant (30). In spite of the small size of the sample, the results indicated that both malarial prophylaxis and milk supplement were effective in reducing mortality. Malaria prevention alone did not make a significant difference to the growth of the children but those fed the milk supplement, with or without antimalarial prophylaxis, grew much better in height as well as in weight. They also looked much healthier, happier and more alert.

The concentrations of total essential and non-essential amino acids in plasma were significantly higher in supplemented than in control children (table 6). There was no difference between the two groups in the ratio of essential/non-essential amino acids. None of the essential amino acids

TABLE 5

Mortality and growth data

	Groups of children: Control	Protected	Supplemented	Supplemented and protected
Initial number of children	60	60	60	60
Deaths: No./12 months	5	2[1]	1[1]	1[1]
Mean increase in height: cm/12 months ±sd	5.9 ±1.9	6.4 ±1.6	7.7 ±1.8[2]	7.8 ±1.8[2]
Mean increase in weight: kg/12 months ±sd	1.15±0.4	1.11±0.7	1.81±0.8[2]	1.81±0.8[2]

[1] Difference from the control group was not significant ($P < 0.10$). When considered together, the difference between the pooled treated groups and the control group was significant ($P < 0.05$). [2] Significantly different ($P < 0.05$) compared to children in the control group.

TABLE 6

Effect of level of protein intake on plasma amino acids

Variable	Groups of children			
	Control[1]	Supplemented[1]	Kwashiorkor	Recovered kwashiorkor
No. of subjects	20	20	20	20
Isoleucine	2.2 ± 0.4[2]	5.0 ± 1.0[3]	2.0 ± 0.4	4.7 ± 8[3]
Leucine	4.2 ± 1.0	12.4 ± 2.0[3]	4.3 ± 1.2	12.7 ± 2.0[3]
Lysine	5.2 ± 1.4	12.1 ± 1.8[3]	3.4 ± 1.5	11.8 ± 2.5[3]
Methionine + cystine	1.8 ± 0.4	2.7 ± 0.1[3]	2.0 ± 0.4	2.8 ± 0.4[4]
Phenylalanine + tyrosine	2.5 ± 0.4	12.0 ± 2.1[3]	3.0 ± 0.5	11.7 ± 1.8[3]
Threonine	1.9 ± 0.3	15.6 ± 3.3[3]	3.0 ± 0.5	17.3 ± 3.8[3]
Valine	2.7 ± 0.8	14.0 ± 2.5[3]	4.0 ± 1.0	14.0 ± 2.3[3]
Total essential	20.5 ± 4.3	73.8 ± 8.1[3]	21.7 ± 6.2	74.0 ±10.7[3]
Total non-essential	37.1 ±10.1[3]	127.2 ±12.5[3]	62.0 ±15.0	135.3 ±15.1[3]
TOTAL	57.6	201.0	83.7	210.3
Essential/non-essential	0.55± 0.15[4]	0.58± 0.14	0.35± 0.10	0.55± 0.20[4]
Tyrosine/phenylalanine	0.56± 0.18	1.45± 0.43[3]	0.54± 0.21	1.60± 0.52[3]

[1] Data reported in columns were collected at the conclusion of the 12 month feeding period. [2] Data are means ± SD expressed as μmoles/100 ml. [3] Significantly different ($P < 0.05$) compared to the control group. [4] Significantly different ($P < 0.05$) compared to the kwashiorkor patients.

was more affected than the others. The ratio of tyrosine/phenylalanine was significantly depressed in the control group.

Protein supplement fed to the village children did not cause any significant changes in blood hemoglobin and hematocrit; in total serum proteins or any of the protein fractions; in plasma urea, glucose, cholesterol, uric acid, glutamic-oxaloacetic transaminase (SGOT), glutamic-pyruvic transaminase (SGPT), or cholinesterase; and in erythrocyte glutamic-oxaloacetic transaminase (EGOT), glutamic-pyruvic transaminase (EGPT), or cholinesterase (table 7). Malaria prophylaxis also did not alter any of these blood measurements except for a significant decrease in serum gamma globulin concentration.

The results of the body fluid compartment studies and of albumin and gamma globulin turnover studies are reported in tables 8 and 9. The protein supplement produced a significant reduction in body water which affected mainly the volumes of extracellular fluid and plasma. There was an increase in body albumin due to an increase in the extravascular albumin pool. There was no change in the total body gamma globulin. There was an increase in the turnover rates of albumin and of gamma globulin as shown by a decrease in their half-lives and an increase in the fractional catabolic rate of both plasma proteins.

Dietary protein supplement completely altered the plasma hormone profile. Compared to fasting values usually found in healthy well-fed children in Europe and America, the initial (baseline) levels of cortisol and growth hormone were elevated while the levels of insulin, triiodothyronine (T_3) and protein-bound iodine (PBI) were depressed and the ^{131}I uptake by the thyroid gland was normal (table 10). When the children were examined 12 months later, the plasma hormone profile of the children whose diet was not supplemented remained the same as before, but the plasma hormone concentrations of children who were fed the milk supplement had returned to "normal." Malaria prophylaxis alone produced a significant reduction in plasma cortisol but did not alter the other hormones.

Dietary protein supplement also caused an increase in steroid excretion and in urinary uric acid excretion (table 11). It is pertiment that the effect on urinary steroid excretion was in the opposite direction to the change in plasma cortisol.

Compared to kwashiorkor patients, the recovered children had higher plasma concentrations of total essential and non-essential amino acids; the ratios of essen-

TABLE 7

Effect of level of protein intake and malaria prophylaxis on blood composition

Variable	Groups of children						
	Baseline[1]	Control[1]	Protected[1]	Supplemented[1]	Supplemented and protected[1]	Kwashiorkor	Recovered kwashiorkor
No. of subjects	240	45	52	55	53	32	32
Mean age: months	24.2 ± 8.5	33 ± 7.6	33 ± 7.5	33 ± 7.5	33 ± 7.6	—	—
Mean body weight: kg	10.37 ± 1.31	11.45 ± 1.35	12.25 ± 1.37	12.25 ± 1.37	12.27 ± 1.31	9.47 ± 1.27	11.45 ± 1.45[2]
Hemoglobin: g/100 ml	10.6 ± 1.3[2]	10.8 ± 1.2[2]	11.0 ± 1.0	10.6 ± 1.2	11.2 ± 1.1	9.5 ± 2.0	10.3 ± 1.0[2]
Hematocrit: %	33.9 ± 3.5[2]	33.9 ± 3.7[2]	34.8 ± 3.1	34.0 ± 3.5	36.3 ± 3.8	31.0 ± 4.0	33.8 ± 3.1[2]
Urea: mg/100 ml	16.5 ± 4.3	18.5 ± 4.7	14.8 ± 3.8	15.5 ± 5.7	15.3 ± 4.6	—	—
Glucose: mg/100 ml	95 ± 24[2]	97 ± 23[2]	90 ± 13	83 ± 10	87 ± 17	65 ± 20	87 ± 15[2]
Cholesterol: mg/100 ml	90 ± 32	94 ± 29	96 ± 34	103 ± 20	95 ± 25	—	—
Uric acid: mg/100 ml	3.8 ± 0.9[2]	4.0 ± 1.3[2]	4.1 ± 1.1	3.7 ± 0.9	3.8 ± 0.9	8.5 ± 4.3	4.0 ± 0.5[2]
Total protein: g/100 ml	6.5 ± 0.6[2]	6.6 ± 0.6[2]	6.4 ± 0.8	6.7 ± 0.7	6.6 ± 0.6	4.7 ± 0.7	7.4 ± 0.7[2]
Albumin: g/100 ml	2.8 ± 0.5[2]	2.8 ± 0.5[2]	2.9 ± 0.5	2.9 ± 0.5	3.1 ± 0.5	1.4 ± 0.3	2.9 ± 0.6[2]
α1 globulin: g/100 ml	0.4 ± 0.1	0.4 ± 0.1	0.4 ± 0.1	0.4 ± 0.1	0.4 ± 0.1	0.4 ± 0.1	0.5 ± 0.1[2]
α2 globulin: g/100 ml	0.8 ± 0.3	0.8 ± 0.2[2]	0.8 ± 0.2	0.8 ± 0.2	0.6 ± 0.2	0.6 ± 0.2	1.0 ± 0.1[2]
β-globulin: g/100 ml	0.8 ± 0.2	0.8 ± 0.2	0.8 ± 0.2	0.8 ± 0.2	0.8 ± 0.2	0.8 ± 0.2	1.2 ± 0.3[2]
γ-globulin: g/100 ml	1.7 ± 0.4	1.8 ± 0.4[2]	1.5 ± 0.3[2]	1.8 ± 0.4	1.5 ± 0.3[2]	1.5 ± 0.3	1.8 ± 0.3[2]
SGOT: units/ml	25 ± 10[2]	23 ± 9[2]	22 ± 10	24 ± 11	20 ± 10	71 ± 20	22 ± 9[2]
EGOT: units/ml	910 ± 250	930 ± 276	714 ± 245	988 ± 262	1,000 ± 319	—	—
SGPT: units/ml	14 ± 8[2]	14 ± 6[2]	14 ± 8	12 ± 8	12 ± 7	32 ± 15	11 ± 5[2]
EGPT: units/ml	151 ± 65	157 ± 70	144 ± 59	158 ± 73	139 ± 51	—	—
Plasma pseudo-cholinesterase: pH units/ml	0.93 ± 0.15[2]	0.94 ± 0.17[2]	0.93 ± 0.12	1.05 ± 0.19	1.06 ± 0.16	0.37 ± 0.16	1.16 ± 0.20[2]
Erythrocyte cholinesterase: pH units/ml	7.2 ± 0.9	6.8 ± 0.7	7.6 ± 1.0	7.8 ± 0.9	7.2 ± 1.3	—	—
Alkaline phosphatase: K-A units/100 ml	3 ± 10[2]	27 ± 9[2]	27 ± 8	28 ± 9	28 ± 9	16 ± 5	27 ± 7[4]

[1] Data from village children in feeding experiment. Baseline data obtained prior to experiment; other data obtained after 12 month feeding period.
[2] Significantly different ($P < 0.05$) compared to kwashiorkor patients. [3] Significantly different ($P < 0.05$) compared to the control group. [4] King Armstrong.

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TABLE 8

Effect of level of protein intake on body fluid compartments

Variable	Groups of children			
	Control[1]	Supplemented[1]	Kwashiorkor	Recovered Kwashiorkor
Plasma volume: ml/kg	59.2 ± 7.1[2] (30)[3]	49.1 ± 5.5[4] (36)	53.5 ± 8.2 (22)	51.2 ± 5.7 (22)
Red cell volume: ml/kg	24.9 ± 3.1[2] (30)	22.0 ± 2.3[2] (36)	20.9 ± 5.5 (22)	22.0 ± 2.1 (22)
Blood volume: ml/kg	84.1 ± 7.8[2] (30)	71.1 ± 6.8[4] (36)	74.4 ± 9.1 (22)	73.2 ± 6.6 (22)
Total body water: ml/kg	654 ±60 (15)	600 ±52[4] (55)	670 ±55 (52)	620 ±55[2] (32)
Extra cellular water: ml/kg	384 ±37[2] (15)	305 ±30[4] (19)	440 ±45 (10)	320 ±37[2] (10)
Intracellular water: ml/kg	270 ±29[2] (15)	295 ±25[4] (19)	230 ±25 (10)	300 ±28[4] (10)
Fat and dry solids: g/kg	346	400	300	380

[1] Data obtained at conclusion of 12 month feeding experiment with village children. [2] Significantly different ($P < 0.05$) compared to the kwashiorkor patients. [3] Number of children in group shown in parentheses. [4] Significantly different ($P < 0.05$) compared to the control group.

tial/non-essential amino acids and of tyrosine/phenylalanine were also greater (table 6). The rehabilitated children also had higher concentrations of hemoglobin and hematocrit; plasma glucose; total serum proteins and all the protein fractions; and plasma alkaline phosphatase and cholinesterase (table 7). The plasma uric acid level was lower.

The body of the recovered child contained less water than that of the kwashiorkor child due to a marked fall in extracellular fluid volume even though there was an increase in the size of the intravascular compartment (table 8). Intravascular, extravascular and total body albumin pools were significantly increased, but there was no change in the extravascular/intravascular ratio. The turnover rates of albumin and of gamma globulin were accelerated as shown by their reduced half-lives and an increase in their fractional catabolic rates (table 9).

TABLE 9

Results of turnover studies

Variable	Groups of children			
	Control[1]	Supplemented[1]	Kwashiorkor	Recovered kwashiorkor
Plasma albumin pool: g/kg	1.66 ± 0.47[2] (15)[3]	1.42 ± 0.23 (18)	0.86 ± 0.26 (12)	1.37 ± 0.28[4] (12)
Extravascular albumin pool: g/kg	1.20 ± 0.45 (15)	2.19 ± 0.43[4] (18)	1.36 ± 0.51 (12)	2.25 ± 0.57[4] (12)
Total body albumin pool: g/kg	2.86 ± 0.90[2] (15)	3.60 ± 0.61[4] (18)	2.22 ± 0.69 (12)	3.60 ± 0.80[4] (12)
Extravascular/Intravascular albumin	0.7 ± 0.3[2] (15)	1.6 ± 0.4[4] (18)	1.7 ± 0.5 (12)	1.7 ± 0.4 (12)
Albumin degradation: mg/kg/day	128 ±37[2] (15)	145 ±35 (18)	46 ±23 (12)	143 ±40[4] (12)
% of intravascular albumin catabolized per day	8.0 ± 2.3[2] (15)	10.3 ± 1.7[4] (18)	5.4 ± 2.2 (12)	10.5 ± 1.8[4] (12)
Albumin half-life: days	24.0 ± 6.5[2] (15)	18.7 ± 4.8[4] (18)	36.8 ±14.4 (12)	18.4 ± 5.6[4] (12)
Equilibration time: days	3.1 ± 1.3[2] (15)	2.7 ± 1.4 (18)	4.7 ± 1.6 (12)	2.6 ± 1.0[4] (12)
Plasma γ-globulin pool: g/kg	1.07 ± 0.33 (15)	0.91 ± 0.25 (18)	0.78 ± 0.25 (10)	0.93 ± 0.24 (10)
Extravascular γ-globulin pool: g/kg	1.18 ± 0.58 (15)	1.29 ± 0.47 (18)	187 ± 0.37 (10)	1.35 ± 0.57 (10)
Total body γ-globulin pool: g/kg	2.25 ± 0.79 (15)	2.30 ± 0.58 (18)	1.65 ± 0.58 (10)	2.18 ± 0.74 (10)
Extravascular/Intravascular γ-globulin	1.10 ± 0.32 (15)	1.42 ± 0.39[4] (18)	1.11 ± 0.26 (10)	1.34 ± 0.45 (10)
γ-globulin degradation: mg/kg/day	83 ±26[2] (15)	90 ±26 (18)	49 ±17 (10)	96 ±29[4] (10)
% Intravascular γ-globulin catabolized per day	8.1 ± 2.5[2] (15)	9.9 ± 1.8[4] (18)	6.3 ± 1.3 (10)	10.1 ± 2.0[4] (10)
γ-globulin half-life: days	18.0 ± 3.5[2] (15)	14.8 ± 2.3[4] (18)	22.7 ± 5.9 (10)	14.5 ± 2.6[4] (10)
Equilibration time: days	4.8 ± 2.2 (15)	4.2 ± 1.8 (18)	5.5 ± 1.0 (10)	4.4 ± 2.2 (10)

[1] Data obtained at conclusion of 12 month feeding experiment with village children. [2] Significantly different ($P < 0.05$) compared to the kwashiorkor patients. [3] Number of children given in parentheses. [4] Significantly different ($P < 0.05$) compared to the control group.

TABLE 10

Results of plasma hormone measurements

Variable	Groups of children						
	Baseline[1]	Control[1]	Protected[1]	Supplemented[1]	Supplemented & protected[1]	Kwashiorkor	Recovered kwashiorkor
No. of subjects	210	45	52	53	53	32	32
Cortisol: μg/100 ml	75.0±31.5	84.5±42.6[2]	41.7±16.5[2]	28.8±18.5[2]	28.5±15.7[2]	64.9±27.1	18.5± 6.7[2]
Insulin: μ units/ml	7.0± 1.6	6.3± 1.3[2]	6.8± 1.5	11.3± 1.3[2]	12.0± 1.2[2]	4.3± 1.5	11.8± 1.2[2]
mEq:							
% erythrocyte uptake	—	12.1± 2.9[2]	11.9± 4.8	18.0± 4.3[2]	20.6± 3.3[2]	9.8± 3.1	19.5± 4.8[2]
Protein bound iodine:							
μg/100 ml	—	4.3± 1.9	4.4± 2.0	7.1± 1.5[2]	6.8± 1.5[2]	3.7± 2.0	6.9±1.6[2]
mEq % uptake	—	25 ± 6	25 ± 7	23 ± 5	25 ± 5	—	—
Growth hormone: μg/ml	—	43 ±30	40 ±24	11 ± 8[2]	11 ± 7[2]	40 ±20	10 ± 5[2]

[1] Data from village children in feeding experiment. Baseline data obtained prior to experiment; other data obtained after 12 month feeding period.
[2] Significantly different ($P < 0.05$) compared to the kwashiorkor group. [3] Significantly different ($P < 0.05$) compared to the control group.

The differences in plasma hormone levels, in steroid excretion and in urinary uric acid between the sick and the recovered children were similar to those between the control and the supplemented village children (tables 10 and 11).

No difference was found in any of the parameters measured when the supplemented village children were compared to the recovered kwashiorkor patients. There were, however, several notable differences between the sick children and the control village children. The concentration of non-essential amino acids in plasma was greater; blood hemoglobin and hematocrit, total serum proteins, albumin, alpha$_2$ globulin, and gamma globulin, and plasma glucose, cholinesterase and alkaline phosphatase were all reduced; and plasma uric acid, GOT and GPT were elevated. The difference in total body water was not significant but there was a movement of fluid from the intracellular and intravascular compartments into the interstitial spaces which was shown clinically as edema. There was a slight decrease in body albumin and in body gamma globulin. The turnover of albumin and gamma globulin in the unsupplemented children was intermediate between the findings in kwashiorkor cases on the one hand and the recovered cases or the supplemented village children on the other hand.

DISCUSSION

There is little doubt that the volume of milk secreted by poor women in developing countries is low in comparison to the milk output of lactating women in North America and Europe (31–34) and considerably below the WHO estimate of 850 ml/day (35). However, considerable doubt still exists about the effect of dietary changes on milk secretion (36). Studies of lactating European women during the 1939–1945 war (37–42) have yielded inconclusive results. Gopalan (33) observed an increase of about 20% in milk yield when the protein intake of Indian mothers was raised from 61 g/day to about 100 g/day but the daily output of milk was still only about 500 ml/day at the higher level of protein intake. Bassir (43) reported an increase in the hourly secretion rate of breast milk by Nigerian women who were fed a

TABLE II

Biochemical determinations in urine

Variable	Groups of children			
	Control[1]	Supplemented[1]	Kwashiorkor	Recovered kwashiorkor
Number of children	45	55	32	32
Uric acid: mg/day	99 ±20	230 ±60[2,3]	80 ±21	210 ±50[2,3]
17-ketosteroids: mg/day	0.6± 0.2	2.0± 0.9[2,3]	0.5± 0.2	2.1± 1.0[2,3]
17-ketogenic steroids: mg/day	1.1± 0.4	3.8± 1.0[2,3]	0.9± 0.3	3.7± 1.1[2,3]

[1] Data obtained at conclusion of 12 month feeding experiment with village children. [2] Significantly different ($P < 0.05$) compared to the control group. [3] Significantly different ($P < 0.05$) compared to the kwashiorkor group.

daily supplement of soya flour for 4–8 weeks.

Whereas there is uncertainty about the effect of malnutrition on milk output, there is fairly good agreement that the proximate composition of breast milk from malnourished mothers does not deviate significantly from normal (34, 42–44). It is also generally agreed that protein supplementation of maternal diet has little or no effect on the composition of breast milk, especially in regard to its protein content (43, 45, 46).

Yield of milk in the sow is clearly dependent on the plane of energy nutrition during lactation but no clear-cut effect of either the quantity or quality of dietary protein on milk yield or composition has been established (47). Hsueh et al. (48) observed, in the rat, that 50% overall restriction of maternal dietary intake resulted in growth-stunting of the progeny; after sequential restoration of certain dietary components to control levels and also varying the quality of the dietary protein, they concluded that protein was the critical factor responsible for the stunting.

It is not immediately obvious why some investigators have failed to observe the clear-cut effect of the level of protein intake on milk yield which is shown by our study and that of Bassir (43). However, it would appear from the report of Hsueh et al. (48) that the diversion of protein into milk may be comparable to the utilization of protein for growth. This process is suppressed whenever energy intake is inadequate irrespective of the level of protein in the diet (3). Differences in the level of energy nutrition, therefore, may explain the varying responses of lactating Indian and Nigerian women to dietary protein supplementation.

Both malaria prophylaxis and improved protein nutritional status were effective in reducing mortality in a community in which malaria and protein deficiency were endemic. The fall in gamma globulin in protected children was also observed in a previous study (49) and indicates that the high gamma globulin concentration found in the inhabitants of developing countries may be a response to infectious diseases. Therefore, the plasma concentration of gamma globulin could be a useful index of the total infectious disease burden to which individuals are subjected.

Synthesis of gamma globulin is clearly less sensitive than albumin synthesis to variations in amino acid supply since, in subclinical protein deficiency, the amount in the body did not decline similar to the body albumin pool in spite of comparable reductions in their turnover rates. Even in the clinical stage of severe protein deficiency, the decrease in plasma and in total body gamma globulin was not statistically significant. Hence, it is apparent that the increased susceptibility of protein deficient children to infections (50–55) is probably more closely related to changes in cell-mediated (56, 57) and non-specific immune mechanisms (58–61) than to the marginal impairment of immunoglobulin synthesis (62, 63).

Several amino acid ratios were worked out and their value in evaluating protein deficiency was tested. The only consistently useful of the plasma amino acid data for evaluating protein nutriture were the

low concentration of total essential amino acids and the reduction in the tyrosine/phenylalanine ratio. The total amino acids were even higher in kwashiorkor patients than in control village children due to an increase in the non-essential amino acids. This phenomenon may be due to a limited ability of the liver to deaminate amino acids and to synthesize urea as was previously suggested (3). As a consequence, the ratio of essential/non-essential amino acids was reduced in kwashiorkor but not in subclinical protein deficiency.

The turnover rates of both albumin and gamma globulin were reduced in protein deficiency, to a greater extent in clinical than in subclinical cases. The albumin catabolism results confirm other published data (64–70). Our gamma globulin degradation data support the finding of Freeman and Gordon (67) that dietary protein intake alters the catabolism of gamma globulin in a similar manner to albumin. However, Cohen and Hansen (65) and Hoffenberg et al (68) in man, and Jeffey and Winzler (64) in the rat, have reported the absence of any effect of dietary protein intake on the turnover rate of gamma globulin.

The degradation rates of albumin and gamma globulin are clearly related to the nutritional state rather than to their mass or distribution. For example, the catabolic rate of gamma globulin was lower in control than in supplemented children even though they had the same serum gamma globulin concentrations and total body gamma globulin and the former had a larger plasma pool.

Several hormones are known to alter albumin catabolism. For example, adrenocortical hormones (71, 72) and thyroid hormones (73, 74) cause an increase in albumin catabolism while growth hormone (75) produces the opposite effect. Hence, the hormonal changes associated with varying the level of protein intake can explain the changes in the metabolism of albumin.

Kirsch et al. (70) have shown that the synthesis and degradation of plasma albumin are separately regulated. Albumin synthesis adjusted more rapidly to change in diet than did the catabolic rate. A rapid adjustment in the rate of protein synthesis can result from controlling the degree of aggregation of ribosomes as well as the proportion of free to membrane-bound ribosomes in cells (3). A further slow adjustment can be made by altering the amount of cellular RNA (3). The reduction in protein catabolism which serves to maintain physiological levels of body protein in spite of reduced synthesis, may be related to corresponding changes in the secretion of hormones which affect protein degradation. Several hormones such as insulin, growth hormone, cortisol and thyroxin are probably involved in either side of the synthesis-catabolism equation. Nevertheless, under stable dietary conditions, a proper balance can still be maintained because each one of these hormones has been shown to be directly or indirectly related to the supply of dietary amino acids.

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#27

NOTE ON ASPECTS OF ARTIFICIAL INFANT FEEDING

by

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Controversy has recently arisen about the effect of products based on cows' milk on infant health. It has been alleged that such products promote high infant mortality and that their manufacture and sale should be prohibited. Articles have appeared in which manufacturers have been accused of killing infants and legal action has been taken to counter such accusations. In this note some facts with a bearing on the controversy are presented.

The artificial feeding of infants with cows' milk and its products began to be a common practice in affluent countries about 60 years ago. It has, of course, long been known that babies could survive and grow on the milk of cows and other mammals - for example, buffaloes, asses, goats and even wolves. The founders of Rome were nourished by a she-wolf. Until the present century a wet-nurse was usually obtained, by those who could afford it, to provide food for infants deprived of mothers' milk, as late as 1910 a register of wet nurses was maintained in New York. Slowly, however, cows' milk processed in various ways became an acceptable infant food, with the manufacturers striving to make their preparations resemble human milk as closely as possible. Given the considerable differences in composition between cows' and human milk, they were moderately successful in this aim.

Simultaneously feeding methods were improved and made safer from risk of infection. The manufacture, mainly in the affluent countries, of baby foods based on processed cows' milk grew into a large industry with sales all round the world. In countries such as England, where rising living standards and better health education allowed for their convenient provision to infants in a

feeding bottle without much risk of infection, they rapidly replaced breast milk, and within a few decades breast feeding became exceptional. The wider use of the bottle was accompanied by a steady fall in infant mortality. In 1906 infant mortality in England and Wales was about 150 per 1000 live births; in 1974 it was about 17. Similar changes have taken place in other affluent countries. While a number of different factors have been operative, the figures as they stand do not support the idea that artificial feeding by modern methods promotes infant mortality and should be discouraged.

Protein calorie malnutrition is not a problem in affluent countries in which breast feeding is rare and the bottle in general use.

Newson & Newson* have made the following comments about the convenience of artificial feeding and the economic and social factors involved. "It is clear that the necessary precondition of any large-scale decline in breast feeding is the availability and cheapness of suitable artificial or substitute foods, feeding bottles, teats and the means of sterlization. With higher material standards of living, including running water, efficient sanitation and a modern stove, it requires little effort to take the necessary hygienic precautions, and in a more affluent society the total cost of artificial feeding is no longer an important consideration. In an underdeveloped country, alternatives to natural feeding are inconvenient and impracticable; with the material assets of civilization, the inconveniences of bottle feeding are so diminished as to be almost non-existent, and it is breast feeding for which a positive effort has to be made."

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* Newson, John & Elizabeth (1963) "Patterns of Infant Care in an Urban Community". London, George Allen & Unwin.

This relates to the nineteen sixties. Newman, in his classic work, "Infant Mortality, a Social Problem", published in 1906, shows that in earlier times artificial feeding was difficult and dangerous, because of lack of satisfactory sanitary conditions in the home, and of safe and suitable formulae based on cows' milk.*

The situation in the developing countries is different. Most infants are given breast milk for periods ranging from about 6 to 18 months or longer. As long as enough breast milk for their needs is available they are protected against malnutrition and to some extent against gastro-intestinal infection. But when a decreasing supply of breast milk, or the total cessation of lactation, necessitates weaning, they enter a period of great danger. No alternative to breast milk, in the form of cows' milk or other appropriate foods, is usually available. If artificial feeding is attempted, unhygienic feeding methods and lack of sanitary conveniences promote gastro-intestinal infection. The result is a high mortality rate in infants and young children and the prevalence of protein-calorie malnutrition. In such circumstances the infant deprived of breast milk from the first weeks of life onwards has a poor chance of survival. Ignorance and bad sanitary conditions prevent successful bottle feeding and cows' milk in any form to put in the bottle is expensive in relation to the means of the people. It is often particularly disastrous in the new urbanised areas - the shanty towns - which have sprung up round cities in the developing countries. Here many mothers go out to work, leaving their infants in the charge of older sisters or dirty "child-minders".

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* Newman G (1906). Infant Mortality, a Social Problem. London Methuen.

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The increasing demand for woman's work in the growing urbanised areas is among the factors which interfere with satisfactory infant feeding (artificial or breast).

The important observation has been made by health workers that expensive milk products, and the bottles which contain them, may be regarded by families as having special, almost magical, value for infants. Hence their use is extended beyond the period correctly stated on the tin, either by dilution or by reducing the number of daily feeds. The obvious result will be malnutrition.

It is understandable that, in such circumstances, some paediatricians have advocated prohibiting the import of baby foods based on milk, and the display, on hospital walls, of pictures of bonny babies reared on these foods. But actually the effect of eliminating the "artificial" foods would be to raise the proportion of malnourished infants in the population and the infant mortality rate. It would not increase the numbers of infants satisfactorily fed at the breast.

The remarkable transformation in infant health in the affluent countries during the present century, associated with the disappearance of signs of protein-calorie malnutrition and a great reduction in infant mortality, was achieved in spite of the virtual abandonment of breast feeding. There are certain small countries in the tropics where the same thing has happened very quickly. Barbados and Puerto Rico are examples. In Barbados the infant mortality rate was about 200 in the 1930s: it is now below 40. Mortality in young children has also fallen enormously. The main factor involved has been the adoption of artificial feeding based on imported milk preparations and encouraged by the maternity and child health services.

Here some observations in Bradford, a manufacturing town in northern England, are relevant.* With Hossain, a Pakistani doctor, I showed that when a community from a poor country was transferred to a well-developed country and adopted the artificial infant-feeding practices of the latter, its infant mortality rate immediately fell to something near the level prevailing in the new country. In this instance the fall took place in a Pakistani community which had migrated to Bradford, and affected the first infants born to women who had left home to join their husbands. The infant mortality rate in the part of Pakistan from which the families came was about 150. In Bradford, it was 45 in 1968 and is now below that figure. The new environment meant, among other things, an abundance of cheap cows' milk in various forms and an absence of serious intestinal infections. A remarkable thing was the immediate and almost complete abandonment of breast feeding by the immigrant mothers, in spite of the fact that in Pakistan breast feeding is the accepted and traditional method of infant feeding, and an infant who is not breast-fed has little prospect of surviving.

Reversing the tendency to favour the bottle

It has never yet proved possible, anywhere in the world, to alter the general trend towards artificial feeding. There is, however, a modern tendency to return to breast feeding in some affluent countries. This is confined to a small number of mothers, namely intelligent, well-educated mothers, who have heard of the controversy about breast and artificial feeding. Such mothers feel that breast-feeding is natural and a "duty" whatever difficulties it may impose. They are told that it is entirely to establish intimate psychological bonds between mother and child which a feeding bottle cannot do. There is, however, no real proof of this and it is difficult to see how such proof could be obtained of this.

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*Aykroyd, W.R. and Hossain, M.A. "Diet and State of Nutrition of Pakistani Infants in Bradford, Yorkshire." Brit.Med.J. 1967 1.42

Epidemiological evidence

Some examples have been given above of the fall in infant mortality in developing communities following the use of processed cows' milk. There is, however, little epidemiological evidence showing that breast-feeding is directly associated with infant well-being in such communities. Individual examples are indeed striking and there seem to be parts of the world, e.g. West Africa, where breast-feeding is usually highly successful. Possibly it is in such areas that the idea that mothers are enticed to abandon the breast by clever advertising of processed cows' milk is most strongly held by child welfare workers and paediatricians. There is little information however, about the proportion of the infant population involved.

Extensive epidemiological studies of breast feeding have been carried out in the suburbs of provincial cities in the United Kingdom, a country in which breast-feeding has steadily declined during the present century in spite of being earnestly advocated by doctors and health workers. Hytten (1954)* reports that these studies have shown that "about one third of all mothers are unable to provide sufficient milk for the nourishment of the growing baby, according to the best modern criteria". The same author (Hytten, 1954**) reports that the proportion of infants still being breast-fed at 3 months of age in these particular communities fell from 60-80% in 1929 to less than 30% in 1955, adding that similar trends had occurred in other western countries, including the U.S.A. Thompson & Black (1975)***, assessing the situation in the affluent countries, conclude that "there seems little evidence that women have a strong 'instinct' to breast-feed, despite the physical and emotional satisfaction that breast feeding is often claimed to give."

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* Hytten, F.E. Brit. Med. J. 1954 i 249
** " Brit. Med. J. 1954 ii 844
*** Thompson, A.M. & Black, A.E., Bull. World Health Organ. 1975 Vol.52

Lactation and Infection

Breast-feeding offers some protection from infection, which is of great importance in countries where sanitary standards are low. It is not clear whether this is due to antibodies present in human milk or to less exposure of the milk to highly infected environments - possibly a combination of both. In such environments the nipple has obvious advantages over the feeding bottle or receptacle which require considerable handling. In countries where successful bottle-feeding has been associated with rising standards of living and better household conditions, the danger of infant infection has lost much of its importance.

A recent Panel

A Panel on Child Nutrition of the U.K. Department of Health and Social Security "Present-day Practice in Infant Feeding, 1974" has made some modest recommendations. All mothers, it says, should be encouraged to breast feed their babies for a minimum of two weeks and preferably for the first 4 to 6 months of life. Breast feeding should be encouraged, but since it will not always be successfully established "the provision of modified cows' milk feeds, at a reasonable cost, should be continued". Regular weighings are essential and as much attention should be paid to excessive as to inadequate weight gain. It is possible that fat babies are in danger of becoming fat adults, but there is no clear evidence of this. Artificial milk feeds should approximate to the composition of breast milk as closely as possible. They should be fortified with vitamins A, C and D. The Panel asserted that the early introduction of cereals or other solid foods into the diet of babies before about four months of age should be strongly discouraged; and that cereal foods in any form should not be added to the milk in the bottle feed. Reference to this report is included since it suggests that current ideas about breast and artificial feeding are still somewhat nebulous.

8.

Concluding Comments

There is a very large amount of literature on breast feeding and artificial feeding, emanating from both the developing and developed countries. Most writers on the subject begin by insisting that "breast-feeding is best", a statement which seems in line with commonsense. They then proceed to discuss the advantages and disadvantages of either form of infant feeding, in accordance with their experience and prejudices. Of importance is the question - how far can the average human mother fulfil her baby's needs as infancy proceeds? In practice mothers often cannot satisfy their baby's calorie requirements with breast milk. In developing countries they themselves are often ill-nourished, and incapable of producing enough milk of good quality for their infants.

Further studies of breast v. artificial feeding at different stages of economic and social development are required. But the most important fact is that low infant mortality and artificial feeding along modern lines have proved fully compatible. In a number of countries breast feeding and infant mortality have declined simultaneously. Millions of infants have flourished on the bottle. In the circumstances it is not logical to blame processed cows' milk and its manufacturers for promoting malnutrition in infants and young children.

6th May 1976

Relevant Publications by Dr. Aykroyd

"Nutrition in the Carribean" J.Hyg. Camb. 63 137 1965

"Diet and State of Nutrition of Pakistani Infants in Bradford, Yorkshire" Brit.Med.J. 1 42 1967

"Conquest of Deficiency Diseases" Basic study No.24 World Health Organisation, Geneva, 1970.

"Nutrition and Mortality in Infancy and Early Childhood; Past and Present Relationships" The American Journal of Clinical Nutrition pp 480-487 1971

"Mortality in Infancy and Early Childhood in Ireland, Scotland and England and Wales 1871 to 1970" Aykroyd, W.R. and Kevany, J.P. Ecology of Food and Nutrition Vol 2 pp 11-19 1973

Dr. Aykroyd's Background

Dr. W.R.Aykroyd was born in Ireland in 1899 and qualified in medicine at Trinity College, Dublin in 1924. Throughout his career he has specialised in nutrition, beginning with research in Newfoundland and at the Lister Institute of Preventive Medicine, London, and appointment in 1930 to the Health Section of the League of Nations. Subsequently he became Director of the principal nutrition research laboratory in India where he witnessed the Bengal famine of 1943, and was a member of the Commission which reported on its causes. After the war he became director of the Nutrition Division of the Food and Agriculture Organisation of the United Nations (FAO), until he returned to England in 1960 to work in the London School of Hygiene and Tropical Medicine. Since his retirement from that post in 1966, he has been a member of Oxfam's "Medical Panel".

Dr. Aykroyd is the author of a large number of scientific articles and reports on nutrition, and of several books on the subject, some of which have been published by the United Nations. In 1967 he wrote a book on sugar called "Sweet Malefactor: Sugar, Slavery and Human Society." His latest book, "The Conquest of Famine", published in 1974, was awarded a prize by the Nutrition Foundations of the U.S.A., the U.K. and Sweden.

together with sparse attention given to the social or dietary history.

Until very recently, all cultures in the world, including those of Western Europe and North America prior to the Industrial Revolution, were what may be termed 'bio-traditional' — that is based on biological adaptations made by the species over millennia, and on practices and customs gradually evolved by the community and handed down from generation to generation.

Bio-traditional cultures may be described as 'curved' — with almost the opposite characteristics of linear Westernism. For example, their approaches tend to be more biologically based, slower, and not so concerned with precise numerical proof, with efficiency, or with speed. They are in considerable harmony with wider aspects of community life, including the family and the spirit world (Jelliffe and Jelliffe 1975*d*).

The success of much of Western linear culture — for example, the railway, the rifle, and the radio — has been such that there has been a tendency until recently to assume that all technological approaches are automatically superior to bio-traditional ones. This appears to be one reason for the ready acceptance of bottle-feeding all over the world, but especially when introduced into non-Western countries by the health services and practised by the local élite, both indigenous and foreign (Jelliffe and Jelliffe 1975*d*).

Urbanization

A social factor of great significance in recent decades in developing countries has been the massive, so-far uncontrollable movement of people to urban areas ('urban avalanche' or 'urban implosion'), occurring much faster and on a much vaster scale than corresponding population movements in the nineteenth century during the Industrial Revolution in Europe and North America (Schneider 1972). What has been termed the largest migration in man's history is taking place in many areas *without* the parallel industrialization and increased opportunities for employment which helped support such changes in the Western world.

Speaking particularly concerning the special situation in Iran, it has been emphasized (Sadre *et al.* 1971) that these lemming-like population movements:

> . . . are sparked by industrialization in the cities which creates a demand for labor and provokes migration from the village to the town. The overflow of migrants imposes a glut on the labor-market, and means unsteady or scarce jobs. The attraction of the city for the villager is great: it means a flight from boredom of the village life, opportunities for economic and social advancement, cinema and spectator sports, educational facilities, etc. But, for many newcomers, the promise of a better life is not fulfilled; living quarters are crowded and remote from work; commodities must be paid for at higher prices. Lodging and transportation, items that did not have to be considered in the village, consume a significant part of the budget. Even when employment becomes stable, other budget items may drain the already meagre amount of money available for food. Hire-purchase of radios, television and other household goods can be very strong competitors to a balanced food intake.

Human Milk in the Modern World
Jelliffe & Jelliffe, 1978

30-982 O - 78 - 68

The rapidity of this change is in considerable measure the result of improved road communications and also because the transistor radio brings the lure of the city within reach. The speed and size of such population movements have led in most developing countries to the mushrooming of peri-urban shanty towns, *favellas*, *bustées*, *bidonvilles*, etc., overwhelming the cities limited social services, environmental hygiene (particularly water supplies and waste disposal), and opportunities for work. In fact, such transitional communities often have the worst of both worlds — the rural traditional and the urban slum.

Examples abound, unfortunately. In Indonesia, the population of Jakarta has risen from 300 000 to 5 million in three decades. The city of Bombay has grown from 1·2 million in 1931 to 5·7 million in 1971. Lima, the capital of Peru, increased its population by nearly 50 per cent in the decade 1940–50, and by a further 100 per cent in the next decade.

Cultural shock often prevails for a period of time following arrival in the city. The anonymity, aggressiveness, and competitiveness of city life may repel or frighten the new arrivals and the transition from a traditional cultural pattern can result in a state of *anomie*, until clear-cut new standards of behaviour and rules of survival in this alien world are established (E.F.P. Jelliffe 1975*a*).

This unbalanced and precipitate urbanization ('disturbanization'*) means that the new townspeople have to try to adjust to very different values and life styles — to an exclusively money economy, and to the likelihood of a breakdown and disruption of the extended family to a non-kin-dominated nuclear family. It also means that both father and mother may have to seek salaried employment out of the house. It means to varying degrees a loss of contact with the holders of traditional knowledge, including the older generation of women (*doulas*, p. 175), with their practical and culturally approved methods of child-rearing and infant feeding. It is usually followed by loosening of traditional mores and a rise in illegitimacy, unstable homes, and abandoned children. Above all, this transition is associated with the search for a new modern-seeming identity, and bottle-feeding appears as an attainable symbol, endorsed by advertising, the practices of the élite, and the health services. Breast-feeding may, then, be rejected as obsolete and rustic, so that the 'idea that breast-feeding is vulgar, unsuited for civilized people, and animal-like, is strengthened by clever advertising showing healthy babies being reared successfully on the advertised product. The obvious success of bottle-feeding by the more cultured, the wealthier, or the ethnically privileged groups of the population, makes bottle-feeding something desirable as a status symbol. There is insufficient understanding that proper hygiene and adequate economic and educational backgrounds are the keys

* In a previous paper, this neologism, intended to imply urbanization with much difficulty, was mistakenly type-set as 'disturbanized', perhaps even more evocative (Jelliffe and Jelliffe 1970*a*).

to such success' (Raphael 1973).

Failure of attempted breast-feeding in such circumstances, as anywhere, is usually the end-result on the psychosomatic let-down reflex (p. 19), which may often result from the social stress of slum life (p. 80). Also, the following circumstances may lead to decreased *milk secretion*, rather than milk ejection: the early introduction of semi-solids or mixed milk feedings, as a result of diminished sucking stimulus and prolactin production (p. 17); oral contraceptives containing oestrogens (p. 121); and inadequate maternal nutrition and health, from a limited range of unfamiliar, relatively expensive nutritionally inferior foods which have to be purchased with very little income (p. 134), often shrinking with inflation. Such ever-increasing populations have been termed 'disurbanized' or (optimistically) 'transitional'. In Spanish, the evocative but not easily translatable word *marginalidad* refers to their being aside from the mainstream of socio-economic development, as well as to their tenuous and precarious existence (Bengoa 1975).

The physical and emotional environmental–psychosocial stress of shanty-town folk has been underappreciated as responsible for failing lactation, as has maternal subnutrition, anaemia, and general health. Lindblad and his colleagues give a grim picture of the scene in Table 11.4.

TABLE 11.4 *Urbanization and lactation performance in developing countries* (from Lindblad *et al.* 1975)

1.	A 'disturbanized' mother isolated from relatives isolated in the urban environment due to language barrier, high morbidity and mortality among young children. *Anxiety and uncertainty*
2.	Maternal disease diarrhoea from poor water supply and hygiene congested quarters: tuberculosis abundant *Maternal mortality*
3.	Maternal undernutrition repeated pregnancies milk and vegetables expensive inside city boundaries *Nutritional anaemia*
4.	Lactation failure and/or early weaning due to industry work nutritional and emotional deprivation of young children *A vicious circle*

#29

Handbook of Pediatric Nutrition
-- Amer. Academy of Pediatrics (in press)

COMMENTARY ON BREAST-FEEDING AND INFANT FORMULAS, INCLUDING PROPOSED STANDARDS FOR FORMULAS

A Nutrition Committee Memorandum[1]

The Committee on Nutrition published[2] proposed standards for infant formulas in 1967 in anticipation of a review by the Food and Drug Administration (FDA) directed to all foods for special dietary use, including infant formulas. The infant formula standards published by the FDA in 1971[3] were similar to those proposed by the Committee.

Several developments have prompted the Committee to review the question of breast-feeding and formula standards. New developments relating to infant formulas reflect the interaction of one nutrient with another (e.g., protein with iron, vitamin E with unsaturated fats) that should be brought to the attention of pediatricians. Formulas for normal infants are being developed which use vegetable rather than milk protein as a base, and this requires modification of the standards for components of formulas.

Other agencies - including the Canadian Food and Drug Directorate and the Codex Alimentarius Committee on Foods for Special Dietary Uses - have been developing standards for infant formulas. The draft standards of these agencies raised questions that required review of the FDA standards for infant formulas. Their cooperation with the Committee has resolved most of the differences so that standards will be more nearly uniform.

The FDA will also be developing new regulations governing "medical" foods, i.e., foods for special dietary uses for specific medical conditions. This includes amino acid-modified products for children with amino acid disorders. Other special problems of infancy require special formulas either made by commercial companies or compounded in medical centers. The

standard for normal infant nutrition should provide a reference base for formulas for children with these special nutritional problems. These reasons have prompted the Committee to revise and expand its recommendations on standards for infant formulas. The Committee also wishes to restate its position on breast feeding.

Breast-Feeding

Infants grow most rapidly during the first 4 to 6 months of life. Nutrient requirements are most critical in this period, during which nutritional deficiencies can have lasting effects on growth and development.

Until the turn of the century, human milk provided by breast-feeding was the sole source of nutrients for infants from birth, and it remained the principal source during the period of rapid growth and high nutritional demand. When the mother's supply of milk was adequate and the baby could suckle successfully, growth and nutritional status of breast-fed infants became the reference standard; breast milk has not been improved on as a reference standard. The inability of some mothers to nurse successfully was an impetus to the use of modified cow's milk and to the development of present day infant formulas as a substitute. The convenience of formulas led to a decline in breast-feeding, a trend which continues throughout the world today.

Breast milk is bacteriologically safe. The immune globulins and white cells of colostrum and early breast milk confer substantial immunity to bacteriologic infections, particularly enteritis, which is especially significant for infants at risk. There is some clinical evidence suggesting that these immune substances provide protection from necrotizing enterocolitis.[4]

Certain nutrient interactions may result in some advantages of human milk over formulas. The low protein content of breast milk may favor better absorption of small quantities of iron, and the low iron content may provide the optimum for assuring a good immune reaction. The fat composition and the sodium and phosphorus content may be desirable. However, it should be noted that these differences have not been proven to be advantageous in terms of general health and long-term consequences.[5,6]

The physical contact between mother and infant which breast-feeding entails is advantageous in that early physical contact between mother and infant promotes better interaction.[7] However, the Committee wishes to caution that this may apply only when this contact is desired by the mother. The Committee also calls attention to some disorders that make breast-feeding unsuitable. Infants with certain genetic disorders are intolerant to human milk and require special diets; certain drugs and toxins that can harm the infant may be concentrated in human milk; and some mothers have an inadequate supply of milk or nipples unsuited for nursing.

The Committee reaffirms the recommendations for encouraging breast-feeding. However, some caution is needed against issuing dire warnings to mothers who cannot or do not wish to breast-feed; normal growth and development are possible without it. Important steps which will encourage breast-feeding include more adequate educational programs for adolescents and pregnant women and reinforcement by obstetricians, pediatricians, and nurses attending pregnant women. Changes in employment policies and in working conditions and provision of day-care centers at or near places of employment to make breast-feeding practical for working mothers will increase the frequency of breast-feeding. Such changes are urgently needed where the

rural poor have migrated to urban areas in the United States and elsewhere. When breast-feeding is unsuccessful, inappropriate, or stopped early, infant formulas provide the best alternative for meeting nutritional needs during the first year.

Recently, commercial formula companies affirmed a policy that proscribes advertising and promotional practices which might discourage mothers from breast-feeding. Physicians, nurses, and other health aides attending pregnant and postpartum women, as well as salespersons promoting formulas, should not unconsciously encourage a negative attitude toward breast-feeding, particularly where its discontinuance may increase the risk of malnutrition. These persons are in a position to actively encourage breast-feeding.

Milk-Substitute Formulas

The Committee believes the development of milk-substitute formulas for infants is important to child health. The supply of milk protein is marginal and its costs are increasing. Cheaper and more available substitutes that are nutritionally safe are welcome as a means of assisting in the prevention of malnutrition. However, there is a risk of fostering other forms of malnutrition if the new products do not provide all nutrients needed by the infant. The nutritional problems to be resolved in making formulas from vegetable proteins are more complicated because milk used as a base for formulas contains nutrients that are not provided by vegetable proteins.

The Committee has adopted a single standard that applies to both milk-based and milk-substitute formulas. Where experience with milk-based formulas has disclosed no deficiency, the Committee has proposed minimum standards

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#30

ASOCIACION LATINOAMERICANA DE PEDIATRIA

ALAPE

SEDE: SOCIEDAD ARGENTINA DE PEDIATRIA · CORONEL DIAZ 1971 · 1425 BUENOS AIRES · ARGENTINA · TELEF. 80-2063 / 821-0[illegible]

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Buenos Aires, 22 de diciembre de 1977

Señores de la
Sociedad de Asistencia Técnica
para los Productos Nestlé S.A.
At. Sr. Basterrechea

Translation attached.

De nuestra mayor consideración:

Nuestra Asociación, por el mandato de las Sociedades-Miembro que la componen, fomenta y apoya decididamente toda aquella actividad científica que trae beneficio para la pediatría de Latinoamérica que sirve para su difusión y, en especial, que capacita, actualiza y motiva a los médicos de niños del continente.

Amparados en tal política científica, reconocemos con verdadera satisfacción y nos permitimos auspiciar oficialmente, la labor pedagógica y de divulgación científica que está realizando la Sociedad Nestlé en los distintos países latinoamericanos, por medio de sus Cursos, Jornadas o Ateneos de Actualización o Preparación Pediátrica.

Sin más, aprovechamos la ocasión para saludarlos con nuestra consideración más distinguida.

Prof. Dr. José R. Vásquez
Secretario General

#30(a)

T R A N S L A T I O N

of a letter received from

Asociación Latinoamericana de Pediatría
ALAPE
Coronel Díaz 1971
1425 Buenos Aires / ARGENTINA

Buenos Aires, 22nd December 1977

Messrs Nestlé Technical
Assistance Co. Ltd.

Attention: Mr. G. Basterrechea

With our sincere greetings:

Under the mandate given by all its member societies, our Association promotes, actively supports and assures the communication of all scientific activities which are to the benefit of Latin American pediatrics, and in particular qualifies , up-dates and motivates the pediatricians of this continent.

Within the context of this scientific policy, we recognize with great satisfaction, and take the liberty of giving our official patronage to, the teaching activities and scientific communications which are being made by Nestlé Companies in the different Latin American countries through their pediatric courses, seminars and training programmes.

We take this opportunity of sending you our best wishes with our most sincere appreciation.

#31

CARIBBEAN FOOD & NUTRITION INSTITUTE

TRINIDAD CENTRE
UWI CAMPUS
ST. AUGUSTINE
TRINIDAD, W. I.

JAMAICA CENTRE
P. O. BOX 140
KINGSTON 7
JAMAICA, W. I.

PLEASE REPLY TO Jamaica CENTRE
REF: CFNI-308-74

26 June 1974

Jamaica Milk Product Ltd.
16 Knutsford Boulevard
Kingston 5

Attention: Mr. George Wyatt

Dear Sirs:

The Caribbean Food and Nutrition Institute is aware that there has been recently a good deal of controversy in the Jamaican press and television about bottle-feeding and the marketing of infant formulae. However, this Institute with the international agencies supporting it (PAHO/WHO, FAO and UNICEF) feels that public recrimination and reprobation is likely to be most unfruitful, especially when based on evidence of a somewhat anecdotal kind. We feel a strong need to gather with your cooperation objective facts and figures about the marketing of infant formulae in Jamaica. Our eventual aim will be to meet with you and your principals and with representatives of the medical and nursing professions and health authorities at a short conference early next year, and come to agreement on positive joint measures to improve infant nutrition.

I would like to state at this point that the Caribbean Food and Nutrition Institute is not responsible for any of this public controversy. Both the former Director and our present staff confine their pronouncements concerning the hazards of bottle-feeding among poor families in developing countries to scientific journals and to education programmes for health professionals. We aim in the first place at collaboration with infant formulae companies rather than conflict.

We would be most grateful if you would extend your full cooperation in this research to Miss Patricia Maynard, graduate Public Health Nurse at CFNI specialising in nutrition education.

She has been delegated by myself to conduct this enquiry at various levels, including interviews with executives of the companies marketing the formulae, with nurses at the operating level, and with mothers.

With thanks in anticipation of your assistance,

Sincerely yours,

R. Cook

Robert Cook, D.M.
Director, CFNI

#32

PROTEIN/CALORIE ADVISORY GROUP OF THE UNITED NATIONS SYSTEM

9 October 1974

PAG Regional Seminar
Overcoming Problems in Infant and
Young Child Feeding Practices
Singapore, 25, 26, 27 November 1974
Document 1.26/2

Section VII

THE NEED FOR A REGIONAL/NATIONAL INDUSTRY COUNCIL AND HOW IT WOULD FUNCTION

by

P.S. Venkatachalam, M.D.
Assistant Scientific Secretary
Protein-Calorie Advisory Group (PAG)
of the United Nations System

In the course of this Seminar we have heard many ideas and several concrete suggestions as to how, using existing resources and facilities, we can improve on the less than satisfactory infant and child feeding practices prevalent in this part of the world. These ideas are not new, but no organized efforts have been taken so far to implement them. Here and there, individuals and small groups have taken initiative for action that has yielded some success. But the results have been negligible compared to the vast size, extent and complexity of the problem. Thus there is urgent need to coordinate the efforts of all groups and individuals having concern for infant and child nutrition. Their efforts should be sustained to bring about any visible impact.

The concerned groups: Persons having major responsibility for promoting satisfactory infant and young child feeding practices in our communities and who should take a lead in implementing the policies and practices recommended in this Seminar are (a) medical and health professionals and ancillary personnel; (b) officials from responsible infant food industries operating in the region; and (c) Government officials responsible for health, nutrition and welfare of children.

Unfortunately, until now, these groups have not joined to pool their resources and facilities to bring about the necessary change. Each group has its own concept of infant and child feeding and has been operating independently in the belief that their own efforts are in the best interests of babies. These independent activities, which may not always be sound, are further complicated because of individual

differences in approach and practice within the membership of the groups. Not infrequently the actions are contradictory either in purpose or content or both. The result has been confusion in the minds of community members, the families and particularly the mothers who have the ultimate responsibility to feed babies.

Coordinating action: To successfully implement the policies and practices recommended in this Seminar, it is essential that the medical and health profession, appropriate Government officials and the representatives of all the industries operating in this part of the world come together, with mutual trust, respect and confidence to work in coordination and full cooperation with constant consultation. The enormous resources and the creative skills of industry, the prestige and influence of the health professionals backed up by their sound knowledge of nutrition and health-related matters affecting infants and children, and the regulatory powers and supervisory role of Government officials are the pillars of this coordinated joint effort for action against prevalent improper infant and young child feeding practices.

It was with this objective the PAG conducted earlier international seminars with great success and which led to the development of PAG Statement No. 23, a product of effective cooperation between pediatricians and industry representatives. One of the recommendations of the Seminar endorsed by the PAG was that there is need to establish a mechanism for continuing collaboration between representatives of industry, the medical profession and Governments in the form of Industry Councils in Regions of the world where serious problems exist in infant and young child feeding.

This Seminar, with participation of eminent medical teachers, health professionals and nutritionists, official representatives of the health departments of the Governments of six countries and senior officials of infant food companies operating in the region is the outcome of this PAG recommendation.

Regional industry council: It is heartening to note that our Seminar has indicated general agreement on need to implement the policies and practices discussed during the last two days. To continue this cooperation and make it meaningful, there is a need for a permanent body designated as a Regional Industry Council open to industries marketing infant and baby foods in these countries. The membership of the Regional Industry Council would be as follows:

(a) A representative from each of the companies operating in the region - either the senior executive at regional headquarters or the senior sales executive. New or smaller commercial enterprises may fail to join the membership of the Regional Council in the initial stages. However, a successful Council with effective programs supported by all groups interested in good child feeding can be expected to draw them in.

(b) One representative from the medical/health profession from each country. He should be experienced and knowledgeable in the art and practice of child feeding recommended by the Seminar as applicable to and acceptable in the Region. (A system of nomination by the professional societies should be evolved).

Such a Council should meet at least once a year preferably at the time of the annual meeting of the appropriate professional society.

The Industry Council, whenever it reviews policy, plans or program activities of a particular country, should automatically convert itself into a National Industry Council. It would then have as its members, all those indicated in (a) above but from (b), only the representative from the country concerned. The National Industry Council should also enlist as members two or more individuals who are medical/health professionals and/or nutritionists engaged in activities related to child feeding from the same country and an appropriate health official from Government to serve the Council at the national level. These enlisted members should be those nominated by the appropriate professional bodies and government agency respectively. The meeting of the National Council could be held more often than once a year without difficulty.

Thus the Industry Council can play a significant role on both the regional and national levels. The Council should be free to receive comments, suggestions and necessary guidance from individuals or special groups who, whenever required, may be invited to participate in the activities of the Council as either observers or consultants.

Functions of the Council: The most important function of the Council would be to provide a forum for face to face dialogue among all the groups who have a concern for infant and child feeding and nutrition and also to implement the recommendations made in this Seminar. Whenever the practice of a member industry seems to go counter to the agreed decisions taken, the matter could be made the subject for discussion in the Council. Such a forum will also be useful for regular evaluation

of information and data that continuously become available in the area of interest.

In order to implement the recommendations successfully, it would be necessary to analyze each and identify the several areas or steps where action should be taken. Once these areas/steps were identified, appropriate action plans would be drawn up and implemented. Broadly the functions fall under four headings: monitoring and surveillance, education, training, and research. The Seminar has already gone into details of each of the above activities and they will not be repeated here. However, it is important to mention that the research activity should be of the practical type and oriented to collection of required data relevant to planning program activity, evaluation of programs and study of trends in infant and child feeding. The Council may consider undertaking the publication of a periodic newsletter giving information regarding its own activities and related programs operating in the different countries. Also the Council may hold under its auspices, periodic Seminars, separately/or in appropriate groupings, for doctors, nurses, health extension staff, industry managers and other professionals employed by them.

Financial resources for Councils' activities: The necessary funds for the activities of the Industry Council should come from the member industries operating in the area.

PAG role in the Councils' activities: Having initiated the establishment of the Council, the PAG would be greatly interested in its activities and programs and would help to publicize them internationally to all

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groups and agencies interested in the improvement of infant and child nutrition. In addition, the PAG would also bring to the members of the Council all pertinent information on developments useful for the activities of the Council. With plans to stimulate establishment of such Councils in other regions where the problem exists, it will be possible soon to integrate the efforts of all the Regional Councils.

INTERNATIONAL COUNCIL OF INFANT FOOD INDUSTRIES

#33

(ICIFI)

Communications Working Group

PRESS COMMUNIQUE

The International Council of Infant Food Industries held a meeting of its Executive Committee in Tokyo, Japan, on 28th February 1978.

Four membership applications have been recommended to the ICIFI General Assembly for prompt acceptance. These are:-

Holland:	Friesland (CCF) Ltd.
	Nutricia Ltd.
	Lijempf Ltd.
France:	BSN-Gervais Danone

This will bring membership of ICIFI to 12 companies engaged in providing infant formula products throughout the world.

The Executive Committee considered a variety of matters concerned with maintaining and improving standards of ethical behaviour in marketing breast milk substitutes, and with efforts to improve standards of infant nutrition, particularly in the less developed countries.

Disciplinary Procedures

The Executive Committee has agreed to recommend to the General Assembly the adoption of a general procedure that in the case of any member persisting in a clear contravention of the ICIFI Code of Ethics, membership of such a company can be terminated by a $\frac{3}{4}$ majority vote of the General Assembly of ICIFI.

Such a disciplinary measure of expulsion constitutes an important effort to strengthen self-regulation. It is unfortunate that some infant food manufacturers do not yet adhere to ICIFI and hence are not subject to the industry's efforts of self-regulation.

Address: P.O.B. 328, CH-8053 Zurich, Switzerland
Nordstrasse 15

Telephone: Zurich 01/60 10 30
Telex: 32872 chimi ch

PAG 23

ICIFI's progress in keeping with the requirements of the United Nations Protein Calorie Advisory Group Statement No. 23 was reviewed. This document is the only official recommendation on infant feeding policies addressed to governments, United Nations agencies, health professionals and industry, and was adopted by ICIFI as a policy guideline at its inception in 1975.

Progress includes work on the elaboration of standardised, unambiguous instructions on infant feeding to be adopted by all manufacturers; educational material particularly aimed at the needs of semi-illiterate or illiterate mothers; and other measures designed to reduce the risks of misuse of formula feeding.

In addition, research is being sponsored into new methods for measuring the quantity and quality of lactation in order to resolve some of the contradictions in the literature and to provide a better scientific basis on which health services and the industry can effectively reduce or fill the gap between what breast milk can supply and what the child needs during the first years of life, especially in vulnerable areas where malnutrition is widespread.

Conclusion

ICIFI is working to find solutions to the problems involved in developing responsible programmes for infant nutrition among vulnerable populations.

As was admirably demonstrated in PAG 23, such a task can only be pursued by a positive co-operation between international agencies, local governments and industry. To this end, decisions have been taken to facilitate contacts between local representatives of ICIFI member companies and governments, by the formation of local ICIFI committees.

ICIFI has won the recognition from concerned and qualified workers in the field of infant nutrition, that a responsible and worthwhile start has been made, deserving encouragement and co-operation.

ICIFI welcomes the advice, and indeed the constructive criticism from all who are genuinely concerned to improve standards of infant nutrition throughout the world.

For information: The Secretary,
International Council of Infant Food Industries,
POB 328,
Nordstrasse 15,
CH-8035 Zurich,
Switzerland.

Telephone: Zurich 01/601030
Telex: 52872 chimi ch

ADDITIONAL MATERIAL SUBMITTED ON
BEHALF OF BRISTOL-MYERS COMPANY

Mead Johnson PHILIPPINES INC./P.O. BOX 1234, COMMERCIAL CENTER POST OFFICE, MAKATI, RIZAL, PHILIPPINES

May 2, 1978

Dear

We understand that the business practices adopted by infant formula manufacturers operating in developing countries will be the subject of a US Senate inquiry in the near future. This inquiry is probably the result of recent criticisms hurled against infant formula manufacturers by well meaning but obviously misinformed critics. A recent magazine article states:

> ".... congressional hearings have begun into the activities of the US infant milk industry. Congressman Mike Harrington, who initiated the hearings, has called the companies' marketing activities "a potential threat to infant nutrition in developing nations."

To properly prepare ourselves against the unwarranted and unsupported charges, we are soliciting your assistance. We are requesting for your honest views on certain related topics that will likely be discussed in the hearing. These topics are listed in the enclosed questionnaire.

If you feel that you can give your professional views on the topics outlined in the questionnaire, we feel that your signed reply will help clarify the many misunderstandings and misrepresentations made against the business practices of infant formula manufacturers in the Philippines.

We thank you most kindly for your assistance in bringing light to a muddled issue.

Very truly yours,

MEAD JOHNSON PHILIPPINES INC.

E. E. ENRIQUEZ
Executive Vice President

Research for Life

QUESTIONNAIRE RE INFANT FORMULA BUSINESS

1. Western critics say that infant formula is a prime cause of infant mortality. Do you agree that in the Philippines the use of infant formula is a prime cause of infant mortality?

2. If you do not agree with the above statement, do you feel there is a justified need for infant formula in the Philippines? What, in your opinion, are the benefits to be derived by Filipino mothers and infants on the use of infant formula?

3. Before the introduction of infant formula in the Philippines, what kind of supplemental food was used for Filipino infants? What were the problems, if any, in connection with the use of such supplemental foods?

4. Would you favor dropping the use of infant formula and returning to the use of supplemental food mentioned in the preceding number? Why?

5. Would you say there is widespread abuse of the use of infant formula among the poor families in the Philippines?

6. There have been criticisms in western countries that the distribution of free stock of infant formula to the hospital nurseries and that of free samples (of infant formula products) to physicians tend to influence the professional judgment of the nursery personnel and the physicians in recommending formula feeding over breastfeeding. Could you comment on this criticism?

7. Occasionally infant formula manufacturers, on the solicitation of the hospital administration, donate hospital equipment or hospital supplies to the nursery. Would you care to comment on whether this practice, that of infant formula manufacturers donating hospital equipment or supplies to under-equipped hospital nurseries, should continue or should be stopped? Please give the reasons in support of your view.

8. Are donations of hospital supplies and equipment important to you or your hospital? Would such donations made by the infant formula manufacturers affect your professional judgment in recommending formula feeding over breastfeeding?

9. Western critics say that mothercraft nurses exert improper and undue influence in discouraging breastfeeding in the Philippines. Would you comment on this statement?

10. Would you care to make a statement relative to what the infant formula companies (such as Mead Johnson Philippines Inc.) are doing in the Philippines in connection with (a) the feeding, nutrition and care of infants, and (b) its marketing practices

RESPONSES TO PHILIPPINE QUESTIONNAIRE
RE INFANT FORMULA BUSINESS

1. Ernesto V. Ferreol, M.D.
   President, Philippine Medical Association
   Deputy Director, Veterans Memorial Medical Center
   Associate Professor, UST Faculty of Medicine
   Member, Medicare Commission
   Member, Board of Examiners

2. Trinidad A. Gomez, M.D., M.P.H.
   Director
   National Nutrition Service
   Department of Health, Manila

3. Perla Santos Ocampo, M.D.
   President, Philippine Pediatric Society
   Executive Secretary, Asia Federation of Pediatric Societies
   Past President, Philippine Medical Women's Association
   Fellow, American Academy of Pediatric
   Diplomate, American Board of Pediatric
   Fellow, Philippine Pediatric Society
   Associate Professor, U.P. College of Medicine
   Vice Chairman, Dept. of Pediatrics, U.P.-PGH Medical Center
   Consultant, Medical Center Manila, Capitol Medical Center
   Awardee, Town's Outstanding Woman for Health Services

4. Carmelita Belmonte-Cuyugan, A.B., B.S.C., B.S., M.D., P.P.P.S.
   (For the Philippine Pediatric Society, Inc.)
   1978 Outstanding Pediatrician Awardee of the Phil. Ped. Soc.
   Member, Specialty Board of Pediatrics 1974-1978
   Official Delegate to the President's First National
   Conference for the Development of Children
   President and Chairman, Qualifying Board of Pediatrics,
   1969-1972
   (Additional data with statement)

5. Fe Canlas Dizon, M.D.
   President, Philippine Medical Women's Assoc.
   Diplomate, American Board of Pediatric
   Fellow, Philippine Pediatric Society
   Associate Professor, UST Faculty of Medicine
   Consultant, UST Hospital, Makati Medical Center

6. Dean Buenaventura U. V. Angtuaco, M.D., F.P.C.R., F.P.C.P.,
   F.P.C.G., F.P.H.A.
   Chairman, Executive Committee - Chinese General Hospital
   & Medical Center
   Governor, Philippine National Red Cross
   President, Colegio Medico-Farmaceutico de Filipinas, Inc.

7. Simona C. Alikpala, M.D.
   Diplomate, American Board of Pediatrics
   Fellow, American Academy of Pediatrics
   Past President, Philippine Pediatric Society
   Professor and Chairman, Dept. of Pediatrics,
   UE-RM Memorial Medical Center
   Senior Consultant, National Children's Hospital (Government)
   Fellow, Philippine Pediatric Society

8. Felix Estrada y Alisangco, M.D.
   Dean, Faculty of Medicine & Surgery, Univ. of Santo Tomas
   Chairman, Faculty Council
   Member, UST Hospital Governing Board
   Outstanding Pediatrician Award, Philippine Pediatric
   Society, 1972

9. Miguel L. Noche, Jr., M.D.
   Assistant Professor, University of Santo Tomas
   Faculty of Medicine & Surgery, Dept. of Pediatrics
   Consultant in Pediatrics & Pediatric Allergy
   Univ. of Santo Tomas Hospital
   Cardinal Santos Memorial Hospital
   Ospital Ng Maynila
   Vice President, Philippine Society of Allergology &
   Immunology 1977-1979
   Chairman, Philippine Pediatric Society
   Committee on Continuing Medical Education 1975-1976

10. Manuel Vergara Panlilio
    Fellowship in Pediatrics, August 1952-July 1953
    Lettermen Army General Hospital, San Franciso, Calif.
    Officer-in-Charge of the Pediatrics Section Medical Dept.,
    V. Luna General Hospital from 1959 to Sept. 1966 when
    I retired
    Affiliate Instructor of the UST College of Medicine and
    Surgery 1953-1966 (for the Interns at the V. Luna
    General Hospital)
    Assistant Medical Director, De Ocampo Memorial Medical
    Center

11. Esperanza Figueroa-Rivera, M.D., F.A.A.P., F.P.P.S.
    Fellow, American Academy of Pediatrics
    Fellow, Philippine Pediatric Society
    Fellow, Philippine Society for Microbiology and
    Infectious Diseases
    Diplomate, American Board of Pediatrics
    Diplomate Member, Pan American Medical Association
    Chairman & Professor, MCU-FDTMF, College of Medicine,
    Department of Pediatrics
    Pediatric Consultant, Manila Central University Hospital

12. Cecilia Uy-Go, M.D.
    University of Santo Tomas School of Medicine
    American Board of Pediatrics
    Qualified Affiliations - PPS, PMA, PMWA
    Past President, PPS - Davao Chapter 1971-1972
    Hospital Connections--Private Practice, Visiting Consultant for DDH, SPH and BMH

13. Luis Mabitangar (Sp.?)
    University of the Philippines System
    Philippine General Hospital
    Department of Pediatrics
    (Further information not provided.)

14. Virginia Villanueva-Maghirang, M.D.
    Member, Philippine Medical Association
    Member, Philippine Medical Women's Association
    Member, Manila Nutrition Council
    Assistant District Health Officer
    Official (?) Lying In Clinic, Flying Squad
    Domcihang (Sp.?) Obstetrical Service (Government clinic)

15. Lourdes Esteban Vasquez
    Proprietor - Midwife 1956-Present
    Vasquez Clinic
    2421 Del Pilar Street
    Santa Ana, Metro Manila
    (Number of deliveried per month - more or less 48 average)

16. Antonio V. Orencia, M.D., F.P.C.S., F.A.C.S.
    Bethany Hospital
    United Church of Christ in the Philippines
    Administrator, Bethany Hospital, San Fernando, La Union, 1966-1977
    Chief of Surgery, Bethany Hospital, San Fernando, La Union, 1966-Present
    Most Outstanding Physician of the Year, Phil. Medical Association Award, 1971

17. Josefina De Venecia-Fernandez, M.D.
    Owner & Medical Director, JFV Clinic & Lying-In Hospital
    Member, Philippine Medical Association
    Fellow, Philippine Obstetrical & Gynecological Society - July 6, 1966
    Fellow, Philippine College of Surgeons - Dec. 8, 1966

18. Belen P. Llado, M.D.
    1956-1957 Post Graduate Internship, Laurence Hospital, Bronxville, New York, U.S.A.

1957-1959 Residency in Pediatrics, St. Catherine Hospital, Brooklyn, New York, U.S.A.
1959-1961 Residency in Pediatrics, St. Vincents Hospital, Brooklyn, New York, U.S.A.
1968-Present Chief, Pediatrics Dept., Nueva Ecija Hospital, Cabanatuan, Nueva Ecija

19. Rodolfo R. San Juan, M.D.
Medical Director, San Juan Leongson General Hospital
1959 - Rotating Internship, White Plains Hospital, New York
1960 - Residency in Pulmonary Diseases, Bergen Pines County Hospital, Paramus, New Jersey, U.S.A.
1961 - Residency in Internal Medicine, Altoona General Hospital, Altoona, Pennsylvania, USA
1962 - Residency in Internal Medicine, St. Luke's Hospital, Fargo, North Dakota, U.S.A.
1963 - Residency in Internal Medicine, St. Luke's Hospital, Fargo, North Dakota, U.S.A.
Member, Taytay, Angono, Cainta Medical Association
Member, Philippine Hospital Association
Member, Philippine Medical Association

20. Generosa Solano, M.D.
Diplomate, Philippine Pediatric Society
President-Elect - Philippine Pediatric Society (Cebu Chapter)
Consultant and Secretary, Pediatric Department, Cebu Doctors Hospital, Cebu City, Philippines
Chairman, Department of Pediatrics, Cebu Community Hospital

21. Sylvia Molina-Daya, M.D.
Pediatric Consultant, Doctors' Hospital, Lucena City
Member, Philippine Pediatric Society
Member, Philippine Medical Association

22. Frederick Gokiatsu, M.D.
Senior Pediatrician
Metropolitan Hospital, Manila

23. Gregorio Gloria Fe M
Diplomate, American Board of Pediatrics - 1971
Trained - United States
A) Internship - Medical Residency (one-year) Lutheran Hospital, Cleveland Metropolitan General Hospital - 1965-67
B) Residency - Charity Hospital of Louisiana - 1967-69
C) Third-year Pediatrics (subspecialties) Children's Medical Center, Univ. of Oklahoma, Oklahoma City - 1969-70

D) Chief Residency, City Hospital, St. Louis, Missouri - 1970-71
Presently Pediatrician - Silliman Medical Center since 1972

24. Betty Parrenas-Flores, M.D.
Pediatric Specialty Training
A) In Pittsfield Affiliated Hospitals, Pittsfield, Mass.
B) Children's Mercy Hospital, Kansas City, Missouri
C) Mexico City, International Congress
President, Negros Oriental Medical Society - 1970
Head, Dept. of Pediatrics, Silliman Univ. Medical Center

25. Pacita Tan-Kho, M.D.
Diplomate, American Board of Pediatrics
Pediatric Consultant, Madonna & Child Hospital

26. Isidora Yatco-Zalamea, M.D.
University of Santo Tomas
Postgraduate Course in Pediatrics, Univ. of Carolina, Chapel Hill, 1948

27. Lucrecia Regala-Castillo, M.D.
Fellow, Philippine Pediatric Society
Diplomate, American Board of Pediatrics
Head, Department of Pediatrics, Veterans Memorial Medical Center, Quezon City, Philippines (1,100 Beds' Capacity)

28. Melba Lopez Macias, M.D., F.P.O.G.S., F.P.C.S.
Fellow, Philippine Obstetrical & Gynecological Society (equivalent of Diplomate)
Past President, Negros Oriental Medical Society
Consultant, Obstetrics & Gynecology, Manuel L. Teves Memorial Hospital
Principal, Manuel L. Teves Memorial Hospital School of Midwifery

29. Lino Edralin Lim, M.D.
Administration: Head, Dept. of Pediatrics, Chinese General Hospital & Medical Center (on leave)
Teaching: Associate Professor in Pediatrics, Univ. of the Philippines, UP-PGH Medical Center
Research: Research Coordinator, Dept. of Pediatrics, UP-PGH Medical Center
Practice: Limited to Pediatrics, Medical Arts Center
Fellow, Philippine Pediatric Society
Fellow, American Academy of Pediatrics
Fellow, International College of Pediatrics

30. Florentino Gonzalez, M.D.
    Fellow, Philippine Pediatric Society
    Diplomate, American Board of Pediatrics

31. Carmen G. Lopez, M.D.
    Full Professor & Chairman, Dept. of Pediatrics, Faculty of Medicine and Surgery, Univ. of Santo Tomas
    Head, Division of Pediatrics, Medical Staff, Santo Tomas Univ. Hospital

32. Fortunato R. Gomez, M.D.
    Diplomate in Pediatrics - March 16, 1963 (Philippine Pediatric Society)
    Fellow, Philippine Pediatric Society - Dec. 16, 1976
    Member, Philippine Medical Association
    Cebu Doctors Hospital - Consultant, Pediatric (Cebu City)
    Cebu Community Hospital - Consultant, Pediatrics (Cebu City) (Past Chairman - 1975-77) Pediatrics

33. Licerio A. Cerna, M.D.
    Pediatrician, C.D.H., C.C.H., C.H.H., C.V.G.H.
    Chairman, Department of Pediatrics, C.C.R.M.
    Head, Department of Pediatrics, D.V.G.H.
    Past-President, Philippine Pediatric Society, Cebu Chapter

34. Josefina Del Villar-Calayan, M.D.
    Fellow, POGS
    Fellow, PCS
    Member, PMA, POGS, PCS, PMWA
    Principal, Medical Center of Lucena City
    Assistant Director, Medical Center of Lucena City

35. I. F. Frair, M.D.
    Consultant of Pediatrics
    Cebu Puericulture & Maternity Hospital Inc.

36. Pedro T. Abalos, M.D.
    Head, Dept. of Pediatrics, Cagayan de Oro Medical Center, Capitol General Hospital
    Consultant, Doctors General Hospital Cagayan de Oro City
    Maria Reyna Hospital

37. Guillermo R. Blanco, M.D.
    Cebu Doctors Hospital

38. Rhodora Damaso Diaz, M.D.
    Fellow, American Board of Pediatrics
    Member, Philippine Pediatric Society (fulfilling requirements for Fellow)
    Instructor, Cebu Institute of Medicine, Cebu Velez General Hospital
    Director of Medical Education, Cebu Community Hospital
    Consultant in Pediatrics, Cebu Doctors' Hospital, Cebu (Velez) General Hospital, Cebu Community Hospital, Perpetual Succor (Sp.?) Hospital

39. Pablo U. Abella, M.D.

40. Lourdes Avila-Macavinta, M.D.
    Diplomate in Pediatrics
    Board of Director, PPS & PSMID
    WHO, Fellow in Public Health and Nutrition
    Chairman, Dept. of Pediatrics, SIH MC
    Faculty, CIM, MHAMCM, Gullas Memorial College of Medicine
    Member, PPS, PMA, PMWA, MCHAP, Phil. Assoc. of Govt. Dieticians and Nutritionists, Phil. Society of Microbiology & Infectious Diseases, Phil. Academy of Family Physicians

41. Gregorio F. Mercado, M.D.
    Post-Graduate in Pediatrics, Harvard Medical School 1960
    Conferred Diplomate by Specialty Board, Philippine Pediatric Society
    Presently consultant in Pediatrics, Cebu Doctors' Hospital, Chong Huan Hospital and Cebu Community Hospital
    Vice President, Philippine Pediatric Society, Cebu Chapter 1978

42. Purificacion M. Espinosa, M.D.
    Diplomate, American Board of Pediatrics, 1956 (after Pediatric residency training in various U. S. hospitals and centers in New Jersey & New York)
    Fellow, Philippine Pediatric Society
    UNICEF-WHO Fellow for senior teachers in child health course 1971 offered in United Kingdom (Univ. of London Institute of Child Health), in East Africa (Makere Univ., Uganda & Kenya), in India (Bombay Univ.)
    Chairman, Dept. of Pediatrics, Cebu Institute of Medicine, from the time school was established to 1976
    Chairman, Dept. of Biochemistry & Nutrition, Univ. of Visayas, Gullas Memorial School of Medicine, 1977-Present
    Chairman, Dept. of Pediatrics, UV-Gullas Memorial School of Medicine, 1978-Present

43. Abdias Villamor, M.D.
    Fellow, Philippine Pediatric Society

44. Luis M. Rivera, M.D.
    Makati Medical Center
    Diplomate, American Board of Pediatrics, 1960
    Member, Philippine Medical Association
    Fellow, Philippine Pediatric Society
    Member, American Academy of Pediatrics

45. Lucile Torres-Romblon, M.D.
    Member, PPS Northern Mindanao Chapter
    Past President 1977-1978
    Member, PMA
    Consultant (Pediatric) Madonna & Child Hospital, Cagayan De Oro

46. Ma. Luisa Garcia-Dazon, M.D.
    Davao Doctors Hospital
    San Pedro Hospital
    Mt. Apo Hospital

PPS Davao City Chapter
Vice President & Scientific Committee Chairman
PMWA - Davao City Chapter
Assistant Treasurer, Scientific Committee Chairman

47. Carmelita E. Grande, M.D.
Pediatrician
Makita Medical Center
Makati, Rizal

48. Rosario R. Fumar, R.N., B.S.N.
Makati Medical Center
Member, Philippine Nurses' Association
Member, St. Luke's Alumni Association
Member, MMC Nurses' Association
MMC, Pediatric Nursing Consultant
MMC, Nursery Supervisor

49. Honorio S. Hilario, M.D.
Davao Doctors Hospital
Davao City

50. Bishop Jose T. Sanchez D.D.
Bishop of Lucena City

51. Cecilia Portugaleza, M.D.
Philippine Pediatric Society
Philippine Medical Association
Head, Department of Pediatrics, Holy Child Hospital

52. Anabella C. Luz, M.D.
Acting District Health Officer
Health District I
Manila Health Dept., Mahila, Philippines

53. Nilda E. Sunico-Castro, M.D.
Fellow, Philippine Pediatric Society, Inc.
Professor, Dept. of Pediatrics, MCU-FDT Medical Foundation
Consultant in Pediatrics at:
MCU Hospital
Mary Johnston Hospital
Emmanuel Community Hospital
Our Lady of Grace Hospital
Member, Editorial Board, Journal of Philippine Pediatric Society, Inc.
Chairman, Committee on Nutrition, MCU-FDTMF
Most Outstanding Physician, Caloocan City Medical Society, Inc. in 1977

54. Maria S. Galvez, M.D.
District Health Officer HD II
Manila Health Department

55. Leonisa F. Viloria, M.D.
Acting District Health Officer
Health District IV
Manila Health Dept.
Member, PMA; Philippine Pediatric Society
Member, PMWA

56. Agapito Conchu, M.D.
Fellow, PCS
Senior Consultant, Brokenshire Memorial Hospital
Private practitioner, Brokenshire Memorial Hospital

57. Honorio E. Dela Cruz, M.D.
Fellow, Philippine Pediatric Society
Fellow, International College of Pediatrics
Medical Director & Chief of Pediatrics, Brokenshire Memorial Hospital, Davao City

58. Nancy T. Lao, M.D.
1958-1959 Chief resident, Dept. of Pediatrics, Lincoln Hospital
Fellow, Dept. of Pediatrics, Bronx Municipal Medical Center, New York
1963-Present Director, Lutheran Well-Baby Clinic, Manila
Fellow, Philippine Pediatrics Society
1978-1979 President, Filipino-Chinese Medical Society

59. Joven Lee, M.D.
Diplomate, American Board of Pediatrics

60. Mario Alix, M.D., F.P.P.S.
Cebu City

61. Minda Luz Quesada, B.S., M.A., M.P.H.
Member, Health Education Assoc. of the Philippines
Member, Organization of Public Health Educators
Member, Philippine Public Health Association
Presently employed at the U.P. Institute of Public Heatlh

62. Pelagio Iriarte
Chief, Dept. of Pediatrics
San Pedro Hospital
Asst. Medical Director
Diplomate, Philippine Pediatric Society
Philippine Medical Association
Philippine Pediatric Association

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ERNESTO V. FERREOL, M.D.
President, Philippine Medical Association

DEPUTY DIRECTOR, VETERANS MEMORIAL MEDICAL CENTER

ASSOCIATE PROFESSOR, UST FACULTY OF MEDICINE

MEMBER, MEDICARE COMMISSION

MEMBER, BOARD OF EXAMINERS

1) No.

Perinatal conditions (such as toxemias of pregnancy, complicated deliveries, sepsis, prematurity, etc.) account for a high percentage of infant mortality during the 1st few weeks of life. Throughout infancy, infections (respiratory and gastrointestinal) are a prime cause of mortality.

2) There is a justified need for infant formula in the Phil. because of a high literacy level and equal opportunities for women. Many of the women population especially in the urban areas are working mothers. Emphasis is now on the role of women particularly in developing countries.

3) Low nutritive value foods such as sweetened water, rice broth, cereals and tubers were used before. Protein-calorie malnutrition resulting not only in physical but also mental retardation were the problems.

4) No, because infants need all the essential basic food nutrients.

5) No. There is still a widespread use of breastfeeding among the poor families.

6) The professional judgement of Filipino physicians is and should always be guided by what is best for the health care of his patients.

7) Whatever donations of equipment & hospital supplies are given to under-equipped hospital nurseries are a much needed support.
By improving newborn care, ultimately these donations help reduce infant morbidity and mortality.

8) Same as in (6).

9) Mothercraft nurses are an ancillary service to the physicians, seeing to it that the instructions given by the physicians are properly carried out in the house.

10) Infant formula companies such as Mead Johnson Phil. Inc. extend a tremendous service to the health program in the fields of medical service, education and research.

E. V. Jamal, M.D.
May 5, 1978

PHILIPPINE MEDICAL ASSOCIATION
FOUNDED IN 1903 * INCORPORATED IN 1963
Member, World Medical Association * Co-Founder of CMAAO
North Avenue, Diliman, Quezon City * Tel. Nos. 97-35-14; 97-49-74
Mailing Address: P. O. Box 4039, Manila Cable Address: PHILMEDAS, Quezon City

May 5, 1978

Mr. Enrico E. Enriquez
Executive Vice President
Mead Johnson Philippines. Inc.
Makati, Rizal

Dear Mr. Enriquez :

Enclosed herewith are the answers to the questionaire that you sent me regarding the infant formula business.

I wish to reiterate the sincere appreciation and profound gratitude of the Members of the Philippine Medical Association for the support that you and your company as well as other infant formula companies for the excellent service that you are giving us in our programs of Medical Series, Continuing Medical Education and Research.

With kindest regards.

Very sincerely yours,

E.V. Ferreol M.D.
ERNESTO V. FERREOL, M.D.
President

EVF/mca

QUESTIONNAIRE RE INFANT FORMULA BUSINESS

1. Western critics say that infant formula is a prime cause of infant mortality. Do you agree that in the Philippines the use of infant formula is a prime cause of infant mortality?

2. If you do not agree with the above statement, do you feel there is a justified need for infant formula in the Philippines? What, in your opinion, are the benefits to be derived by Filipino mothers and infants on the use of infant formula?

3. Before the introduction of infant formula in the Philippines, what kind of supplemental food was used for Filipino infants? What were the problems, if any, in connection with the use of such supplemental foods?

4. Would you favor dropping the use of infant formula and returning to the use of supplemental food mentioned in the preceding number? Why?

5. Would you say there is widespread abuse of the use of infant formula among the poor families in the Philippines?

6. There have been criticisms in western countries that the distribution of free stock of infant formula to the hospital nurseries and that of free samples (of infant formula products) to physicians tend to influence the professional judgment of the nursery personnel and the physicians in recommending formula feeding over breastfeeding. Could you comment on this criticism?

7. Occasionally infant formula manufacturers, on the solicitation of the hospital administration, donate hospital equipment or hospital supplies to the nursery. Would you care to comment on whether this practice, that of infant formula manufacturers donating hospital equipment or supplies to under-equipped hospital nurseries, should continue or should be stopped? Please give the reasons in support of your view.

8. Are donations of hospital supplies and equipment important to you or your hospital? Would such donations made by the infant formula manufacturers affect your professional judgment in recommending formula feeding over breastfeeding?

9. Western critics say that mothercraft nurses exert improper and undue influence in discouraging breastfeeding in the Philippines. Would you comment on this statement?

10. Would you care to make a statement relative to what the infant formula companies (such as Mead Johnson Philippines Inc.) are doing in the Philippines in connection with (a) the feeding, nutrition and care of infants, and (b) its marketing practices

E.P. Jamed, MD
SIGNATURE OF INTERVIEWEE

Date : May 5, 1975
Place: Manila, Philippines

CURRICULUM VITAE

1. NAME : TRINIDAD A. GOMEZ, M.D., M.P.H.

2. PRESENT POSITION : DIRECTOR
NATIONAL NUTRITION SERVICE
DEPARTMENT OF HEALTH, MANILA

3. EDUCATION QUALIFICATIONS :
-A.A., M.D. - University of Sto. Tomas - 1941
-Master of Public Health - Columbia University, N. Y., 1948
--Post Graduate Training in Obstetrics and Gynecology, N.Y. Polyclinic, U.S.A. - 1948
-Training in Advanced Management, New York University, 1963

4. EXPERIENCE :
-Extern - Philippine General Hospital Department of Obstetrics - 1941 for 6 months
-Extern and later Intern of the Maternity and Children Hospital - 1942 - 1945
-Medical Officer, Bureau of Health - 1945 - 1946 Assigned at Caloocan Community Health Social Center
-Resident Physician - Maternity and Children's Hospital - 1946-1947
-Medical Officer Incharge - Tabon Health and Training Center - 1949-1953
-Special Obstetrical Assistant, Youngstown General Hospital, U.S.A. - 1953-1954
-Assistant to the Director, Rural Health Unit Project - 1954-1957
-Technical Assistant, Office of Health Education and Personnel Training - 1957-1958
-Chief, Office of Health Education and Personnel Training, - 1958 to 1975
-Director - National Nutrition Service - 1975 to present

5. SPECIAL QUALIFICATIONS AND OTHER EXPERIENCES:
   - Diplomate in Preventive Medicine - 1948
   - Fellow, U.S. Public Health Service - 1947-1948
   - Awarded a Diploma of Merit, U.S. State Department - 1948
   - Post-graduate in U.S.A. under the Exchange Visitors Program, Special Assistant in Obstetrics, Youngstown General Hospital, Youngstown, Ohio - 1953-1954
   - Participated as lone woman delegate - Regional Executive Committee Meeting, World Health Organization, Western Executive Regional Office - 1956, Chairman of the Technical Discussion on Maternal and Child Health
   - Participated as Delegate - World Health Organization Study Group on Socio and Preventive Medicine, World Health Organization and Western Pacific Regional Office - 1957
   - Delegate for the Medical Women's International Association to the World Health Organization Committee Meeting on Rural Health - 1962
   - Attended a Seminar on Top Management - PWU - 1962
   - Attended the Executive Development Seminar at the New York University - 1963
   - Chairman, Committee on Rural Health, Southeast Asia Conference, International Women's Medical Association - 1955
   - Delegate, International Conference on Management - 1962 New York City
   - Chairman, Midwifery, Advisory Council, Department of Health - 1955-1958
   - Chairman, Committee on Scholarships, Department of Health - 1957-1973
   - Chairman, Chapter of Organization, Philippine Women's Medical Association - 1960-1961
   - Chairman, Committee on Rizal Integrated Public Health Association -1960-196[illegible]
   - Chairman, Committee on Organization of Chapters - Philippine Medical Women's Association
   - Conference Director - Asian Health Education Conference - 1962
   - Chairman, Technical Discussion of the IX Congress of the Medical Women's International Association - 1963
   - Conference Director - First Regional Mental Health Conference - 1962
   - Member - Council for Medical and Nursing Education
   - Member - National Coordinating Council on Food and Nutrition
   - Chairman - Committee on Claims, Department of Health - 1963 - 1969, January, 1973 up to 1975
   - Delegate, Congress of the International Union of Health Education, Madrid, Spain - 1965
   - Participated to the First WHO Regional Traveling Seminar on National Health Planning, Moscow, USSR, September 4 to October 2, 1969
   - Participant to the ECAFE Conference on Training Methods for Family Planning, Bangkok - July 27 to August 7, 1970

- Resource Person, Family Planning Training Regional Seminar, - Indonesia - December 1-6, 1972
- Delegate, FAO-NDRAD Seminar on Food and Nutrition Policy and Planning for Asia, New Delhi, India - February 7-27, 1974
- Delegate, Philippine Medical Association, Team to Peking - 1975

6. PROFESSIONAL ORGANIZATION:

- Vice President, Philippine Association of Nutritional - 1976 to present
- Vice President, Maternal and Child Health Association of the Philippines 1972 to present
- Vice President, International Union of Health Education - 1965 - 1969
- Vice President, later President, Philippine Medical Women's Association 1962 - 1963, 1964 - 1966.
- Vice President, later President, Health Education Association of the Philippines - 1961 - 1965
- Vice President, later President, Philippine Public Health Association 1961 - 1965
- Honorary Member, Department of Health League of Nurses
- Chairman, Council of Health Agencies - 1963-1965
- Vice President, Philippine Council of Management - 1964-1965
- Treasurer, Government Training Officers Association of the Philippines 1962-1963, Re-elected up to 1964
- Member, Philippine Mental Health Association
- Member, Committee on Medical Education, Philippine Medical Association - 1960
- Member, Special Committee on Medical Ethics - PMA - 1960
- Member, Professional and Business Women's Organization

QUESTIONNAIRE RE INFANT FORMULA BUSINESS

1. Western critics say that infant formula is a prime cause of infant mortality. Do you agree that in the Philippines the use of infant formula is a prime cause of infant mortality?

   NO - In the Philippines as it is in other developing countries, morbality due to infection is very much greater during the first year of life than during the ensuing years of childhood. The main causes of death in 0-5 years old are respiratory and gastrointestinal infections which when combined with malnutrition and poor environmental sanitation synergistically become responsible for high death rates of children in the early age.

2. If you do not agree with the above statement, do you feel there is a justified need for infant formula in the Philippines? What, in your opinion, are the benefits to be derived by Filipino mothers and infants on the use of infant formula?

   YES - Safe Artificial or Bottle Feeding is beneficial to Filipino mothers and infants in several instances such as:

   a. In case of death or illness of the mother
   b. Among working mothers
   c. Congenital defects
   d. Low birth weight
   e. Twinnings
   f. Difficulties in Breast feeding, mentally-ill mothers
   g. Recurrent infections
   h. Failure to gain weight - Kwashiorkor
   i. Malnourished children

3. Before the introduction of infant formula in the Philippines, what kind of supplemental food was used for Filipino infants? What were the problems, if any, in connection with the use of such supplemental foods?

   Before the introduction of infant formula, infants were weaned on watery gruels and other protein foods as supplemental foods. A big percentage of infants were fed on sweetened condensed milk and those who developed diarrhea believed to be due to condensed milk were shifted to "AM" (boiled rice washing). The breasfed ones were fed only on an average of 3-4 weeks and mothers reasoned that their infants may be adversely affected by their poor constitution. Ignorance, tradition, poverty and laziness, account for the problems, although the high price of food is another big contributory factor.

4. Would you favor dropping the use of infant formula and returning to the use of supplemental food mentioned in the preceding number? WHY?

   NO - After mother's milk, the next best food for a child is cow's milk or an adequately and properly prepared infant formula.

5. Would you say there is widespread abuse of the use of infant formula among the poor families in the Philippines?

   NO - Poor families in the Philippines cannot usually afford to buy artificial milk. However, among poor families who buy artificial milk, mothers tend to dilute the milk for economy to the extent that the infant gets insufficient caloric intake.

6. There have been criticisms in western countries that the distribution of free stock of infant formula to the hospital nurseries and that of free samples (of infant formula products) to physicians tend to influence the professional judgment of the nursery personnel and the physicians in recommending formula feeding over breastfeeding. Could you comment on this criticism?
Physicians and Nursery Personnel usually recommend formula feeding while mothers have not started to secrete milk. Hospital personnel tend to use whatever milk is available in the ward that may have been purchased or received as samples from manufacturers. Breastfeeding however is stressed.

7. Occasionally infant formula manufacturers, on the solicitation of the hospital administration, donate hospital equipment or hospital supplies to the nursery. Would you care to comment on whether this practice, that of infant formula manufacturers donating hospital equipment or supplies to under-equipped hospital nurseries, should continue or should be stopped? Please give the reasons in support of your view.
Donations of equipment from manufacturers should be stopped so as not to influence the professional judgement of health personnel. Besides, hospitals have their budgets for equipment aside from whatever may be received from assisting agencies such as UNICEF, AID, etc.

** 8. Are donations of hospital supplies and equipment important to you or your hospital? Would such donations made by the infant formula manufacturers affect your professional judgment in recommending formula feeding over breastfeeding?
Donations of supplies and equipment are important to inadequately equipped hospitals especially those located in the rural areas. A well-equipped hospital enables the physicians to serve their community better. Donations coming from milk manufacturers, may affect in some way or another the physicians and nurses professional judgement in recommending formula feeding over breastfeeding. At the moment however, there is a wide campaign for breast

9. Western critics say that mothercraft nurses exert improper and undue influence in discouraging breastfeeding in the Philippines. Would you comment on this statement?
This is not true. Motherdraft programs in the Philippines actually exert influence to have mothers breastfeed their babies not only for economic and sanitary reasons but also to favor child spacing.

10. Would you care to make a statement relative to what the infant formula companies (such as Mead Johnson Philippines Inc.) are doing in the Philippines in connection with (a) the feeding, nutrition and care of infants, and (b) its marketing practices
Infant formula companies in the Philippines help promote the health of infants and children. The marketing practices of these companies are carried out in the most professional and ethical way, and their contacts are, I understand, the physicians, nurses, other hospital personnel, mothers, health centers, nutrition centers and others.

** feeding, and hospital personnel may give the formula only while the mother is not yet secreting enough milk for some other reason may not be unable to breastfeed.

SIGNATURE OF INTERVIEWEE

Date : 5/4/78

Place: National Nutrition Service
Dept. of Health
Manila

PERLA SANTOS OCAMPO, M.D.

PRESIDENT, PHILIPPINE PEDIATRIC SOCIETY

EXECUTIVE SECRETARY, ASIA FEDERATION OF PEDIATRIC SOCIETIES

PAST PRESIDENT, PHILIPPINE MEDICAL WOMEN'S ASSOCIATION

FELLOW, AMERICAN ACADEMY OF PEDIATRIC

DIPLOMATE, AMERICAN BOARD OF PEDIATRIC

FELLOW, PHILIPPINE PEDIATRIC SOCIETY

ASSOCIATE PROFESSOR, UP COLLEGE OF MEDICINE

VICE CHAIRMAN, DEPT. OF PEDIATRICS, UP-PGH MEDICAL CENTER

CONSULTANT, MEDICAL CENTER MANILA, CAPITOL MEDICAL CENTER

AWARDEE, TOWNS OUTSTANDING WOMAN FOR HEALTH SERVICES

QUESTIONNAIRE RE INFANT FORMULA BUSINESS

1. Western critics say that infant formula is a prime cause of infant mortality. Do you agree that in the Philippines the use of infant formula is a prime cause of infant mortality?

   No, the prime causes are infections, usually, respiratory and gastrointestinal.

2. If you do not agree with the above statement, do you feel there is a justified need for infant formula in the Philippines? What, in your opinion, are the benefits to be derived by Filipino mothers and infants on the use of infant formula?

   There are cases where an infant formula is needed. In the Philippines, women occupy important positions in all fields, government, business science and may have to leave their babies at home, in which case they will have to avail of a good infant formula as a substitute for breast milk.

3. Before the introduction of infant formula in the Philippines, what kind of supplemental food was used for Filipino infants? What were the problems, if any, in connection with the use of such supplemental foods?

   Rice porridge

4. Would you favor dropping the use of infant formula and returning to the use of supplemental food mentioned in the preceding number? Why?

   Of course not. Because of obvious hutritional inadequacy.

5. Would you say there is widespread abuse of the use of infant formula among the poor families in the Philippines?

   No, because poor families cannot afford infant formulas and mothers of poor families usually do not work outside the home. These mothers breastfed their babies.

6. There have been criticisms in western countries that the distribution of free stock of infant formula to the hospital nurseries and that of free samples (of infant formula products) to physicians tend to influence the professional judgment of the nursery personnel and the physicians in recommending formula feeding over breastfeeding. Could you comment on this criticism?

It does not influence professional judgment; breastfeeding is encouraged and samples are given only to mothers who prefer to go on artificial feeding.

7. Occasionally infant formula manufacturers, on the solicitation of the hospital administration, donate hospital equipment or hospital supplies to the nursery. Would you care to comment on whether this practice, that of infant formula manufacturers donating hospital equipment or supplies to under-equipped hospital nurseries, should continue or should be stopped? Please give the reasons in support of your view.

In some instances this practice is necessary in order to upgrade nursery facilities and thereby save newborn lives. In the Philippines, hospitals are sometimes a losing porposition and therefore cannot equip their nurseries adequately due to lack of funds.

8. Are donations of hospital supplies and equipment important to you or your hospital? Would such donations made by the infant formula manufacturers affect your professional judgment in recommending formula feeding over breastfeeding?

In my particular case, the Philippine General Hospital is a teaching and charity hospital catering to indigent patients; therefore the donations are most welcome.

9. Western critics say that mothercraft nurses exert improper and undue influence in discouraging breastfeeding in the Philippines. Would you comment on this statement?

No, the mothercraft nurse are instructed to teach mothers how to breastfed and care for their babies.

10. Would you care to make a statement relative to what the infant formula companies (such as Mead Johnson Philippines Inc.) are doing in the Philippines in connection with (a) the feeding, nutrition and care of infants, and (b) its marketing practices

Mead Johnson sponsors seminars, research awards and other medical services which promote and foster pediatric knowledge and information in nutrition, care of infants, etc. We feel that the marketing practices utilized are very ethical and beyond reproach.

Dante Ampil, M.D.
SIGNATURE OF INTERVIEWEE

Date : 5 May 1978
Place: Manila, Philippines

For the PHILIPPINE PEDIATRIC SOCIETY, INC.

CARMELITA BELMONTE-CUYUGAN, A.B., B.S.C., B.S., MD., P.P.P.S.

CURRICULUM VITAE

Home Address: 186 Calamba St., Talayan Village, Quezon City.

Married to: Dr. ANGEL CUYUGAN

P.P.S. POSITIONS: "*1978 OUTSTANDING PEDIATRICIAN AWARDEE" of the PPS given at the Opening Ceremonies of the 15th Annual Convention - PICC, Manila on April 25, 1978.

MEMBER, Specialty Board for Pediatrics: 1974-1975, 1975-1976, 1976-1977 and 1977-1978, 1978-1979

ASSOCIATE CONTRIBUTOR to the Textbook of Pediatrics and Child Health: Fe del Mundo et al. First Edition. 1976.

OFFICIAL DELEGATE to the PRESIDENT'S FIRST NATIONAL CONFERENCE for the DEVELOPMENT OF CHILDREN, sponsored by the Council for the Welfare of Children, of the Philippine Pediatric Society, Inc., and the Philippine Medical Women's Association, Inc. December 8-10, 1976. P.I.C.C. CCP Complex, Roxas Blvd., Manila.

CHAIRMAN, Committee on Ways and Means: The Asian Congress of Pediatrics. April 30 to May 4, 1976. Bayview House, Manila.

CHAIRMAN, Colloquium on "Infectious Diseases II" at the Asian Congress of Pediatrics, North-South Forbes Room, Hotel Intercontinental, Makati, Rizal. May 2, 1974.

PRESIDING OFFICER and CHAIRMAN, Second Plenary Session, XIII Annual Convention of the P.P.S. Theme: "Tropical Pediatrics, Its Many Faces." May 4-5, 1976, Hotel Intercontinental Makati, Rizal.

CONTRIBUTOR to the HANDBOOK OF INFECTIOUS DISEASES: First Edition, 1968; Second Edition, 1971; Third Edition, 1974.

IMMEDIATE PAST PRESIDENT and EX-OFFICIO MEMBER, Board of Trustees, 1972-1974.

PRESIDENT and CHAIRMAN, Qualifying Board of Pediatrics, 1969-1970; 1970-1971; and 1971-1972. (Please see ADDENDUM I for the activities as PRESIDENT of the Philippine Pediatric Society, 1969 to 1972)

VICE PRESIDENT: 1966-1967; 1979-1968; 1968-1969.

MEMBER, Board of Trustees: 1963-1964; 1964-1965; and 1965-1966.

CHAIRMAN, Committee on Ways and Means: 1966-1967 and 1967-1968.

FELLOW, P.P.S.: February 9, 1962.

CHAIRMAN, Committee on Library and Publications: 1957 to 1958.

SPECIALIST, P.P.S.: August 11, 1958.

AWARDS AND CITATIONS:

SPECIAL AWARD as PRESIDENT, U.S.T. Medical Association, 1959-1961.

AWARD for MERITORIOUS SERVICES as PRESIDENT of the PHILIPPINE PEDIATRIC SOCIETY, Inc., from 1969 to 1972.

SERVICE AWARD as PRESIDENT of the PHILIPPINE MEDICAL WOMEN'S ASSOCIATION, Inc. from 1967-1970. (STATUETTE)

PLAQUE of APPRECIATION as CHAIRMAN, MEDICAL AND ALLIED PROFESSIONAL DIVISION, Philippine Tuberculosis Society, Inc., 1968 Anti-T.B. Educational and Fund Campaign, February 8, 1968.

PLAQUE of APPRECIATION as CHAIRMAN, xth Foundation Day Celebration and CHAIRMAN, Committee on Ways and Means, the COUNCIL OF HEALTH AGENCIES, INC., September 28, 1969.

PLAQUE OF APPRECIATION as CHAIRMAN, Committee on Awards at its Centennial Celebration, Faculty of Medicine and Surgery, University of Santo Tomas, December 1971.

SERVICE AWARD as PRESIDENT of the PHILIPPINE MEDICAL WOMEN'S ASSOCIATION, Inc. June 21, 1972 (PLAQUE).

CITED at the PHILIPPINE MEN OF SCIENCE: Vol. III, 1972, pp. 175-185.

DISTINGUISHED SERVICE AWARD as OVER-ALL CHAIRMAN, General Homecoming in 1961 of the U.S.T. ALUMNI ASSOCIATION, given during the General Homecoming in 1973. January 28, 1973, U.S.T.

SERVICE AWARD for OUTSTANDING SUPPORT OF THE 24th Annual Educational Fund Campaign of the Community Chest of Greater Manila: May 2, 1973.

PLAQUE of APPRECIATION as CO-CHAIRMAN, Committee on Socials, Asian Regional Conference on Family Planning: January 6-11, 1974 in Manila. Commemoration of the "World Population Year". The M.W.I.A. and the P.M.W.A.-January 11, 1974.

TESTIMONIAL PLAQUE as CO-CHAIRMAN Movie Premiere Group, Special Events Division of the 1975 Anti-T.B. Educational and Fund Campaign. The Philippine Tuberculosis Society, Inc., February 15, 1974.

CERTIFICATE OF COMMENDATION as DAUGHTER OF ISABELLA, U.S.T. Chapter and CHAIRMAN, Committee on Socials, U.S.T. Council No. 4321, Knights of Columbus. February 24, 1974.

PLAQUE OF APPRECIATION as CHAIRMAN, Committee on Ways and Means, Asian Congress of Pediatrics. April 30-May 4, 1974. The Philippine Pediatric Society, Inc.

THE RED FEATHER AWARD for Educational and Membership Fund Campaign of the Community Chest Foundation of Metropolitan Manila, June 26, 1974.

CERTIFICATE OF APPRECIATION as CHAIRMAN Committee on Ways and Means CMAAO and OVER-ALL CHAIRMAN of the CMAAO TEA MUSICALE in connection with its 4th Congress. The Confederation of Medical Associations of Asia and Oceania (CMAAO) February 15, 1975.

PLAQUE OF APPRECIATION as CHAIRMAN, Civic and Professional Division National Fund Campaign of the Executive Committee, Educational & Fund Campaign. The Foundation for the Philippine Family Planning, Inc. January 11, 1976. COUNTDOWN '74 and COUNTDOWN '75, respectively.

CERTIFICATE OF APPRECIATION as the CO-CHAIRMAN, Committee on Ways and Means, Tropical Medicine Post-graduate Course of the Association of the Philippine Practicing Physicians in America. The Organizing Committee of the Philippine Medical Women's Association, the Philippine Academy of Family Physicians, and the Philippine Federation of Private Medical Practitioners. February 5-14, 1976.

CERTIFICATE OF MERITORIOUS SERVICE, as CHAIRMAN, Committee on Ways and Means, 1975-1976. The Philippine Medical Women's Association, Inc. April 25, 1976.

DIPLOMA OF HONOR for having devotedly and unselfishly served as VICE-PRESIDENT for Luzon, 1975-1976. The Philippine Medical Association, Inc. May 1, 1976.

PLAQUE OF HONOR, as the MOST OUTSTANDING VICE-PRESIDENT for LUZON, 1975-1976. The Philippine Medical Association, Inc. May 1, 1976. Baguio City.

SERVICE AWARD as CHAIRMAN, Squint Correction and Harlip and Cliftpalate Repair Projects and Charity Clinic project. Zonta Club of Quezon City, Inc. March 6, 1976.

AWARD for MERITORIOUS SERVICE as PRESIDENT for 1975-1976. Zonta Club of Quezon City. April 19, 1977.

APPOINTED FULL PROFESSOR of PEDIATRICS, Faculty of Medicine & Surgery, University of Santo Tomas, Manila. November 1976.

EDUCATION:

VALEDICTORIAN, HIGH SCHOOL: Colegio de Santa Rosa, Intramuros Manila-1938.

ASSOCIATE IN ARTS: FULL SCHOLAR: University of Santo Tomas, 1940;

BACHELOR OF SCIENCE IN COMMERCE: 1942, University of Santo Tomas;

BACHELOR OF SCIENCES: MAGNA CUM LAUDE, 1946, University of Santo Tomas;

BACHELOR OF ARTS: MAGNA CUM LAUDE: 1947, University of Santo Tomas;

DOCTOR OF MEDICINE: SUMMA CUM LAUDE, 1948. University of Santo Tomas.

Passed the Philippine Board of Medical Examiners in May 1948: THIRD PLACE.

PRESENT POSITIONS:

PROFESSOR of Pediatrics, Faculty of Medicine and Surgery University of Santo Tomas: November 1976 to the present;

PEDIATRIC CONSULTANT, Pediatric Service, Santo Tomas University Hospital;

PEDIATRIC CONSULTANT and MEMBER, Medical Staff, U.S.T. Hospital;

PEDIATRIC CONSULTANT and MEMBER, Medical Staff, Makati Medical Center, Makati, Rizal;

AFFILIATE MEMBER and PEDIATRIC CONSULTANT, St. Luke's Hospital;

PEDIATRIC CONSULTANT, Out-Patient Services, and MEMBER, Medical Staff, Sta. Teresita Hospital, Quezon City.

POSTGRADUATE TRAINING:

Residency Training in Pediatrics: Children's Hospital and General Hospital in Louisville, Kentucky, U.S.A.: July 1, 1950 to June 30, 1952.

Clinical Fellow in Medicine: Children's Medical Center, Boston, Massachusetts., U.S.A.: July 1, 1952 to December 31, 1952.

Special Fellowship in Prevention of Tuberculosis in Children. International Children's Medical Center, Paris, France, from January 3, 1952 to February 15, 1953.

TEACHING APPOINTMENTS:

PROFESSOR of Pediatrics, Faculty of Medicine and Surgery, University of Santo Tomas: November 1976 to date;

ASSOCIATE PROFESSOR OF PEDIATRICS, Faculty of Medicine & Surgery, University of Santo Tomas: July 1, 1970 to October 30, 1976;

ASSISTANT PROFESSOR of PEDIATRICS, Faculty of Medicine & Surgery, University of Santo Tomas: August 1954 to June 1970;

College of Education: from 1964 to 1968

College of Nursing: from 1964 to 1965

INSTRUCTOR in Pediatrics: Faculty of Medicine & Surgery, U.S.T.: 1954-1964; College of Education, U.S.T.: 1960-1964; and College of Nursing, U.S.T.: 1954 to 1964.

INSTRUCTOR in PEDIATRICS: San Juan de Dios Hospital, School of Nursing; 1954 to 1960; School Physician: Immaculate Heart of Mary College, Sta. Mesa, Manila: 1954-1960.

MEDICAL, EDUCATIONAL AND SERVICE ACTIVITIES:

INTERNATIONAL ORGANIZATIONS:

OFFICIAL DELEGATE of the Philippine Pediatric Society, Inc. to the XV International Congress of Pediatrics - Theme: "Breastfeeding with Love Leads to Better Child Health." New Delhi, INDIA, October 23-29, 1977;

OFFICIAL DELEGATE of the Philippine Pediatric Society, Inc. to the First Annual Meeting of the Asian Pacific Society for Pediatric Gastroenterology. Presented as co-author, the scientific paper: "A Country Report on the Diarrheal Disorders in the Philippines." Dacca, The People's Republic of Engladesh. October 29-November 1, 1977.

OFFICIAL DELEGATE of the Zonta Club of Quezon City to the Zonta International Region I Conference. Hongkong Convention Center. Hongkong. November 5-10, 1977.

OFFICIAL DELEGATE of the Catholic Physicians' Guild of the Philippines to the Sixth Congress of Asian Federation of Catholic Medical Associations in Hongkong. Duke of Winesor Social Service Bldg., Hennessy Road, Hongkong.

OFFICIAL DELEGATE to the XV Congress of the Medical Women's International Association - c/o the Philippine Medical Women's Association. Presented the scientific paper: "Dengue Hemorrhagic Fever in the Philippines in Review." Keio Plaza International Hotel, Tokyo, Japan. August 22-27, 1976.

OFFICIAL DELEGATE of the Asian Congress of Pediatrics and the Philippine Pediatric Society, to the Second Asian Congress of Pediatrics. Theme: "Growing Up in South East Asia." Presented the scientific paper "The Doubling Time of Filipino Children." Jakarta, Indonesia. August 3-6, 1976.

OFFICIAL DELEGATE of the Philippine Medical Association to the World Medical Congress for 1975, as P.M.A. Vice President for Luzon. Tokyo, Japan, October 8-10, 1975.

INVITED GUEST to the Annual Meeting of the American Academy of Pediatrics. Washington, D.C., October 23-28, 1975.

OFFICIAL DELEGATE of the Philippine Pediatric Society to the XIV International Congress of Pediatrics in Buenos Aires, Argentina. October 3-7, 1974.

OFFICIAL DELEGATE of the University of Santo Tomas and the Philippine Medical Women's Association to the XIV International Congress of the Medical Women's International Association in Rio de Janeiro, Brazil. October 11-19, 1974.

SECRETARY to the Group which observed on the Medical, Educational and Acupuncture in the People's Republic of China, under the auspices of the Professional Regulation Commission of the Republic of the Philippines. People's Republic of China, visiting Canton, Hangchew, Shanghai and Peking.

OFFICIAL DELEGATE of the Zonta Club of Quezon City to the International Zonta Club Conference, Region IV to Taipei, Taiwan, Republic of China, May 22-24, 1973.

COUNCIL MEMBER and OFFICIAL NATIONAL DELEGATE of the Philippine Pediatric Society to the XIII International Congress of Pediatrics in Vienna, Austria. August 29-September 4, 1971.

OFFICIAL DELEGATE of the Philippine Pediatric Society to the XII International Congress of Pediatrics in Mexico City. December 1-7, 1968.

GUEST OF HONOR, Spanish Medical Women's Association in Valencia, Spain October 27, 1965.

GUEST OF HONOR, Japan Medical Women's Association, Tokyo, Japan in May 27, 1967.

DELEGATE of the Philippine Medical Women's Association to the Medical Women's International Association's Congress in Baden-Baden, Germany, September 8-10, 1960;

OBSERVER and ALTERNATE DELEGATE of the Philippine Medical Association to the XIV World Association General Assembly Meeting in Berlin, West Germany, September 15-19, 1960.

MEMBERSHIP IN INTERNATIONAL ORGANIZATIONS:

MEMBER, Committee on Ways and Means: The Medical Women's International Association, 1976-1978.

MEMBER, The Asian Pacific Society for Pediatric Gastroenterology, 1977-1978.

MEMBER, Zonta International.

NATIONAL AND LOCAL ORGANIZATIONS:

For the MATERNAL AND CHILD HEALTH ASSOCIATION OF THE PHILIPPINES:

TREASURER, 1976-1977 and 1977-1978;
MEMBER, Board of Directors, 1975-1976;
MEMBER, 1974-1975.

FOR THE PHILIPPINE MEDICAL WOMEN'S ASSOCIATION:

CHAIRMAN, Committee on Trust Funds: 1976-1977; 1977-1978.

CHAIRMAN, Committee on Nominations: Q.C. Chapter, P.M.W.A. 1977-1978.

CHAIRMAN, Committee on Ways and Means, 1974-1975; 1975-1976.

CO-CHAIRMAN, Committee on Socials, The M.W.I.A.'s Regional Conference on Family Planning, January 6-11, 1974.

ADVISER, 1971-1974.

IMMEDIATE PAST-PAST PRESIDENT AND EX-OFFICIO MEMBER, Board of Directors, 1970-1971; 1971-1972.

PRESIDENT, 1968-1969; 1969-1970.

VICE PRESIDENT: 1965-1966; 1966-1967.

OVER-ALL CHAIRMAN: Second Annual Post-Graduate Assembly, 1966.

SECRETARY, 1964-1965.

TREASURER: 1963-1964.

BUSINESS MANAGER: Journal of the Philippine Medical Women's Association, 1963 to 1967.

MEMBER, Board of Directors and NATIONAL CORRESPONDING SECRETARY: 1958-1963.

ASSISTANT TREASURER: 1957-1958.

FOR THE PHILIPPINE MEDICAL ASSOCIATION:

VICE PRESIDENT for LUZON, P.M.A.: 1975-1976.

ACTING PRESIDENT of the P.M.A.: July 25-August 7, 1975; August 20 to August 30, 1975; February 11 to February 25, 1976.

CHAIRMAN, Sub-Committee on the Weight Reduction Clinics, Committee on Medical Practice and Ethics.

OVER-ALL CHAIRMAN, Committee on the 1975 National Medicine Week Celebration from September 22-28, 1975.

CHAIRMAN, Sub-Committee on the PMA-Mead Johnson Post-graduate Course for Luzon held at the U.S.T. Medicine Building, Manila. January 30-31, 1976.

MEMBER, the PMA Special Committee on Relative Value Scales.

MEMBER, the PMA Editorial Board.

OFFICIAL DELEGATE of the PMA to the XXIX World Medical Assembly in Tokyo, Japan, October 6-10, 1975.

LIFE MEMBER, since 1970.

MEMBER, Committee on Credit Unions, P.M.A. 1971-1972.

MEMBER, Committee on the 10th Luzon-Mead Johnson Postgraduate Course, 1971.

MEMBER, Philippine Advisory Board for Medical Specialists, 1971.

CHAIRMAN, P.M.A. Section of Pediatrics, 64th Annual Convention of the PMA.

CHAIRMAN, Section in Pediatrics, PMA Annual Conventions of 1966, 1967 and 1968.

FOR THE CATHOLIC PHYSICIANS' GUILD OF THE PHILIPPINES:

COUNCILOR, 1977-1978.

CHAIRMAN, Committee on Ways and Means: 1970-1972; 1972-1974; 1974-1976 and 1976-1978.

MEMBER, Committee on Finance, the XIth International Congress of Catholic Doctors, November 1968.

TREASURER, 1961-1962.

MISCELLANEOUS:

MEMBER: The Association of Philippine Medical Colleges;
The Manila Medical Society
The Private Federation of Philippine Medical Practitioners
The Community Chest of Metropolitan Manila
The Daughters of Isabella, U.S.T. Chapter

For the ZONTA CLUB OF QUEZON CITY:

PRESIDENT, 1975-1976.

CHAIRMAN, The Charity Clinic, 1974-1975.

VICE-PRESIDENT, 1973-1974.

CHAIRMAN, Committee on the Harelip and Cleft Palate & Squint Repair Project, 1972-1975.

DIRECTOR, Zonta Club of Quezon City, 1972-1973.

For the PHILIPPINE ELDERLY PERSONS' FOUNDATION, INC.:

MEMBER, Committee on Ways and Means.

For the FACULTY OF MEDICINE AND SURGERY, University of Santo Tomas:

CHAIRMAN, Ad Interim Committee on Funding, 1977-1978.

CHAIRMAN, Committee on Finance, 1977 and 1976, respectively; Balikbayan Post-Graduate Course, held December 19-21, 1977 and December 13-18, 1976.

CHAIRMAN, Fund Raising Campaign for the Nutritional Rehabilitation Unit, Pediatric Service, Santo Tomas University Hospital. November 26-27, 1976, in the form of a movie benefit; Medicine Auditorium, U.S.T.

MEMBER, Committee on Ways and Means, Faculty Association of the University of Santo Tomas. 1975-1976.

MEMBER, Scholarship Committee: Faculty of Medicine & Surgery, U.S.T.; 1975-1976; 1976-1977; 1977-1978.

FACULTY ADVISOR to Medical Students: 1973-1974; 1974-1975; 1975-1976; 1976-1977; 1977-78.

OVER-ALL CHAIRMAN: The Gregorio Gabriel Memorial Scholarship Fund Raising Campaign. 1975-1976.

CHAIRMAN, Committee on Awards and Prizes, Medicine Week Celebration, U.S.T. September 19-25, 1977.

CHAIRMAN, Finance Committee of the U.S.T. Medicine Week Celebration, September 19-25, 1977.

CO-CHAIRMAN, Commitee on Reception: U.S.T. Medical Alumni Association, September 25, 1977.

MEMBER, Dr. Virgilio Ramos Memorial Medical Scholarship Committee, 1977-1978.

DEPARTMENTSECRETARY: Department of Pediatrics, Faculty of Medicine and Surgery: June 1957 to June 1976.

SUPERVISOR, Out-Patient Department, Pediatric Services, Santo Tomas University Hospital Clinical Division: 1973-1974; 1974-1975; 1975-1976; 1976-1977.

ADDENDUM

ACTIVITIES AS PRESIDENT OF THE PHILIPPINE PEDIATRIC SOCIETY, INC. from 1969 to 1972:

I. ORGANIZATION OF THE FOLLOWING P.P.S. CHAPTERS:

1. P.P.S.- Bacolod City Chapter: February 19, 1971 in Bacolod City. Served as Guest Speaker and Inducting Officer.

2. P.P.S.-Central Luzon Chapter: November 27, 1971 at Our Lady of Good Counsel Seminary in San Fernando, Pampanga. Also gave a lecture on "Current Pediatric Therapy." Served as the Inducting Officer.

3. P.P.S. North Western and Central Mindanao Chapter: March 18, 1972 in Iligan City. Served as Guest Speaker and Inducting Officer.

4. P.P.S.-Negros Occidental Chapter: April 28, 1972 (in lieu of the original P.P.S.-BACOLOD City Chapter.) Served as Inducting Officer.

II. Launched the first P.P.S.-Filipro Seminar on Nutrition (later called the "P.P.S.-Nestle Seminar on Nutrition") hosted by the P.P.S.-Chapter on March 23, 1972 at the Hotel San Fernando in San Fernando, Pampanga.

III. Served as the PRESIDING OFFICER of the following P.P.S. Refresher Courses:

1. Refresher Course for Private School Physicians in November 19, 1969 at the Medicine Building, U.S.T. Lectured on "Current Pediatric Therapy."

2. The P.P.S.-Refresher Course for Health Physicians. Theme: "For Better Health Service." January 21, 1971. Quezon Institute Social Hall, Q.C. Gave the Opening Remarks. The Closing Ceremonies was held at the Sulu Restaurant, Makati? Rizal on February 3, 1971.

The P.P.S. Refresher Course for Puericulture Physicians of Rizal Province. Rizal Provincial Hospital, February 21, 1972, Pasig Rizal (gave the Opening Remarks); and for the Closing Ceremonies at the Bayanihan Hall. The United Laboratories, Inc., in Mandaluyong, Rizal.

3. The P.P.S. Refresher Course for City Physicians: June 5, 1972 at the Law and Commerce Building, University of Santo Tomas.

IV. Fostered the medical knowledge and technical know-how of our P.P.S. members, through:

1. Encouraging attendance to the bi-monthly scientific meetings of our Society;

2. Continuing the existing P.P.S. Research Awards (with the support of the various drug companies), such as:

a) The P.P.S. - Abbott Pediatric Research Award;

b) The P.P.S.- Bristol Laboratories Research Award for Immunology and Infectious Diseases;

c) The P.P.S. - Mead Johnson Research Award for Pediatric Residents;

d) Initiated the PPS-UNITED LAB. Research Award for Nutrition and Community Pediatrics.

3. Enhancing continuing medical education through the PPS-Mead Johnson Regional Seminars and the PPS-Westmont Pediatric Seminars and RovingSpecialty Clinics.

V. Created the AID AND WELFARE COMMITTEE which took charge of the following activities:

1. Monthly charity clinics held at the Barrio Batong Puti and Barrio Magsaysay in Tondo area for the detection of diseases, updating immunization programs, undertaking health supervision and free medical consultations, giving free medicines to the sick and the needy and participating in public health programs.

2. Donated three Singer Sewing machines as self-help project to the above areas.

3. Donated 12 boot-black boxes as self-help project for the out-of-youth adolescents in the above area.

4. In case of calamities like fires and floods, donated cash and/or kind to the afflicted areas through the National Red Cross of Manila.

5. During the Christmas Seasons, helped spread joy and cheer to the indigents in Barrio Batong Puti in Tondo and at the P.P.S. Building in Bago Bantay.

6. Held daily charity clinics at the P.P.S. Building in Bago Bantay as well as a Well Baby Clinic.

VI. Fostered fellowship and camaraderie with the members of the Society with our regular annual Christmas Socials.

VII. Participated as Guest Speaker, leader, resource person, panelist, etc., in the various professional seminars, conferences, etc., with reference to the Philippine Pediatric Society and other organizations.

CARMELITA BELMONTE - CUYUGAN, M.D.
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U. S. T. HOSPITAL
SUITE 110 (GROUND FLOOR)
ESPAÑA STREET, SAMPALOC
MANILA

MAKATI MEDICAL CENTER
RM. 205 (SECOND FLOOR)
AMORSOLO STREET
MAKATI, RIZAL

RESIDENCE:
186 CALAMBA STREET
TALAYAN VILLAGE
QUEZON CITY

ANSWERS TO QUESTIONNAIRE RE: INFANT FORMULA BUSINESS.

1. No. The word 'prime' signifies "first". The primary cause or first in the list of causes of infant mortality in the Philippines are the "pneumonias". The second in the list are the "diarrheas". The ediology of the latter is due to various factors with infant formulas being one of the remote causes, which may be due to unhygienic preparation, contamination and faulty mixtures.

2. Yes. In the absence of breast milk or the inability of the mother to breastfeed her baby, the infant formula would be the best possible and most easily available milk praparation for the baby.

3. Evaporated milk and sweetened condensed milk: whether made from whole cow's milk, or filled milk or reconstituted milk, were the supplemental foods used for Filipino infants. Such supplemental foods may not safisfy the nutrient or caloric requirements of our infants unless correctly prescribed by pediatricians, family physicians, together with adequate and careful instructions regarding the preparation, sterility and proper administration of these types of milk. In particular, the use of sweetened condensed milk is not without danger, since this usually results into fat but flabby babies with inadequate protein intake, thus contributing to the high incidence of malnutiriton in our country.

4. No, certainly not, for the reasons already stated in question No. 3. Besides, the use of infant formulas when correctly computed, prepared and administered, produce healthier babies, taking into consideration that their use in infant feeding is the second best type after breastfeeding, for after all, "mother's milk is the best type of milk for the baby."

5. No, because the 'poor' families can not afford these infant formulas primarily due to economic reasons.

6. This criticism is baseless. We, the medical and paramedical groups believe with candor and empathy and firm conviction, that "breast milk is the most ideal type of milk for the baby," and that infant formula is the second best substitute in the absence or unavailability of mother's milk. Therefore, with this in mind, donations of infant formula to the hospital nurseries and other infant formula products to physicians by the infant formula manufacturers, will in no way influence the judgement of the physicians or nursing personnel in recommending formula feeding over breastfeeding.

7. In developing countries like ours, especially where most hospital nurseries are inadequately equipped, donations of hospital equipment and/or supplies are a welcome treat. After all, a greater good is given to the greater number of infants. The wisdom of providing a healthier environment and more appropriate physical facilities for babies where nurseries are poorly equipped will redound to the benefits of the babies being served. Moreover, while these donations are given, there is a concrete understanding of the

adage "No strings attached." It is therefore understood that these donations are given in the spirit of charity, compassion and humanitarian service to our babies.

8. No. As has been mentioned, no amount of donations of hospital supplies and equipment made by infant formula manufacturers will affect our professional judgment in recommending the infant formula over breastfeeding, for the simple reason that, and we reiterate: "Mother's milk is the specific type of milk for the baby."

9. I consider this a "false" statement. While mothercraft nurses exert a very good and healthy influence on the mothers for correct and adequate baby care, encouraging mothers to breastfeed their babies come first and foremost in their activities. Moreover, mothercraft nurses are a great help to the new mothers in so far as correct practices in infant feeding, giving baby's bath, care of the cord, etc., are advocated, with special emphasis on hygiene, sanitation and freedom from infection, etc.

10. The infant formula companies have done and are doing wonders in connection with feeding practices, nutrition add care of infants in our country. Through their concerted efforts, they have certainly helped "bringing up baby right", fostering correct feeding practices and raising the standards of nutrition among our infants, and through their mothercraft nurses, babies tend to thrive better since the mothers are made aware of the importance of health education and proper health care of their babies. As far as the marketing practices are concerned, I am not too familiar regarding this matter and therefore I am not in any psotion to give my comments about them.

Carmelita Belmonte-Cuyugan, M.D.

CARMELITA BELMONTE-CUYUGAN, M.D.

May 5, 1978
U. S. T. Hospital, Manila

QUESTIONNAIRE RE INFANT FORMULA BUSINESS

1. Western critics say that infant formula is a prime cause of infant mortality. Do you agree that in the Philippines the use of infant formula is a prime cause of infant mortality?

2. If you do not agree with the above statement, do you feel there is a justified need for infant formula in the Philippines? What, in your opinion, are the benefits to be derived by Filipino mothers and infants on the use of infant formula?

3. Before the introduction of infant formula in the Philippines, what kind of supplemental food was used for Filipino infants? What were the problems, if any, in connection with the use of such supplemental foods?

4. Would you favor dropping the use of infant formula and returning to the use of supplemental food mentioned in the preceding number? Why?

5. Would you say there is widespread abuse of the use of infant formula among the poor families in the Philippines?

6. There have been criticisms in western countries that the distribution of free stock of infant formula to the hospital nurseries and that of free samples (of infant formula products) to physicians tend to influence the professional judgment of the nursery personnel and the physicians in recommending formula feeding over breastfeeding. Could you comment on this criticism?

7. Occasionally infant formula manufacturers, on the solicitation of the hospital administration, donate hospital equipment or hospital supplies to the nursery. Would you care to comment on whether this practice, that of infant formula manufacturers donating hospital equipment or supplies to under-equipped hospital nurseries, should continue or should be stopped? Please give the reasons in support of your view.

8. Are donations of hospital supplies and equipment important to you or your hospital? Would such donations made by the infant formula manufacturers affect your professional judgment in recommending formula feeding over breastfeeding?

9. Western critics say that mothercraft nurses exert improper and undue influence in discouraging breastfeeding in the Philippines. Would you comment on this statement?

10. Would you care to make a statement relative to what the infant formula companies (such as Mead Johnson Philippines Inc.) are doing in the Philippines in connection with (a) the feeding, nutrition and care of infants, and (b) its marketing practices

SIGNATURE OF INTERVIEWEE

Date : May 8/78
Place Rm 20, UERM Hospital, Manila

FE CANLAS DIZON, M. D.

President, Philippine Medical Women's Association

DIPLOMATE, AMERICAN BOARD OF PEDIATRIC

FELLOW, PHILIPPINE PEDIATRIC SOCIETY

ASSOCIATE PROFESSOR, UST FACULTY OF MEDICINE

CONSULTANT, UST HOSPITAL, MAKATI MEDICAL CENTER

QUESTIONNAIRE RE INFANT FORMULA BUSINESS

1. Western critics say that infant formula is a prime cause of infant mortality. Do you agree that in the Philippines the use of infant formula is a prime cause of infant mortality? No. According to the statistics from the National Intelligence Center gastroenteritis ranks fourth among the 10 leading causes of infant mortality.

2. If you do not agree with the above statement, do you feel there is a justified need for infant formula in the Philippines? What, in your opinion, are the benefits to be derived by Filipino mothers and infants on the use of infant formula? Yes. As a complimentary feeding to inadequate mothers milk if breast feeding is impossible.

3. Before the introduction of infant formula in the Philippines, what kind of supplemental food was used for Filipino infants? What were the problems, if any, in connection with the use of such supplemental foods? Evaporated milk and whole cows powdered milk. Construction of the right formula.

4. Would you favor dropping the use of infant formula and returning to the use of supplemental food mentioned in the preceding number? Why? No, to avoid inadequacies among mothers in constructing the right formula.

5. Would you say there is widespread abuse of the use of infant formula among the poor families in the Philippines? No

6. There have been criticisms in western countries that the distribution of free stock of infant formula to the hospital nurseries and that of free samples (of infant formula products) to physicians tend to influence the professional judgment of the nursery personnel and the physicians in recommending formula feeding over breastfeeding. Could you comment on this criticism?
The type of milk that should be provided should depend upon: acceptability, socio-economic status of the family; availability

7. Occasionally infant formula manufacturers, on the solicitation of the hospital administration, donate hospital equipment or hospital supplies to the nursery. Would you care to comment on whether this practice, that of infant formula manufacturers donating hospital equipment or supplies to under-equipped hospital nurseries, should continue or should be stopped? Please give the reasons in support of your view. No. This is alright provided the hospital is not founded to deal the donor's milk preparation.

8. Are donations of hospital supplies and equipment important to you or your hospital? Would such donations made by the infant formula manufacturers affect your professional judgment in recommending formula feeding over breastfeeding? No. Definitely not.

9. Western critics say that mothercraft nurses exert improper and undue influence in discouraging breastfeeding in the Philippines. Would you comment on this statement? This practice, unless the nurses are well oriented by administration, should be discontinued.

10. Would you care to make a statement relative to what the infant formula companies (such as Mead Johnson Philippines Inc.) are doing in the Philippines in connection with (a) the feeding, nutrition and care of infants, and (b) its marketing practices
a. It improved infant nutrition.
b. I am not familiar with marketing.

Le Carlos Dizon
SIGNATURE OF INTERVIEWEE

Date: May 5, 1978
Place: UST Hospital

CURRICULUM VITAE

DEAN BUENAVENTURA U. V. ANGTUACO, M.D., F.P.C.R., F.P.C.P., F.P.C.C., F.P.H.A.

PERSONAL DATA:

Nickname	:	"BENNY"
Birthday & birthplace	:	July 14, 1918 Binondo, Manila
Office addresses & Tel.	:	Angtuaco X-Ray Clinic 504 Juan Luna St., Binondo, Manila Tel. 48-24-74
Correspondence Address	:	P.O. BOX 2441, Manila
Residence address & tel.	:	55 Don Ramon Street corner Retire Street Talayan Village, Quezon City Tel. No.: 99-40-35

FAMILY DATA:

Wife	:	Susana Mubla-Chua Angtuaco, M.D.
Children	:	1. Marieta Linda Angtuaco-Ramirez Bachelor of Science in Commerce (B.S.C.) major in Accounting (St. Theresa's College Summa cumlaude & Valedictorian); Certified Public Accountant (C.P.A.), top-notcher; Master of Business Management (M.B.M.) Ateneo de Manila University. Formerly, Comptroller and Administrative Officer of the Asian Institute of Management (A.I.M.) Presently, Gen. Manager Philippine Shares
	:	2. Ernesto Virgilio Angtuaco Doctor of Medicine (M.D.), U.S.T. Class '72 Magna Cum laude with Internship at the Clark Airbase Hospital Graduate Resident in Radiology, University of Cincinnati, Ohio; Fellow in Radiology Jewish Gen. Hospital, McGill University, Montreal, Quebec, Canada
	:	3. Edgardo Jorge Angtuaco Doctor of Medicine (M.D.), U.P. Class '73 Honor Graduate with Internship at the U.P.-P.G.H. Medical Center Formerly, Intern at the Barnabas Medical Center, Livingston New Jersey Presently, Resident in Radiology, Boston City Hospital, Boston Massachusettes
	:	4. Marieta Gilda Angtuaco Doctor of Medicine (M.D.), U.S.T. Class '73 Cum laude with Internship at the Veterans Memorial Hospital Formerly, Intern at the St. Thomas Hospital, Akron, Ohio

Presently, Resident in OB-Gyn, State University of New York Medical Center, Buffalo, N. Y.

5. Enrico Emmanuel Angtuaco
Bachelor of Arts in Economics (A.B. with honors) Ateneo de Manila University Class Master of Business Management (M.B.M.) Class '74, Asian Institute of Management (A.I.M.) Formerly, Senior Consultant to the Secretary of Department of Agriculture Presently, Professorial Lecturer, Ateneo de Manila University, Maryknoll College, Philippine College of Commerce, Chairman, Dept. of Business Management, Adamson University

6. Marieta Bernadette Angtuaco
Bachelor of Science in Economics, majoring in Accounting and Mathematics, (University Scholar), University of the Philippines; Presently, Honor Program, Master of Business Management, U.P.

7. Edward Elmer Angtuaco
High School (honor graduate) Xavier School, Little Baguio, San Juan, Metro Manila

EDUCATIONAL & PROFESSIONAL ATTAINMENT:

Grade School	: Ateneo de Manila, 1933 (First Honors)
High School	: Ateneo de Manila, 1937 (Valedictorian with First Honors; Gold Medalist in Elocution, Debate, English and Latin)
Associate in Arts (A.A.) Pre-medicine	: Ateneo de Manila, 1939 (Summa cum laude)
Doctor of Medicine (M.D.)	: Faculty of Medicine & Surgery, University of Santo Tomas (U.S.T.), 1944 (magna cum laude) with Meritissimus in Revalida)
Philippine Board of Medical Examination	: May, 1945 (topnotcher)
Fellow in Radiology	: Philippine College of Radiology
Fellow in Gastroenterology	: Philippine College of Gastro-enterology
Fellow in Internal Medicine	: Philippine College of Physicians
Fellow in Cardiac Radiology	: Philippine Heart Association
Certificate of Specialty	: for Specialty in Internal Medicine from the Philippine Board of Internal Medicine, Inc. for Radiology from the Specialty Board of Radiology

SPECIAL TRAINING:

Diagnostic Radiology : 110th General Hospital, Manila 1946-47

Radiology and Nuclear Medicine - UST. Hospital, 1947-49

Refresher courses in Radiology : Albert Einstein Medical School, Philadelphia Pennsylvania, 1963
Graduate School, University Hospital University of Pennsylvania, 1963

OBSERVATION COURSES esp. in Medical Education & Medical School Administration:

Massachusetts General Hospital, Boston
College of Medicine, Vermont (Burlington)
Harvard Medical School, Boston
College of Medicine, University of Illinois
College of Medicine, Univeristy of Iowa
College of Medicine, Marquette University, Milwaukee, Wisconsin
College of Medicine, Georgetown University, Washington, D. C.

SPECIAL COURSES in Medical School Administration and Hospital Administration:

University of Vermont, Burlington, Vermont
Mary Fletcher Hospital, Burlington, Vermont
Degosbrand Hospital, Burlington, Vermont

Supervisory Management and Administrative Management - Ateneo de Manila, University Graduate School of Business

PRESENT POSITIONS:

Chairman, Executive Committee - Chinese General Hospital & Medical Center
Professor of Radiology (on leave) UST Faculty of Medicine & Surgery
Senior Radiologist - Cardinal Santos Memorial Hospital
Chinese General Hospital and Medical Center
Angtuaco X-Ray Clinic

Visiting Radiologist &/or Consultant:

UST Hospital
Veterans Memorial Hospital
Subic Bay Naval Hospital

Governor - Philippine National Red Cross

Director - Philippine Association of Medical Writers

President - Colegio Medico-Farmaceutico de Filipinas, Inc.

Chairman - Leukemia Foundation of the Philippines, Board of Trustees

Chairman - Committee on Distinguished Service Awards & other PMA Awards; Committee on Constitution & Bylaws, PMA

Hon. Adviser - M.C.U. Medical Alumni Association (life member)

MEMBERSHIP IN :

Philippine Medical Association
Manila Medical Society
Philippine College of Radiology
Philippine College of Physicians
Philippine College of Gastroenterology
Philippine Heart Association
Association of Philippine Medical Colleges
Rotary Club of Manila
Knight of Columbus, Council No. 1000
Padre Burgos Assembly (4th degree)
Ateneo Alumni Association (life member)
UST Alumni Association (life member)

PAST POSITIONS:

Dean	: Faculty of Medicine & Surgery, UST (1965-1971)
Chief of Radiology	: UST Hospital (1947-1969)
President	: PhilippineMedical Association (1964-65)
President	: Manila Medical Society (1961-62)
President	: UST Medical Association (1937-1959)
President	: Metropolitan Nutrition Council (1962-63) Manila Nutrition Council (1962-63)
President	: Philippine Federation of Nutrition & Related Agencies (1964-65)
President	: Filipino-Chinese Heart Foundation, Inc. (1970-74)
PMA representative	: Health Commission, UNESCO (1965)
Chairman, Project Committee	: Dr. Jose Rizal Memorial Foundation of the Philippines, Inc. (1970-73)
Chairman	: National Health Organizations of the Philippines (1970-1974)
Medical Director and Consultant	: Rural Volunteers Service, Philippines (RSVP)
Technical Consultant to the Senate of the Philippines	: Committee Health, Philippine-Senate (1965-68)
Member	: Medical Advisory Council to the Secretary of National Defense (1965-71)
Treasurer	: Catholic Physicians' Guild of the Philippines (1962)
President	: UST Faculty Club, Inc. (1961-63)
President	: Philippine Radiological Society (1963-64)
President	: Association of the Philippine Medical Colleges (1969-71)
Chairman	: Council of Deans of Philippine Medical Schools and Colleges (1969-71)
Member	: Philippine Board of Medical Education
Overall Chairman	: District Conference '78, RI District 382

Vice President for Development - Filemon D. Tanchoco Sr. Medical Foundation & Dean, College of Medicine, Manila Central University (1972-'77)

Chairman - Hospital Management Committee - MCU Hosp. (1972-'77
President : Rotary Club of Manila (1976-'77)
Barangay Captain : Barangay Tulayan

DELEGATE TO:

1. Philippine Medical Association Annual Convention - (yearly from 1954 up to the present)
2. 63rd Congress of Roentgenology & Nuclear Medicine - Montreal, Canada, 1963
3. 49th Congress of Radiology - Chicago, Illinois, 1963
4. World Medical Association Convention - New York City, Nov. 1963
5. Taiwan Medical Association Convention - Taipei, Nov. 1964
6. World Health Organization Inter-regional Conference of "Effective Teaching Methods in Medical Education" - Geneve, Switzerland, Nov. 1965
7. AID-ECC Fellow on Medical Education - USA - Oct.-Nov. 1964
8. 3rd World Congress in Medical Education - New Delhi, India - Nov. 1966
9. Hongkong-Taiwan Medical Congress - Taipei, April 1965
10. Conference on Teaching Family Planning in Medical Curriculum - University of Michigan, School of Medicine - Dec. 9-11, 1967
11. Macy Conference of Medical Education, New York City - Dec., 1967
12. Asian Conference of Family Planning Programs - Taipei, May, 1968
13. First National Conference of Medical Education - Manila, May 1969
14. Travelling Seminar on Medical Education - Singapore and Australia and Philippines - 1969
15. Second National Conference on Medical Education - Cebu City, 1971
16. Pre-Conference Seminars, A.P.M.C. - Manila, 1972
17. Third National Conference on Medical Education - Manila, 1975
18. Forth National Conference on Medical Education - Manila, 1975
19. Second Pre-Conference Seminars, APMC - Manila, 1976
20. Rotary District Conference - Cebu City, 1976
21. Rotary District Conference - Baguio City, 1975
22. Rotary District Conference - Quezon City, 1976
23. Rotary District Assembly - Pasig, 1976

SCIENTIFIC PUBLICATIONS:

Textbooks - "Fundamentals of Radiology & Nuclear Medicine"

Scientific papers on Radiology, Internal Medicine, Medical Education, etc. (subject-titles to be furnished on request)

AWARDS RECEIVED:

Most Active District Councilor - P.M.A., 1962

Most Active Committee Chairman - P.M.A., 1965

Outstanding Physician of the Year - Manila Medical Society, 1967

Distinguished Service Awards (Faculty) - UST 1968
Most Distinguished Medical Educator - Manila Medical Society June 1976

Rotarian of the Year - Rotary Club of Manila, RY 1974-75

Distinguished Service Award - Manila Nutrition Coordinating Council, July '75

Most Outstanding Rotarian in Club Service - Rotary Club of Manila RY 1975-76

Certificates/Plaques of Appreciation and/or Recognition from:

1. Rotary Clubs of the Philippines (Manila and Provincial clubs)
2. Lions Clubs in the Philipoines (Manila and provincial clubs)
3. Jayceas chapters in the Philippines (Manila and provincial clubs)
4. Kiwanis club of Manila
5. Y's Men Club in Manila
6. Knights of Columbus, Council #1000
7. Philippine Association of Midwives
8. Drug Association of the Philippines
9. Filipino Chinese Catholic Association
10. Philippine Cancer Society
11. Philippine National Red Cross
12. UST Medical Association
13. MCU Medical Association
14. Philippine Dental Association
15. Filipino Nurses Association
16. Philippine Tuberculosis Society
17. Component and Specialty-Affiliate Societies of the P.M.A.
18. Manila Nutrition Council

QUESTIONNAIRE RE INFANT FORMULA BUSINESS

1. Western critics say that infant formula is a prime cause of infant mortality. Do you agree that in the Philippines the use of infant formula is a prime cause of infant mortality?

Answer : Definitely No !

2. If you do not agree with the above statement, do you feel there is a justified need for infant formula in the Philippines? What, in your opinion, are the benefits to be derived by Filipino mothers and infants on the use of infant formula?

Surely and unconditionally, there is a justified need for infant formula in the Philippines, in as much as there is a significant number of nursing mothers, who are working for their livelihood, with many of them even malnourished.

3. Before the introduction of infant formula in the Philippines, what kind of supplemental food was used for Filipino infants? What were the problems, if any, in connection with the use of such supplemental foods?

The supplemental food, being used for Filipino infants, prior to the introduction of infant formula in the Philippines, consisted mostly of "AM" (rice water). This practice has led to the high incidence of malnutrition.

4. Would you favor dropping the use of infant formula and returning to the use of supplemental food mentioned in the preceding number? Why?

Certainly, no because the infant formula has, so far, corrected the previous malpractice of going non-nutritious supplemental foods as cited above.

5. Would you say there is widespread abuse of the use of infant formula among the poor families in the Philippines?

I do not believe so.

6. There have been criticisms in western countries that the distribution of free stock of infant formula to the hospital nurseries and that of free samples (of infant formula products) to physicians tend to influence the professional judgment of the nursery personnel and the physicians in recommending formula feeding over breastfeeding. Could you comment on this criticism?

While the western countries may have such criticisms, I do not believe "it holds any water" in our country. I firmly believe that our colleagues in the medical profession are matured and objective in their judgement, based purely and solely on the welfare and well-being of their patients. To believe otherwise would be an insult and at least, a slur on the judgemental attitudes and behavior of medical professionals

7. Occasionally infant formula manufacturers, on the solicitation of the hospital administration, donate hospital equipment or hospital supplies to the nursery. Would you care to comment on whether this practice, that of infant formula manufacturers donating hospital equipment or supplies to under-equipped hospital nurseries, should continue or should be stopped? Please give the reasons in support of your view.

Such practices of cooperation between drug companies and infant formula manufacturers and hospitals must and should continue, taking into consideration that most, if not all, hospitals in the Philippines do not enjoy subsidies, both governmental and/or private sectors.

8. Are donations of hospital supplies and equipment important to you or your hospital? Would such donations made by the infant formula manufacturers affect your professional judgment in recommending formula feeding over breastfeeding?

Yes, donations of hospital supplies and equipment are important to our hospitals. Such donations are made on the highest ethical level and certainly would not affect our professional judgement at all in any way.

9. Western critics say that mothercraft nurses exert improper and undue influence in discouraging breastfeeding in the Philippines. Would you comment on this statement?

There is a general need for western critics to be more careful in passing judgement on developing countries practices and attitudes, weighing out the realities and not be misguimded prejudiced and biased information without verification of facts.

10. Would you care to make a statement relative to what the infant formula companies (such as Mead Johnson Philippines Inc.) are doing in the Philippines in connection with (a) the feeding, nutrition and care of infants, and (b) its marketing practices

In my experience on this aspect, I sincerely believe that infant formula companies in the Philippines have adhered to the high ethics of promotion and marketing of their production and infact, have contributed significantly to the nutrition campaign of the country, especially amongst the poor and the needy.

M. Reyes M.D.

SIGNATURE OF INTERVIEWEE

Date : May 5, 1978
Place: Manila

QUESTIONNAIRE RE INFANT FORMULA BUSINESS

1. Western critics say that infant formula is a prime cause of infant mortality. Do you agree that in the Philippines the use of infant formula is a prime cause of infant mortality?
There is no basis for such contention.

2. If you do not agree with the above statement, do you feel there is a justified need for infant formula in the Philippines? What, in your opinion, are the benefits to be derived by Filipino mothers and infants on the use of infant formula?
There is definitely a place for infant formula in the country. More mothers are working and supplmentary feeding is needed, during working hours. In my opinion, this can be best given by milk approximating mothers milk which most infant formulas try to approximate.

3. Before the introduction of infant formula in the Philippines, what kind of supplemental food was used for Filipino infants? What were the problems, if any, in connection with the use of such supplemental foods?
Depends on the local rural areas, rice water, tubers and condensed milk were used. In the more affluent families wet nursing was employed.

4. Would you favor dropping the use of infant formula and returning to the use of supplemental food mentioned in the preceding number? Why?
Wet nursing is almost impossible these days. Rice water or tubers contains very little protein if at all. Condensed milk was favored in the rural areas because it does not need refrigeration. Palatable dilutions contained very little proteins and does not give the proper daily requirement. In cases where supplementation is needed, infant formula is the better choice.

5. Would you say there is widespread abuse of the use of infant formula among the poor families in the Philippines?
I cannot use the word abuse, in fact among the poorer families it is almost a luxury.

6. There have been criticisms in western countries that the distribution of free stock of infant formula to the hospital nurseries and that of free samples (of infant formula products) to physicians tend to influence the professional judgment of the nursery personnel and the physicians in recommending formula feeding over breastfeeding. Could you comment on this criticism?

I do not think that sampling influence me as a physician. At the first visit mothers are always recommended to breast feed their babies. It is only when supplement feeding is needed that infant formulas are prescribed. There are mothers who themselves refuse to breast feed, and therefore infant formulas are prescribed.

7. Occasionally infant formula manufacturers, on the solicitation of the hospital administration, donate hospital equipment or hospital supplies to the nursery. Would you care to comment on whether this practice, that of infant formula manufacturers donating hospital equipment or supplies to under-equipped hospital nurseries, should continue or should be stopped? Please give the reasons in support of your view.

no

To my knowledge when such donations are given, there are/strings attached. Such donations then would be beneficial to upgrade the hospital and the physicians are not influenced by these agreement, but will still prescribe what is best for the particular baby.

8. Are donations of hospital supplies and equipment important to you or your hospital? Would such donations made by the infant formula manufacturers affect your professional judgment in recommending formula feeding over breastfeeding?

No. My professional judgement is not influenced by any such donations even if they were given to me personally.

9. Western critics say that mothercraft nurses exert improper and undue influence in discouraging breastfeeding in the Philippines. Would you comment on this statement?

Mothercraft nurses has a place in health educating the mothers during their follow-up visits. They should be properly instructed what to do without indirdation. If at all their influence may only be the type of the brand of milk to be used.

10. Would you care to make a statement relative to what the infant formula companies (such as Mead Johnson Philippines Inc.) are doing in the Philippines in connection with (a) the feeding, nutrition and care of infants, and (b) its marketing practices

We think that they are practicing ethically. In a way, like in the US, most of these companies enhance researches by subsidising them. They promulgate seminars in the different parts of the Philippines for continuing medical education particularly Nutrition.

Simona C. Alegre, M.D.
SIGNATURE OF INTERVIEWEE

Date : May 8, 1975
Place: LCCRHMMC

SIRENA C. ALIKPALA, M.D.

U.P., College of Medicine, 1940

Diplomate, American Board of Pediatrics

Fellow, Philippine Pediatric Society

Fellow, American Academy of Pediatrics

Past President, Philippine Pediatric Society

Member, Philippine Medical Association

Member, Maternal & Child Health Association of the Philippines

Member, Philippine Medical Women's Association

Member, Association of Philippine Medical Colleges

At present: Professor and Chairman
Department of Pediatrics
UE-RM Memorial Medical Center

Senior Consultant
National Children's Hospital (Government)

Senior Consultant, Pediatrics
De los Santos Hospital

Visiting Priveleges (Pediatrics)
In all Metro Manila Hospitals

CURRICULUM VITAE

Name: Felix Estrada y Alisangco Born : June 16, 1917

Educational Background:

Primary - San Juan de Letran College, Manila Philippines
Intermediate - " " "
Secondary - " " " - 1931
College - " " " - 1933

Degree Obtained : M.D. (Cum Laude, Meritissimus) - University of Santo Tomas, Manila, Philippines, 1938

Postgraduate Training:

Externship, Internal Medicine, San Juan de Dios Hospital - 1938-39
Externship, Pediatrics, San Juan de Dios Hospital - 1940-41
Residency, Pediatrics, St. Paul's (UST) Hospital and UST Hospital - 1942-1952

University Appointments:

Faculty of Medicine & Surgery, University of Santo Tomas, Manila
Professor, June 1, 1963
Head, Department of Pediatrics, May 1, 1963 - August 31, 1969

Present Positions:

Dean, Faculty of Medicine & Surgery, University of Santo Tomas
Chairman, Faculty Council
Member, UST Hospital Governing Board

Professional Recognition and Awards:

Award of Merit (Pediatrics); Faculty of Medicine & Surgery, UST, 1971
Distinguished Service Award; Department of Pediatrics, Faculty of Medicine & Surgery; April 30, 1973
Outstanding Pediatrician Award; Philippine Pediatric Society;, 1972
Meritorious Service Award; University of Santo Tomas, 1972

Membership in Professional Societies:

Philippine Pediatric Society (Fellow; former Vice-President and Member, Board of Trustees)

Catholic Physicians' Guild of the Philippines (former Vice-President and Member, Board of Directors)

UST Faculty Association (former Member, Board of Directors)

San Juan Medical Society (Adviser)

Medical Missions, Incorporated (former Vice-President; Member, Board of Directors)

Membership ——

UST Medical Alumni Association

UST Medical Faculty Association

Philippine Medical Association

Philippine Society of Microbiology and Infectious Diseases

Association of Philippine Medical Colleges (Member, Executive Council)

Editorship of professional/educational/technical magazines:

Philippine Journal of Pediatrics (Editor-in-Chief)

Proceedings of Asian Congress of Pediatrics (Editor-in-Chief, 1974)

Handbook of Medical and Surgical Emergencies, UST Faculty of Medicine and Surgery (Editor), Sept. 1976

Textbook of Pediatrics and Child Health (Fe del Mundo, Editor); Associate Editor and Contributor, Section of Bacterial Infections, JMC Press, Manila, 1976.

Associate Editor, Santo Tomas Journal of Medicine

Member, Editorial Board, Journal of Philippine Medical Association

Publications:

1941 - 1977 - About 90 articles and editorials in the Philippine Journal of Pediatrics, Journal of Philippine Medical Association, UST Journal of Medicine, etc.

ANSWERS TO QUESTIONNAIRES RE INFANT FORMULA BUSINESS

1. No, since the word "prime" means "first", and it is known that pneumonias are by far the leading cause of infant mortality in the Philippines, and gastroenteritis, to which infant formulas may be remotely connected, comes as a far second cause, only about 1/3 of the deaths from pneumonias.

2. Yes, as with the inadequacy or absence of breast feeding, infant formulas, properly used, will maintain optimal infant nutrition.

3. Evaporated and powdered whole milk were formerly used. With these, a correct formula would have to be prescribed by competent pediatricians, physicians, or paramedical personnel, the preparation of which would have to be done meticulously and under aseptic conditions. There would be more opportunities for contamination as well as improper preparation with the use of whole milk derivatives.

4. No, for the reasons above mentioned. The use of infant formulas simplifies the preparation of the baby's feeding.

5. No, as poor families tend to use sweetened condensed milk rather than infant formulas due to the low cost of the former. Any abuse of infant formula would stem from ignorance in its use.

6. I would not consider the distribution of free stock or samples to exert any undue influence in making physicians or nurses recommend formula over breast feeding. If at all, the use of formula may be brought about by need or expediency, as well as hospital policy which does not allow babies outside the nursery during the mother's stay.

7. In hospitals which are underequipped and financially handicapped, the donation of equipment is always welcome from any source. The hospital administration should consider this matter of donations a "no strings attached" affair and avoid commitments to the donor.

8. Not particularly. To the second question, definitely not.

9. Proper surveys should be made to document this statement. As it is, it would depend on the orientation of the company for its nurses, although I don't think any company would deliberately or officially endorse any discouragement policy against well-known medical, pediatric and even governmental dictates.

10. In my opinion, the infant formula companies fill a definite need for good supplemental nutrition in case of inadequacy of breast milk or inability to breast feed, and help in the dissemination of proper nutritional knowledge to both medical and lay groups. They have contributed to the improvement in infant care throggh seminars and conferences for the former and instruction to the latter. I am not too conversant with marketing practices to make any definite comment about them.

Felix G. Estrada, MD.
May 4, 1978
Univ. of Sto. Tomas

30-982 O - 78 - 73

QUESTIONNAIRE RE INFANT FORMULA BUSINESS

1. Western critics say that infant formula is a prime cause of infant mortality. Do you agree that in the Philippines the use of infant formula is a prime cause of infant mortality?

   No.

2. If you do not agree with the above statement, do you feel there is a justified need for infant formula in the Philippines? What, in your opinion, are the benefits to be derived by Filipino mothers and infants on the use of infant formula?

   Yes.

   Working mothers can continue with their job at the same time providing nutrition for the infant. Infant is assured of a well balanced milk formula.

3. Before the introduction of infant formula in the Philippines, what kind of supplemental food was used for Filipino infants? What were the problems, if any, in connection with the use of such supplemental foods?

   No comment.

4. Would you favor dropping the use of infant formula and returning to the use of supplemental food mentioned in the preceding number? Why?

   No comment.

5. Would you say there is widespread abuse of the use of infant formula among the poor families in the Philippines?

   No, because the price of infant milk formula is beyond their reach.

6. There have been criticisms in western countries that the distribution of free stock of infant formula to the hospital nurseries and that of free samples (of infant formula products) to physicians tend to influence the professional judgment of the nursery personnel and the physicians in recommending formula feeding over breastfeeding. Could you comment on this criticism?

   No.

   I usually ask the mother whether she will breast feed the baby before I recommend an infant milk formula.

7. Occasionally infant formula manufacturers, on the solicitation of the hospital administration, donate hospital equipment or hospital supplies to the nursery. Would you care to comment on whether this practice, that of infant formula manufacturers donating hospital equipment or supplies to under-equipped hospital nurseries, should continue or should be stopped? Please give the reasons in support of your view.

   No comment.

8. Are donations of hospital supplies and equipment important to you or your hospital? Would such donations made by the infant formula manufacturers affect your professional judgment in recommending formula feeding over breastfeeding?

   No comment.

9. Western critics say that mothercraft nurses exert improper and undue influence in discouraging breastfeeding in the Philippines. Would you comment on this statement?

   No comment.

10. Would you care to make a statement relative to what the infant formula companies (such as Mead Johnson Philippines Inc.) are doing in the Philippines in connection with (a) the feeding, nutrition and care of infants, and (b) its marketing practices

    Infant formula manufactureres such as Mead Johnson Phils. Inc. have been very helpful in disseminating information regarding the feeding, nutrition and care of infants by sponsoring seminars and postgraduate courses to physicians and the paramedical group.

    Their marketing practices are ethical.

M. L. [signature]
SIGNATURE OF INTERVIEWEE

Date : 5/5/76
Place: UST Hospital

BIO DATA

NAME: MIGUEL L. NOCHE, JR. M.D.

GRADUATED: University of Santo Tomas
Faculty of Medicine & Surgery
1961

POSITION: Asst. Professor
University of Santo Tomas
Faculty of Medicine & Surgery
Department of Pediatrics

Consultant in Pediatrics &
Pediatric Allergy

- University of Santo Tomas Hospital
- Cardinal Santos Memorial Hospital
- Ospital Ng Maynila

Secretary - Phil. Pediatric Society
1976 - 1978

Vice-President - Phil. Society of
Allergology & Immunology
1977 - 1979

Chairman - Phil. Pediatric Society
Committee on Continuing Medical Education
1975 - 1976

QUESTIONNAIRE RE INFANT FORMULA BUSINESS

1. Western critics say that infant formula is a prime cause of infant mortality. Do you agree that in the Philippines the use of infant formula is a prime cause of infant mortality?
No, pneumonia is the number one cause of infant mortality in the Philippines.

2. If you do not agree with the above statement, do you feel there is a justified need for infant formula in the Philippines? What, in your opinion, are the benefits to be derived by Filipino mothers and infants on the use of infant formula?

Yes, there is a justified need for infant formula in the Phils.

Infant formula benefits working mothers and mothers with no sufficient breast milk. Infants are assured of proper nutrition.

3. Before the introduction of infant formula in the Philippines, what kind of supplemental food was used for Filipino infants? What were the problems, if any, in connection with the use of such supplemental foods?

Rice water, condensed milk and evaporated milk.

Frequent gastro-intestinal disturbances and vitamin deficiency were observed.

4. Would you favor dropping the use of infant formula and returning to the use of supplemental food mentioned in the preceding number? Why?

NO. For reasons mentioned in Number 3.

5. Would you say there is widespread abuse of the use of infant formula among the poor families in the Philippines?

There is no widespread abuse of the use of infant formula among the poor families in the Philippines. How can they? They could not afford it.

6. There have been criticisms in western countries that the distribution of free stock of infant formula to the hospital nurseries and that of free samples (of infant formula products) to physicians tend to influence the professional judgment of the nursery personnel and the physicians in recommending formula feeding over breastfeeding. Could you comment on this criticism?

I don't think the physicians are influenced because they consult the mother whether she would prefer breastfeeding er infant formula feeding.

7. Occasionally infant formula manufacturers, on the solicitation of the hospital administration, donate hospital equipment or hospital supplies to the nursery. Would you care to comment on whether this practice, that of infant formula manufacturers donating hospital equipment or supplies to under-equipped hospital nurseries, should continue or should be stopped? Please give the reasons in support of your view.

Donations to under-equipped hospital nurseries are always welcome. These donations will definitely benefit the mothers and infants in terms of better and improved service.

8. Are donations of hospital supplies and equipment important to you or your hospital? Would such donations made by the infant formula manufacturers affect your professional judgment in recommending formula feeding over breastfeeding?

Yes.

No, because I always ask the mother if she would prefer to breast feed her baby before I prescribe any formula.

9. Western critics say that mothercraft nurses exert improper and undue influence in discouraging breastfeeding in the Philippines. Would you comment on this statement?

I have never heard such practice at least in the hospitals I am connected.

10. Would you care to make a statement relative to what the infant formula companies (such as Mead Johnson Philippines Inc.) are doing in the Philippines in connection with (a) the feeding, nutrition and care of infants, and (b) its marketing practices

Infant formula companies such as Mead Johnson Phils. Inc. improve the nutritional condition of the babies by providing complete and well balanced milk formula. Infant formula manufacturers employ ethical marketing practices by promoting their milk formulas thru physicians and other paramedical group and not by means of mass media advertising.

SIGNATURE OF INTERVIEWEE

Date : 5/4/75

Place: Magsaysay Blvd, Manila

CURRICULUM VITAE

NAME : MANUEL VERGARA PANLILIO

ADDRESS : 423 Duke Street, Greenhills Village
3113 Mandaluyong, Rizal

TELEPHONE NUMBER: 78-16-95 ; 70-90-05

OFFICE ADDRESS : De Ocampo Memorial Medical Center
2921 Nagtahan, Sta. Mesa, Manila
Tel. No. 61-27-66 to 89

STATUS : Married

BIRTHPLACE : Mexico, Pampanga

BIRTHDAY : July 10, 1912

SCHOOLS ATTENDED

HIGH SCHOOL : Ateneo de Manila - April 1932

ASSOCIATE IN ARTS : University of the Philippines - April 1934

DOCTOR OF MEDICINE : University of the Philippines - April 1939

POST-GRADUATE TRAINING

- Postgraduate Rotating Internship: November 1939-October 1940
  Tayabas Provincial Hospital

- Army Basic Medical Field Service School: August 1941; Camp Murphy

- Fellowship in Pediatrics: August 1952-July 1953
  Letterman Army General Hospital
  California, San Francisco

- On the Job Training in Children Chest Diseases: January - July 1964
  Fitzemmons Army General Hospital, Denver, Colorado

PREVIOUS ASSIGNMENTS

- Private Practice : November 1940-July 1941

- Medical Officer (USAFFE): August 1941 until the Surrender of Bataan in 1942

- Reported to the Medical duty: April 1945 at Camp Murphy and assigned to Camp Murphy Dispensary until 1949

- Medical Officer 1949 at the V. Luna General Hospital

- Officer-in-Charge of the Pediatrics Section Medical Department - V. Luna General Hospital from 1959 to September 1966 when I retired

- Affiliate Instructor of the UST College of Medicine and Surgery 1953-1966 (for the Interns at the V. Luna General Hospital)

AFFILIATIONS/PAST POSITIONS IN MEDICAL SOCIETIES

- Federation of Private Medical Practitioners
  Secretary
  1958-60

- Quezon City Medical Society
  Secretary
  1960-63

- President
  1963-64

- Philippine Pediatrics Society, Inc.
  Board of Trustees
  1971-74 and again 1976

  Treasurer
  1974-76

PRESENT DESIGNATIONS

- Attending Pediatrician of the De Ocampo Memorial Medical Center; St. Luke's Hospital and V. Luna General Hospital; Manila Doctors Hospital & Cardinal Santos Memorial Hosp.

- Specialist, Philippine Pediatric Society
  Conferred February 9, 1972 (61)

- Fellow of the Philippine Pediatrics Society, conferred upon me June 29, 1971

- Asst. Medical Director De Ocampo Memorial Medical Center

MVP/lbg
9-22-76

CURRICULUM VITAE

ESPERANZA FIGUEROA-RIVERA, M.D., F.A.A.P., F.P.P.S.

ooOoo

Birthday & Birthplace	- September 23, 1931 in Cabanatuan City
Family Data	- Married to Mr. Celestino E. Rivera with five (5) children: 1. Ruby 2. Cristina 3. Anna Rachel 4. Celestino, Jr. 5. Rosalinda
Home Address	- #58 Buchanan St., Greenhills, San Juan, M.M.
Telephone	- 70-28-27 & 79-25-91
Office Address	- 137 Guadalupe St., MBS, Caloocan City
Telephone	- 35-39-12

EDUCATIONAL ATTAINMENT

Primary School	- Cabanatuan Institute, 1941
Intermediate School	- Cabanatuan Institute & Sta. Ana Elementary School, Manila, 1943
High School	- St. Scholasticas College, Manila & Nueva Ecija High School, 1947
Associate in Arts	- University of Sto. Tomas, 1949
Doctor of Medicine	- University of Sto. Tomas, 1954
Passed National Board Examination	- 1954

POST GRADUATE TRAINING

Georgetown University Hospital, Washington	- 1957-1959
Kings County Hospital, N.Y., U.S.A.	- 1959-1961
State University of New York Downstate Medical Center	- 1961
New York Hospital Cornell Medical Center	- 1958

PRESENT POSITIONS

Fellow, American Academy of Pediatrics
Fellow, Philippine Pediatric Society
Fellow, Philippine Society for Microbiology and Infectious Diseases
Diplomate, American Board of Pediatrics
Diplomate Member, Pan American Medical Association
Life Member, Philippine Medical Women's Association
Member, Philippine Medical Association
Member, American Public Health Association
Member, Association of Philippine Medical Colleges
Board of Trustee, Philippine Pediatric Society
President, Caloocan City Medical Society
Councilor, Philippine Medical Women's Association Caloocan-Malabon-Navotas Chapter
Member, Committee on Medical Practice, House of Delegates, Philippine Medical Association
Chairman, Committee on Special Projects, House of Delegates, Philippine Medical Asso.
Chairman & Professor, MCU-FDTMF, College of Medicine, Department of Pediatrics
Chairman, Committee on Arbitration and Liaison, Caloocan City Medical Society
Pediatric Consultant, Philippine National Railways Hospital
Pediatric Consultant, Manila Central University Hospital
Pediatric Consultant, G S I S Hospital
Pediatric Consultant, Cardinal Santos Hospital
Pediatric Consultant, Emmanuel Community Hospital
Overall Chairman, Executive Committee for Philippine Pediatric Society Annual Convention, 1978

PAST POSITIONS

Secretary, Philippine Pediatric Society, 1972-1974
Chairman, Committee on Health Education, Philippine Pediatric Society, 1976
Secretary, Sub-committee on Medical Education, House of Delegates, PMA, 1976
Vice-President, Caloocan City Medical Society, 1974-1975
P.R.O. & Chairman, Committee on Scientific Activities, PMWA-Caloocan-Malabon-Navotas Chapter, 1974-1976

DELEGATE TO

Asian Congress of Pediatrics, Makati, Rizal - 1974
International Congress of Pediatrics, Buenos Aires, Argentina - 1974
American Academy of Pediatrics, San Francisco, California -1974
Seminar on Tropical Pediatric Problems in Southeast Asia, Bangkok, Thailand, 1975
Second Asian Congress of Pediatrics, Jakarta, Indonesia - 1976
Philippine Medical Association House of Delegates Special Session, Cebu - 1977
XVth International Congress of Pediatrics, New Delhim India - 1977

SCIENTIFIC PUBLICATIONS

1959 - Effect of Certain Bilirubin Levels - Authors: Lois Johnson, E. Figueroa & M.L. Garcia, Published in Pediatric Research Society Journal, Nov. 1959 and AMA Journal of Disease of Children, Nov. 1959.

1961 - Kernicterus - Authors: Lois Johnson, E. Figueroa, F. Sarmiento and M.L. Garcia Published in AMA Journal of Disease of Children, March 1961.

1965 - Childhood Tuberculosis - Author: E. Figueroa-Rivera. Published in Philippine Scientific Journal. Nov. 1965, Vol. II

1968 - The Nephrotic Syndrome - E. Figueroa-Rivera. Published in Philippine Scientific Journal. Feb. 1968 Vol. XIII No. 3 pp. 7-11

1976 - Incidence of Prematurity in the Philippines. Authors: E. Figueroa-Rivera, L. Aguilar and H.G. Quinto. Published in Philippine Journal of Obstetrics & Gynecology. Nov. 1976 Vol. 1 No. 1 pp.61-68

1977 - Evaluation of a New Infant Formula on Filipino Babies. Authors: E. Figueroa-Rivera, and H.G. Quinto. Published in the Journal of the Philippine Medical Association, July-August, 1977. Vol. 53, Nos. 7-8 pp. 219-234

AWARDS

1965 - Certificate of Appreciation as Speaker
Central Tagalog District - Philippine Medical Association

1966 - Certificate of Appreciation as Speaker
Philippine Pediatric Society

1969 - Certificate of Appreciation as Chairman, Committee on Socials
6th Annual Convention, Philippine Pediatric Society

1970 - Certificate of Appreciation as Chairman, Committee on Registration
7th Annual Convention, Philippine Pediatric Society

1970 - Certificate of Appreciation
Elsie Gaches Village

1972 - Certificate of Appreciation as Speaker
MCU Medical Alumni Association

1972 - Certificate of Appreciation as Chairman, Committee on Ways and Means
Philippine Pediatric Society

1973 - Certificate of Appreciation as Chairman, Committee on Invitations
10th Annual Convention, Philippine Pediatric Society

1973 - Certificate of Appreciation as Co-Chairman, Committee on Souvenir and Souvenir Programs, 10th Annual Convention, Philippine Pediatric Society

1973 - Certificate of Appreciation as Speaker
MCU Medical Alumni Association

1973 - Distinguished Service Award
Olongapo City Medical Society

1973 - Certificate of Merit
Caloocan City Medical Society

1974 - Plaque of Appreciation as Chairman, Committee on Invitations and Programs
11th Annual Convention, Philippine Pediatric Society

1974 - Certificate of Appreciation as Guest Speaker
Baguio-Benguet Medical Society

1975 Certificate of Appreciation - Operation Save Your Heart
Caloocan City Medical Society

1975 - Certificate of Appreciation as Lecturer
Seminar on Chest Diseases, Philippine College of Chest Physicians

1975 - Distinguished Service Award
Caloocan City Medical Society

1975 - Certificate of Appreciation as Speaker
PPS Westmont Seminar, Philippine Pediatric Society - Bicol Chapter

1976 - Certificate of Appreciation as PRO and Chairman, Com. on Scientific Activities
PMWA-Caloocan-Malabon-Navotas Chapter

1976 - Certificate of Appreciation as Chairman, Committee on Health Education
Philippine Pediatric Society

1976 - Certificate of Appreciation, Association of Pediatric Societies of the Southeast Asian Region

1976 - Resolution of Appreciation
Manila Medical Society

1976 - Certificate of Attendance
Seminar on Leadership, Caloocan City Medical Society

1976 -Certificate of Attendance
Second Asian Congress of Pediatrics

1976 - Certificate of Appreciation as Moderator
MCU Medical Alumni Association

1976 Certificate of Attendance
MCU Medical Post-graduate Seminar

1977 - Plaque of Merit as Most Outstanding Physician for the year 1976
Caloocan City Medical Society

1977 - Plaque of Award as Most Outstanding Physician of Caloocan City for the year 1976
Philippine Medical Association

1977 - Certificate of Appreciation
Metrolpolitan Police Force, Northern Police District, Caloocan City

1977 - Certificate of Attendance
XVth International Congress of Pediatrics

1978 - Certificate of Appreciation as Guest Speaker
Hospital Ng Maynila Senior Medical Staff Organization

1978 - Certificate of Appreciations as Moderator
MCU Medical Alumni Association

1978 - Certificate of Attendance
1st Annual Convention & Fifth Anniversary
Maternal & Child Health Association of the Philippines

1978 - Certificate of Appreciation as Speaker
Camarines Sur Medical Society, Inc.

QUESTIONNAIRE RE INFANT FORMULA BUSINESS

1. Western critics say that infant formula is a prime cause of infant mortality. Do you agree that in the Philippines the use of infant formula is a prime cause of infant mortality?

No

2. If you do not agree with the above statement, do you feel there is a justified need for infant formula in the Philippines? What, in your opinion, are the benefits to be derived by Filipino mothers and infants on the use of infant formula?

Yes.
Infant formula offer ideal replacements for breast-milk if this is not available or the mother is working.

3. Before the introduction of infant formula in the Philippines, what kind of supplemental food was used for Filipino infants? What were the problems, if any, in connection with the use of such supplemental foods?

It has not come to my experience where infant formula was not available here.

4. Would you favor dropping the use of infant formula and returning to the use of supplemental food mentioned in the preceding number? Why?

No. Not enough calorie requirements (IN SUPPLEMENTAL FOOD)

5. Would you say there is widespread abuse of the use of infant formula among the poor families in the Philippines?

No, as a matter of fact many cannot afford it.

6. There have been criticisms in western countries that the distribution of free stock of infant formula to the hospital nurseries and that of free samples (of infant formula products) to physicians tend to influence the professional judgment of the nursery personnel and the physicians in recommending formula feeding over breastfeeding. Could you comment on this criticism?

The physicians come to know of available infant formula through trials either from their own experience or their patients. Therefore this is important for observation.

7. Occasionally infant formula manufacturers, on the solicitation of the hospital administration, donate hospital equipment or hospital supplies to the nursery. Would you care to comment on whether this practice, that of infant formula manufacturers donating hospital equipment or supplies to under-equipped hospital nurseries, should continue or should be stopped? Please give the reasons in support of your view.

In the Philippine setting, most hospitals are not subsidized. There is lack of available funds to adequately equip the hospital & render necessary service to the community. The milk manufacturers help can therefore be justified in this area.

8. Are donations of hospital supplies and equipment important to you or your hospital? Would such donations made by the infant formula manufacturers affect your professional judgment in recommending formula feeding over breastfeeding?

Yes. It improves the health services but does not necessary alter our judgement in choosing breast feeding or formula feeding. The former is of course always the choice.

9. Western critics say that mothercraft nurses exert improper and undue influence in discouraging breastfeeding in the Philippines. Would you comment on this statement?

Many mothercraft nurses are now giving instructions not only on breast feeding encouragements but on other health aids & practices as well.

10. Would you care to make a statement relative to what the infant formula companies (such as Mead Johnson Philippines Inc.) are doing in the Philippines in connection with (a) the feeding, nutrition and care of infants, and (b) its marketing practices

Infant formula companies offer instructional aids in the form of grants or sponsorship of scientific seminars towards improving nutrition & care of infants. The physicians specially in the rural areas benefit from this.

E P Murere
SIGNATURE OF INTERVIEWEE

Date : 5/5/78
Place: MPU Hoy

CRISPIN GO, M.D.

1. No.

2. Yes. Benefits derive -

   A) In the Philippines - there is a changing trend for a mother to work in order to add to the income of the family. The infant formula rea-ly comes handy.

   B) Some mothers need for social duties need to mixfeed their babies.

   C) Infant formula gives the mothers more leisure time hence more time to spend with husband and children and preserve a better relation with other members of the family.

3. Since supplemental foods used were bananbas, rice water, sweet potatoes, coconut juice - these foods are low in protein content hence there was high incidence of protein calories malnutrition.

4. No, I would not favor dropping the use of infant formula because in my opinion the advantages outweight the disadvantages.

5. Yes, I do think so. Among the poor families I strongly encourage them to breast-fed.!

6. There is no truth to the criticism - The only influence if any, is on the brand of infant formula prescribed.

7. IN MANY SMALL HOSPITALS IN THE RURAL AREA WHERE DONATIONS ARE REALLY NEEDED I DON'T SEE ANY HARM IN THE FORMULA MANUFACTURER IN DONATING.

8. A) No.
   B) No.

9. WELL, IT MIGHT EXERT UNDUE INFLUENCE BUT THE MOTHERCRAFT NURSE SHOULD BE LIMITED ONLY TO THE FOLLOW UP CASES REFERRED BY THE PEDIATRICIANS TO AVOID THE ABOVE.

10. THE INFANT FORMULA COMPANIES ARE DOING A GOOD JOB AND ARE VERY HELPFUL. THEIR MARKETING PRACTICES ARE VERY ETHICAL - SOME COMPANIES THAT PUTS OUT CONDENSE MILK, ETC. THRU T.V., RADIO, MAGAZINE AND NEWSPAPERS ADVERTISEMENTS MISLEAD SOME PARENTS IN THE CORRECT PRACTICE OF ARTIFICIAL FEEDING.

BIO DATA

1. UNIVERSITY OF SANTO TOMAS SCHOOL OF MEDICINE
2. AMERICAN BOARD OF PEDIATRICS
3. QUALIFIED AFFILIATIONS - PPS, PMA, PMWA
4. PAST PRESIDENT - PPS - DAVAO CHAPTER 1971-1972
5. HOSPITAL CONNECTIONS - PRIVATE PRACTICE, VISITING CONSULTANT FOR DDH, SFH AND BMH

30-982 O - 78 - 74

Crispin Go, M. D.
GEN. SURGERY

Cecilia Uy-Go, M. D.
PEDIATRICS

Address:
Clinic Hours: Clinic — L. Guerrero St., Davao City
A.M. — 9:00 — 12:00
P.M. — 3:00 — 6:00

Tel. Nos. 7-75-40
7-87-88

Patient's Name ..... Date .....

℞ Cecilia Uy-Go

University of Santo Tomas
School of Medicine
American Board of Pediatrics
- Qualified
Affiliations - PPS, PMA
PMWA
Past President PPS-Davao
Chapter - 1971-1972

Hosp-connections - Private
Practice. Visiting Consultant
for DPH, SPH & BMH

....., M.D.

Lic. No. .....

QUESTIONNAIRE RE INFANT FORMULA BUSINESS

1. Western critics say that infant formula is a prime cause of infant mortality. Do you agree that in the Philippines the use of infant formula is a prime cause of infant mortality? No

2. If you do not agree with the above statement, do you feel there is a justified need for infant formula in the Philippines? What, in your opinion, are the benefits to be derived by Filipino mothers and infants on the use of infant formula? Yes
Benefits derive - ① In the Phil. there is a changing trend for a mother to work in order to add to the income of the family - the infant formula really comes handy
② Some mothers need for social duties need to mixed fed their babies
③ Infant formula gives the mother more leisure time hence more time to spend with husband & children & preserve a better relation with the members of the family.

3. Before the introduction of infant formula in the Philippines, what kind of supplemental food was used for Filipino infants? What were the problems, if any, in connection with the use of such supplemental foods?
Some supplemental foods used were banana, rice water, sweet potatoes, coconut juice - this foods are low in protein content hence there was high incidence of Protein calorie malnutrition -

4. Would you favor dropping the use of infant formula and returning to the use of supplemental food mentioned in the preceding number? Why?
No, I would not favor dropping the use of infant formula because in my opinion the advantages outweight the disadvantages.

5. Would you say there is widespread abuse of the use of infant formula among the poor families in the Philippines? Yes, I do think so. Among the poor families I strongly encourage them to breast-fed -

6. There have been criticisms in western countries that the distribution of free stock of infant formula to the hospital nurseries and that of free samples (of infant formula products) to physicians tend to influence the professional judgment of the nursery personnel and the physicians in recommending formula feeding over breastfeeding. Could you comment on this criticism?

There is no truth to the criticism - The only influence if any, is on the brand of infant formula prescribed.

7. Occasionally infant formula manufacturers, on the solicitation of the hospital administration, donate hospital equipment or hospital supplies to the nursery. Would you care to comment on whether this practice, that of infant formula manufacturers donating hospital equipment or supplies to under-equipped hospital nurseries, should continue or should be stopped? Please give the reasons in support of your view.

In many small hospitals in the rural area where donations are really needed I don't see any harm in the formula manufacturer in donating -

8. Are donations of hospital supplies and equipment important to you or your hospital? Would such donations made by the infant formula manufacturers affect your professional judgment in recommending formula feeding over breastfeeding? (1) No

(2) No

9. Western critics say that mothercraft nurses exert improper and undue influence in discouraging breastfeeding in the Philippines. Would you comment on this statement?

Well, it might exert undue influence but the mothercraft nurse should be limited only to the follow up cases referred by the pediatrician to avoid the above

10. Would you care to make a statement relative to what the infant formula companies (such as Mead Johnson Philippines Inc.) are doing in the Philippines in connection with (a) the feeding, nutrition and care of infants, and (b) its marketing practices

The infant formula companies are doing a good job, are very helpful. Their marketing practices are very ethical. Some companies that put out condense milk, etc have T.V. Radio, magazine & newspaper Public Statements misled ~~[illegible]~~ some parents in the correct practice of artificial feeding - Cecilia [illegible]

SIGNATURE OF INTERVIEWFE

Date : May 5, 1978

Place: Davao city

Luis McIlargan (13)

1. The primary causes of infant mortality are malnutrition of mothers and baby's poor environment, sanitation and education, over-congestion and over-population.

2. There is a need for infant formula especially in urban areas for working mothers and among all mothers who have no milk or have very little milk.

3. Root crops, rice and rice gruel, fruits, they are all easily available. Preparation - inconvenient, time-consuming and is subject to contamination.

4. There is a time when supplemental foods available locally could be introduced to infant's diet but should not take the place of milk.

5. There could be no abuse because infant formula is considered a luxury among the poor.

6. My primary advice is always breast feeding. If for some reasons breast feeding could not be done, infant formula is the alternative for mothers who can afford. I am interested in the effects on my patient and do not consider free samples or otherwise to influence the choice of milk.

7. Both donors and recipients of such equipment must have an open mind and should be frank and honest to express their needs if under the table arrangements are made. If ulterior motives are implied, their practice should be stopped.

8. I have mentioned in no. 6 my judgment is based on experience or the assessment of results and effects. May I reflect, mother's milk is best for human babies and cow's milk is only an alternative.

9. Most mothers in urban areas have already made up their minds whether to breast feed or not before delivery sets in and, therefore, even if there are mothercraft nurses doing this, it is very insignificant. Even pediatricians meet this problem.

10. Majority of nursing mothers in the Philippines by necessity breast feed their babies. The infant formula companies have carried their marketing practices ethically and have supplemented health education regarding feeding practice, infant care and nutrition offered by health professionals.

13

Curriculum vitae - LUIS M. MADILANGAN M.D.

1. M.D - Univ. of the Philippines College of Medicine 1952

2. Resident in Pediatrics - University of Illinois Research & Education Hospitals - 1954-56

3. Fellow in Pediatric Cardiology 1956-1957
Univ. of Illinois Hospital
Cook County Children's Hospital -

4. Diplomate - American Board of Pediatrics 1957

5. Exchange professor in Pediatrics -
Kansas University Medical Center - 1964

Visiting professor of Pediatrics — 1974
Kitasato University, Japan
President - Philippine Pediatric Society - 1974-76
Professor and chairman -
Dept. of Pediatrics -
U.P - PGH Medical Center 1972 → present

QUESTIONNAIRE RE INFANT FORMULA BUSINESS 13

1. Western critics say that infant formula is a prime cause of infant mortality. Do you agree that in the Philippines the use of infant formula is a prime cause of infant mortality? The primary causes of infant mortality are malnutrition of mothers and babies poor environmental sanitation and education and relaxation and overpopulation

2. If you do not agree with the above statement, do you feel there is a justified need for infant formula in the Philippines? What, in your opinion, are the benefits to be derived by Filipino mothers and infants on the use of infant formula? for infant formula especially in urban areas for working mothers and many all mothers who have no milk or very little milk. There is a need

3. Before the introduction of infant formula in the Philippines, what kind of supplemental food was used for Filipino infants? What were the problems, if any, in connection with the use of such supplemental foods? Rice crops, Rice and rice gruel, fruits they are not easily available, preparation - inconvenient time consuming and is susceptible to contamination.

4. Would you favor dropping the use of infant formula and returning to the use of supplemental food mentioned in the preceding number? Why? There is a time when supplementary foods available locally could be introduced to the infants diet but should not take the place of milk.

5. Would you say there is widespread abuse of the use of infant formula among the poor families in the Philippines? There could be no abuse because infant formula is considered a luxury among the poor.

B

6. There have been criticisms in western countries that the distribution of free stock of infant formula to the hospital nurseries and that of free samples (of infant formula products) to physicians tend to influence the professional judgment of the nursery personnel and the physicians in recommending formula feeding over breastfeeding. Could you comment on this criticism?

My primary advice is always breastfeeding. If for some reasons breastfeeding could not be done - infant formula is the alternative for those who can afford. I am interested in the effects on my patient and do not consider free samples or otherwise to influence me in choice of milk.

7. Occasionally infant formula manufacturers, on the solicitation of the hospital administration, donate hospital equipment or hospital supplies to the nursery. Would you care to comment on whether this practice, that of infant formula manufacturers donating hospital equipment or supplies to under-equipped hospital nurseries, should continue or should be stopped? Please give the reasons in support of your view.

Both donors and recipients of such equipment must have an open mind and should be frank and honest to express their views if under-the-table arrangements are made. If ulterior motives are implied - this practice should be stopped.

8. Are donations of hospital supplies and equipment important to you or your hospital? Would such donations made by the infant formula manufacturers affect your professional judgment in recommending formula feeding over breastfeeding?

As mentioned in #6 my judgement is based on experience in the assessment of results and effects. May I repeat. Mother's milk is best for human babies. Cow's milk is only an alternative.

9. Western critics say that mothercraft nurses exert improper and undue influence in discouraging breastfeeding in the Philippines. Would you comment on this statement?

Most mothers in urban areas have already made up their minds whether to breast feed or not before delivery sets in and therefore, if ever there are mothercraft nurses doing this is very insignificant. Even pediatricians meet this problem.

10. Would you care to make a statement relative to what the infant formula companies (such as Mead Johnson Philippines Inc.) are doing in the Philippines in connection with (a) the feeding, nutrition and care of infants, and (b) its marketing practices

~~There is~~ majority of nursing mothers in the Philippines by necessity breast feed their babies - the infant formula companies have carried their marketing practices ethically and have supplemented health education regarding feeding practice, infant care & nutrition offered by health professionals.

~~[illegible]~~
SIGNATURE OF INTERVIEWEE

Date : May 3/78

Place: Manila, Philippines

University of the Philippines System
Philippine General Hospital
DEPARTMENT OF PEDIATRICS
Taft Ave., Manila

(14)

May 5, 1978
Manila Health Dept.
DR. VIRGINIA VILLANUEVA-MAGHIRANG

1. I do not agree that the use of infant formula is a prime cause of infant mortality in the Philippines.

2. Yes, I feel there is a justified need for infant formula in the Philippines. Benefits for the whole family in the sense that Filipino mothers can go on sharing with their husbands the burden of working for a better and happier family life, higher income, better foods, better clothings.

3. Rice gruel (am) was commonly used for Filipino infants. Plain water and sugar may have been a substitute but the problem lies in the fact that most supplemental food lacks the necessary nutrients needed for the infant's growth & health condition.

4. No. Because as mentioned most of the supplemental foods used are still being used by mothers especially of the low income group lack the necessary vitamins vital for the health of a growing infant.

5. Too much dilution of the formula is one of the abuses but maybe with a better health. Education programs shouldered by both public and private health workers these problems on infant formula will be solved.

6. Physicians and nursery personnel's prime objective is to encourage breast feeding. It is only when it is impossible for the mother to give her breast feeding for some reasons or another, or the infant himself refuses to suck from his mother's breasts, then formula feeding is recommended.

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7. I think it is a very nice gesture on the part of infant formula manufacturers to donate hospital equipment or supplies to under-equipped hospital nurseries. It is of great importance that Clinics should be well equipped for betterout of service.

8. Donation are important to the hospital for the benefit of its clients. I don't think this will affect professional judgement in recommending formula feeding over breastfeeding.

9. I don't think mothercraft nurses would exert improper and undue influence in discouraging breastfeeding, just to be able to sell their products. Anyway mothers are literate enough to know the advantages & disadvantages of both breastfeeding & artificial feeding.

10. I can only say that infant formula companies especially Mead Johnson Phil. Inc. are helping us a lot in our public service.

QUESTIONNAIRE RE INFANT FORMULA BUSINESS

14

1. Western critics say that infant formula is a prime cause of infant mortality. Do you agree that in the Philippines the use of infant formula is a prime cause of infant mortality?

I do not agree that the use of infant formula is a prime cause of infant mortality in the Philippines.

2. If you do not agree with the above statement, do you feel there is a justified need for infant formula in the Philippines? What, in your opinion, are the benefits to be derived by Filipino mothers and infants on the use of in fant formula?

Yes, I feel there is a justified need for infant formula in the Philippines. Benefits for the whole family in the sense that Filipino mothers can go on sharing with their husbands the burden of working for a better and happier family life, higher income, better foods, better clothing.

3. Before the introduction of infant formula in the Philippines, What kind of supplemental food was used for Filipino infant? What were the problems, if any, in connection with the use of such supplemental foods?

Rice gruel (am) was commonly used for Filipino infants, plain water and sugar may have been a substitute but the problems lies in the fact that most supplemental food lacks the necessary nutrients needed for the infant's growth & health condition.

4. Would you favor dropping the use of infant formula and returning to the use of supplemental food mentioned in the preceding number? Why?

No. Because as mentioned most of the supplemental foods used are still being used by mothers especially of the low income group lack the necessary vitamins vital for the health of a growing infant.

5. Would you say there is widespread abuse of the use of infant formula among the poor families in the Philippines?

Too much dilution of the formula is one of the abuses but maybe with a better health education programs shouldered by both public and private health workers these problems on infant formula will be solved.

14

6. There have been criticisms in western countries that the distribution of free stock of infant formula to the hospital nurseries and that of free samples (of infant formula products) to physicians tend to influence the professional judgment of the nursery personnel and the physicians in recommending formula feeding over breastfeeding. Could you comment on this criticism?

Physicians and nursery personnel's prime objective is to encourage breast feeding. It is only when it is impossible for the mother to give her breast for some reasons or another or the infant himself refuses to suck from his brother's breasts when formula feeding is recommended.

7. Occasionally infant formula manufactures, on the solicitation of the hospital administration, donate hospital equipment or hospital supplies to the nursery. Would you care to comment on whether this practice, that of infant formula manufacturers donating hospital equipment or supplies to under-equipped hospital nurseries, should continue or should be stopped? Please give the reasons in support of your view.

I think it is a very nice gesture on the part of infant formula manufacturers to donate hospital equipment or supplies to under-equipped hospital nurseries. It is of great importance that Clinic should be well equipped for benefit of service.

8. Are donations of hospital supplies and equipment important to you or your hospital? Would such donations made by the infant formula manufacturers affect your professional judgment in recommending formula feeding over breastfeeding?

Donations are important to the hospital for the benefit of its clients. I don't think this will affect professional judgment in recommending formula feeding over breastfeeding.

9. Western critics say that mothercraft nurses exert improper and undue influence in discouraging breastfeeding in the Philippines. Would you comment on this statement?

I don't think mothercraft nurses would exert improper and undue influence in discouraging breastfeeding, just to be able to sell their products. Anyway mothers are literate enough to know the advantages & disadvantages of both breastfeeding & artificial feeding.

10. Would you care to make a statement relative to what the infant formula companies (such as Mead Johnson Philippines Inc.) are doing in the Philippines in connection with (a) the feeding, nutrition and care of infants, and (b) its marketing practices.

I can only say that Infant formula Company especially Mead Johnson, that are keeping us a lot in our public service.

[signature] M.D.
SIGNATURE OF INTERVIEWER

Date : May 5, 1978
Place : Public Health Dept.

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Virginia Villanueva - Magbiang M.D.
U.S.T. Graduate 1957

Training & Experience -

1958 - 1961 - Fabella Memorial Hospital - OB-Gyne
1962 - Fabella Memorial Hospital - Pediatrics Dept
San Lazaro Hospital - Gastrointestinal Disease (Pediatrics)
1965 - Family Planning Seminar
1972 - Refresher course in Pediatrics
1976 - Restructured Health Care & Delivery System Postgraduate UP-PGH
1977 - Industrial Medicine - UP I.PH
1978 - Primary Health Care Seminar.

Member - Philippine Medical Association
Philippine Medical Women's Association
Manila Nutrition Council

Presently Employed -
Manila Health Department

Present Position -
Assistant District Health Officer
O/C - Lying In Clinic, Flying Squad
Domiciliary Obstetrical Service.
(Government clinic)

2421 Del Pilar Street
Santa Ana, Metro Manila
May 5, 1978

MR. E. E. ENRIQUEZ
Executive Vice-President
Mead Johnson, Philippines, Inc.
P.O. Box 1234, CCPO
Makati, Metro Manila

Dear Mr. Enriquez:

In reply to your letter of May 2, 1978, enclosed are the duly accomplished questionnaires on the subject of Infant Formula.

Relative to the above, I would tend to opine that the Infant Formula has tremendously helped in the health development of the infants' as well as the mother's health. It has been of great help particularly to mothers who are working or those who are suffering from some kind of illness or any health disturbance which makes it difficult for them to breast feed.

Also, I believe that the infant formula industry's marketing activities does not pose a potential threat to infant nutrition in the developing nations. Instead, they have contributed much to the infant's as well as the mother's welfare. Likewise, they have been most beneficial to hospitals and clinics who in turn are able to provide better health services which is vital for the welfare of the masses.

I trust that my above opinion will be of great help in your making future decisions on matters pertaining to infant formula.

Very truly yours,

Vasquez
MS. LOURDES E. VASQUEZ

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QUESTIONNAIRE RE INFANT FORMULA BUSINESS

1. Western critics say that infant formula is a prime cause of infant mortality. Do you agree that in the Philippines the use of infant formula is a prime cause of infant mortality?

   No. Based on my previous experiences, infant formula is relatively safe for infant feeding.

2. If you do not agree with the above statement, do you feel there is a justified need for infant formula in the Philippines? What, in your opinion, are the benefits to be derived by Filipino mothers and infants on the use of infant formula?

   Yes, I think there is a justified need for infant formula in the Philippines. This is beneficial to working mothers and to mothers with inverted nipples. This is also of great importance when the mother is sick or suffering from some illness.

3. Before the introduction of infant formula in the Philippines, what kind of supplemental food was used for Filipino infants? What were the problems, if any, in connection with the use of such supplemental foods?

   During those times, evaporated milk and condensed milk were used in infant feeding. The problems from the use of this food supplement arose due to wrong formulation, improper storage, which caused milk to become stale, and lack of proper hygiene.

4. Would you favor dropping the use of infant formula and returning to the use of supplemental food mentioned in the preceding number? Why?

   No, I would not favor such move because the infant formula has been proven to be beneficial not only due to its nutritive effect on the baby but also for its practicality and convenience in preparation.

5. Would you say there is widespread abuse of the use of infant formula among the poor families in the Philippines?

   No, because the direction printed on each can is easy to understand and follow.

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6. There have been criticisms in western countries that the distribution of free stock of infant formula to the hospital nurseries and that of free samples (of infant formula products) to physicians tend to influence the professional judgment of the nursery personnel and the physicians in recommending formula feeding over breastfeeding. Could you comment on this criticism?

This is not true because the effect on the infant is of foremost consideration in recommending any feeding formula. We don't just recommend any brand because there are free samples given.

7. Occasionally infant formula manufacturers, on the solicitation of the hospital administration, donate hospital equipment or hospital supplies to the nursery. Would you care to comment on whether this practice, that of infant formula manufacturers donating hospital equipment or supplies to under-equipped hospital nurseries, should continue or should be stopped? Please give the reasons in support of your view.

I honestly believe that this practice is most beneficial not only to hospitals but also to patients because due to their improved facilities, the hospitals can improve their services, thereby preserving health and life and reducing mortality.

8. Are donations of hospital supplies and equipment important to you or your hospital? Would such donations made by the infant formula manufacturers affect your professional judgment in recommending formula feeding over breastfeeding?

Yes, these donations are important to me. The nutritive value and quality of the infant formula is of the foremost consideration in making our recommendations. The above may only partly affect choice between two brands of exactly the same qualities.

9. Western critics say that mothercraft nurses exert improper and undue influence in discouraging breastfeeding in the Philippines. Would you comment on this statement?

I do not think this is true.

10. Would you care to make a statement relative to what the infant formula companies (such as Mead Johnson Philippines Inc.) are doing in the Philippines in connection with (a) the feeding, nutrition and care of infants, and (b) its marketing practices

The infant formula companies in the Philippines are of tremendous help in raising a healthy and happy family. Their contributions to the improvement of humanity is of paramount importance that I think we can not do without them. Its marketing practices are fair, there is no undue influence exerted, and it teaches mothers the proper way of caring for their children.

Lourdes Vasquez

LOURDES E. VASQUEZ
SIGNATURE OF INTERVIEWEE

Date : May 6, 1978

Place: Vasquez clinic
Sta Ana, Metro M/A.

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BIO-DATA

PERSONAL DETAILS

Name	:	Lourdes Esteban Vasquez
Address	:	2421 Del Pilar Street Santa Ana, Metro Manila
Date of Birth	:	February 21, 1926
Civil Status	:	Single
Height	:	5'1"
Weight	:	138 lbs.
Religion	:	Roman Catholic

EDUCATIONAL QUALIFICATIONS

SCHOOL/ADDRESS	COURSE	DATE
Clinica de la Rosa, Herran Paco	Midwifery	1954 - 1955
Araullo High School	Secondary Education	

GOVERNMENT EXAMINATION PASSED

TYPE	GRADE	YEAR
Midwifery	78%	1956

EXPERIENCES

POSITION	INSTITUTION	DATE
Proprietor - Midwife	Vasquez Clinic 2421 Del Pilar Street Santa Ana, Metro Manila	1956 - Present
(Number of deliveried per month - more or less 48 average)		
Surgical Nurse	St. Anne's Hospital Del Pan Street, Santa Ana	1949 - 1952
Medical Technologist	Brokenshire Memorial Hosp.	1953

MEMBERSHIP IN ORGANIZATIONS

Chair person	Barangay 882, Zone 97	1974 - Present

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ORGANIZATIONS	POSITION	DATES
Pastoral Council, Sta. Ana Parish	Chair Person	1977 - Present
Family Rosary Crusade, Sta. Ana	Leader	1956 - Present
Our Lady of Mt. Carmel	Group Leader	1971 - Present

PERSONS WHO COULD BE REFERRED TO

Fr. Jesus Galindo
Parish Priest
Our Lady of the Abandon Parish
Santa Ana, Metro Manila

Dr. Rodolfo Garcia
Kasarinlan Street
Santa Ana, Metro Manila

Dra. Herminia Ibaviosa
Director
St. Anne's Hospital
Del Pan Street
Santa Ana, Metro Manila

BETHANY HOSPITAL
UNITED CHURCH OF CHRIST IN THE PHILIPPINES
SAN FERNANDO, LA UNION

CURRICULUM VITAE

Name	:	ANTONIO V. ORENCIA, M.D., F.P.C.S., F.A.C.S.
Residence	:	Bethany Hospital Compound, San Fdo., La Union
Date of Birth	:	March 15, 1928
Place of Birth	:	Agoo, La Union
Doctor of Medicine	:	University of the Philippines, 1954 Passed the Medical Board Examination given on August, 1954, with Certificate No. 12022 issued on January 25, 1955.
Resident Physician	:	Bethany Hospital, San Fernando, La Union, 1954-1956
Resident in Surgery	:	Lebanon Hospital, New York City, 1957-1958
Resident in Anatonical Pathology	:	Miami Valley Hospital, Dayton, Ohio, 1958-1961
Deputy Coroner	:	Montgomery County, Ohio, 1958-1961
Senior Resident Physician	:	Bethany Hospital, San Fernando, La Union, 1961-1966
Administrator	:	Bethany Hospital, San Fernando, La Union, 1966-1977
Medical Director	:	Bethany Hospital, San Fernando, La Union, 1966-present
Chief of Surgery	:	Bethany Hospital, San Fernando, La Union, 1966-present

Member:
Philippine Society of Pathologists since 1964
Philippine Obstetrical & Gynecological Society, 1972

Fellow:
Philippine College of Surgeons, 1972
American College of Surgeons, October 14, 1976

Chairman:
Elected Barangay Chairman in 1973, Barangay II, San Fdo., LU

Other Activities:
Past President, La Union Lions Club, 1967-1968
Past President, La Union Medical Society, 1967
Past President, La Union Toastmasters Club, Club No. 3717-U, 1970
Delegate, East Asia Christian Medical Workers Conference, Tozanzo, Gotemba, Japan, 1967.
Member, Board of Trustees, Union Christian College, San Fdo., L.U.
Corporate Secretary, Inter-Church Commission on Medical Care, 1973-73
District Councilor, Northwestern Luzon District, Phil. Medical Association, 1972-1973.
Certified Laparoscopist, Commission on Population, February 22, 1977
President, Community Rural Bank of San Gabriel (LU), Inc., San Gabriel, La Union.
Delegate, Bangkok, Thailand, January 28, 1974 to February 2, 1974 on Surgical Sterilization and Post-Conceptive Control.
Post-graduate Training, Kandang, Kerbau Hospital, Singapore, May 20 to June 1, 1974, on Surgical Training in Sterilization, Laparoscopic, Hysteroscopic & Culdoscopic Techniques, Mentrual regulation.
Clinical Congress, American College of Surgeons, Chicago, Illinois, October 11 to 15, 1976.
Vice-Chairman, La Union Boy Scout Council, 1975-1976
Member, Advisory Board, Community Chest Council of the Phil., 1975-1976
President, Association of Barangay Chairman, San Fernando, La Union
Member, International Editorial Advisory Committee, Population Reports, George Washington University Medical Center.

AWARDS:
Most Distinguished Alumni Award for 1970, Southern L.U. Nat'l High Sch.
Most Outstanding Lion, 1968
Most Outstanding Physician of the year, Phil. Med'l Ass. Award, 1971
Distinguished Service Award, 1973, Phil. Medical Association

Wife: Conchita Krider Apusen, Pharmacist, Medical Technologist, ASCP; Ex-Vice Mayor, San Gabriel, LU; BS Education; Manager, Com. Rural Bank of San Gabriel (LU), Inc.; Pres. Auxilliary LU Medical Society 1974.

4 Children: Anthony John; Alan Michael; Albert David; Angeli Katrina

A.V. Orencia

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QUESTIONNAIRE RE INFANT FORMULA BUSINESS

1. Western critics say that infant formula is a prime cause of infant mortality. Do you agree that in the Philippines the use of infant formula is a prime cause of infant mortality?

   -NO

2. If you do not agree with the above statement, do you feel there is a justified need for infant formula in the Philippines? What, in your opinion, are the benefits to be derived by Filipino mothers and infants on the use of infant formula?

   - Yes, for the reason that most Filipino mothers are poorly nourished.

3. Before the introduction of infant formula in the Philippines, what kind of supplemental food was used for Filipino infants? What were the problems, if any, in connection with the use of such supplemental foods?

   - Rice gruel, soft boiled eggs and mashed fruits - mostly bananas. There is no complete supplementary nourishment.

4. Would you favor dropping the use of infant formula and returning to the use of supplemental food mentioned in the preceding number? Why?

   - No.

5. Would you say there is widespread abuse of the use of infant formula among the poor families in the Philippines?

   - I do not believe so.

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6. There have been criticisms in western countries that the distribution of free stock of infant formula to the hospital nurseries and that of free samples (of infant formula products) to physicians tend to influence the professional judgment of the nursery personnel and the physicians in recommending formula feeding over breastfeeding. Could you comment on this criticism?
   - Most physicians that I know recommend breast feeding provided the nursing mother has adequate supply of breast milk; as to the giving of free ... stock to hospital nurseries and to physicians I believe that we have not met problems concerning the preferential recommendation of milk formulas. The donated stock of infant formulas are very insufficient. A variety of infant formulas are needed because of allergies.

7. Occasionally infant formula manufacturers, on the solicitation of the hospital administration, donate hospital equipment or hospital supplies to the nursery. Would you care to comment on whether this practice, that of infant formula manufacturers donating hospital equipment or supplies to under-equipped hospital nurseries, should continue or should be stopped? Please give the reasons in support of your view.
   - In the Philippines, practically all hospitals are having difficulty because of the regulatory pressures of government and more so of inflation. Any donation of any kind is welcome. As of the year 1977, 14 private hospitals closed and another 58 private hospitals have defaulted in amortizing their loans.

8. Are donations of hospital supplies and equipment important to you or your hospital? Would such donations made by the infant formula manufacturers affect your professional judgment in recommending formula feeding over breastfeeding?
   - Yes, donations are important. Time and again we get donations from our cooperating boards abroad being a church related institution and also for local pharmaceutical companies. Donations would not affect my professional judgment.

9. Western critics say that mothercraft nurses exert improper and undue influence in discouraging breastfeeding in the Philippines. Would you comment on this statement?
   - We do not have mother craft nurses in our part of the Philippines.

10. Would you care to make a statement relative to what the infant formula companies (such as Mead Johnson Philippines Inc.) are doing in the Philippines in connection with (a) the feeding, nutrition and care of infants, and (b) its marketing practices
    - a) They are contributing greatly to the improvement of infant nutrition in the Philippines.
      b) Marketing practices of pharmaceutical companies especially Mead Johnson, Phil. Inc. are ethical.

BETHANY HOSPITAL
United Church of Christ in the Philippines
San Fernando, La Union

Antonio V. Ohencia

ANTONIO V. OHENCIA, MD, FPCS, FACS.
SIGNATURE OF INTERVIEWEE
Medical Director

Date : May 5, 1978

Place: Bethany Hospital,
San Fernando, La Union

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QUESTIONNAIRE RE INFANT FORMULA BUSINESS

1. Western critics say that infant formula is a prime cause of infant mortality. Do you agree that in the Philippines the use of infant formula is a prime cause of infant mortality? No. We never experienced this since we established our nursery in 1960 and yet we have been giving infant formula throughout. In fact, we never heard before, that infant formula causes death in infants. Hence, we have no factual basis to even say, it is prime cause of death in infant mortality.

2. If you do not agree with the above statement, do you feel there is a justified need for infant formula in the Philippines? What, in your opinion, are the benefits to be derived by Filipino mothers and infants on the use of infant formula? Yes, there is a justified need for infant formula in the Phil. I may add and say, it is a necessity. The use of infant formula in our experience(in our nursery) gives the infant, fast growth, turgid muscles and better developed bones. On the other hand, Filipino mothers, especially those working mothers, cannot breast-fed regularly their babies. Infant formula comes in ready can be easily prepared even by their household help and can be stored and put out from the refrigerator when feeding times comes.

3. Before the introduction of infant formula in the Philippines, what kind of supplemental food was used for Filipino infants? What were the problems, if any, in connection with the use of such supplemental foods? Supplemental foods, such as rice water(rice broil), meat broths. But these supplements are not complete food for infants and usually lack the required nutritive value needed by infants. Besides, the infants are prone to develop gastro-intestinal disturbances with these feedings, thus causing alarm among mothers.

4. Would you favor dropping the use of infant formula and returning to the use of supplemental food mentioned in the preceding number? Why? With all the known success and satisfaction of mothers and doctors running nurseries, like us, giving infant formula to babies, I will not favor at all and there is no sense dropping the use of infant formula.

5. Would you say there is widespread abuse of the use of infant formula among the poor families in the Philippines? No. On the Contrary, poor families in the Phil. can hardly afford infant formula. Instead, they usually prefer condensed milk or filled milk. So I think, there is no occasion to say there is widespread abuse of the use of infant formula among poor families in the Philippines.

6. There have been criticisms in western countries that the distribution of free stock of infant formula to the hospital nurseries and that of free samples (of infant formula products) to physicians tend to influence the professional judgment of the nursery personnel and the physicians in recommending formula feeding over breastfeeding. Could you comment on this criticism?

This is not true. Free formula samples given, like any other drugs or medicines also given free is bound to prove itself, whether good or bad, by the results after taken. With our long experience with infant formula, it proved beyond doubt, its good results. Hence, the clamor of mothers and doctors to recommend the use of infant formula. Certainly, the good results is the recommendation itself.

7. Occasionally infant formula manufacturers, on the solicitation of the hospital administration, donate hospital equipment or hospital supplies to the nursery. Would you care to comment on whether this practice, that of infant formula manufacturers donating hospital equipment or supplies to under-equipped hospital nurseries, should continue or should be stopped? Please give the reasons in support of your view. Donations to under-equipped hospital nurseries is a welcome help, it should not be stopped, but this should not be interpreted as bribe, so that the infant formula will be recommended. As I said above, the good resultant effect of the formula is the recommendation itself. This cannot be requitted and the donation is beyond the point. With or without donation, the good results is the evidence itself. This is the controling factor not the donation.

8. Are donations of hospital supplies and equipment important to you or your hospital? Would such donations made by the infant formula manufacturers affect your professional judgment in recommending formula feeding over breastfeeding? Of course no. I repeat, that only the good results of the infant formula will speak for itself. There is need for a debate whether the formula is good or bad. Donation will not enhance the doctor's practice or income. But his prescribing good and potent drugs or infant formula will promote his practice and prestige, as his patients get well.

9. Western critics say that mothercraft nurses exert improper and undue influence in discouraging breastfeeding in the Philippines. Would you comment on this statement? In the first place, mothercraft nurses are no longer visiting our nurseries. It is also our policy in our hospital not to allow mothercraft nurses visiting us. We believe they cannot be of good help in solving our nursery problems.

10. Would you care to make a statement relative to what the infant formula companies (such as Mead Johnson Philippines Inc.) are doing in the Philippines in connection with (a) the feeding, nutrition and care of infants, and (b) its marketing practices

I make this comment without any intention to favor or praise any company. I give this impartial comment because I am asked in this questionaire. I say infant formula companies are doing or giving great help towards this direction. If they did not or if they do not, they could have been under severe criticism or attacks by clinics, hospitals or by the gov't itself and by all concerned. I can venture to say, without fear or contradiction, that they have contributed or are contributing a lot in feeding, nutrition and care of infants. And as to marketing practices, I can say from our experience and dealings with them, that they conduct it above board to our satisfaction.

JOSEFINA F. DE VENECIA-FERNANDEZ, MD
Signature of Interviewer
Owner & Medical Director, OVF Clinic & Lying-In Hospital, Dagupan City

Date : May 5, 1978

Place: Dagupan City

(b) Appointed Chairman, on Finance & Auditing Committee, Pangasinan Medical Society
(c) Member, Dagupan City & Pangasinan Specialists Association
(d) Associate Fellow, Philippine Obstetrical & Gynecological Society
(e) Member, Philippine Medical Association
(f) Awardee of Certificate of Merit as the Most Active District Councilor of the Year 1961 by the Pangasinan Medical Society

IV — 1963
(a) Reelected Treasurer, Pangasinan Medical Society
(b) Appointed Chairman, Finance Committee — Pangasinan Medical Society
(c) Member, Philippine Medical Association

V — 1964
(a) Member, Philippine Medical Association and Pangasinan Medical Society

VI — 1965
(a) Member, Philippine Medical Association and Pangasinan Medical Society
(b) Appointed Member, Committee On Scientific Sessions, Pangasinan Medical Society
(c) Member, Harvard Medical Alumni Association
(d) Bronze-Thanks Badge Award — The National Council Boy Scouts of the Phil., June 21, 1965

SCIENTIFIC PAPERS PUBLISHED

1. Ammiotic Fluid & Hydramnios (sole author), The Journal of the Pangasinan Medical Society, Vol. VIII No. 1, 1st Quarter, Jan. 5, 1961, pp. J10-J15; J28
2. Another Case of Febo Maternal Transfusion (co-author) by Drs. Arnold Rudolph, Abraham Abrahamov & Josefina de Venecia, The Journal of the Philippine Medical Association, Vol. 38, No. 2, Feb. 1962, pp. 134-137
3. Chromosome Studies of a Donkey-Grevy Zebra Hybrid (co-author) by K. Bernirschke, R. J. Low, L. E. Brownhill, L. B. Caday & J. de Venecia-Fernandez, The Chromosoma (Berlin) 15, 1 — 13 (1964)

VII — 1966
(a) Fellow-Philippine Obstetrical & Gynecological Society — July 6, 1966
(b) Fellow-Philippine College of Surgeons — Dec. 8, 1966
(c) Adviser, The Professional Ladies Club, Dagupan City April 15, 1966

VIII — 1968
(a) Elected President — Philippine Medical Women's Ass. Pangasinan Chapter.

Curriculum Vitae

OF

Dr. JOSEFINA DE VENECIA - FERNANDEZ

OBSTETRICIAN-GYNECOLOGIST

Address: Hospital De Venecia
Arellano Street, Dagupan City
Tel. 32-57

I — Dagupan Elementary School — 1938-1940
(a) Graduated as 3rd Honorable mention — Grade Six
(b) Graduated as 2nd Honorable mention — Grade Seven

II — Pangasinan High School — Dagupan City — 1945
(a) Graduated as Valedictorian — Fourth Year — Oct. 14, 1945
(b) Editor-In-Chief of "Mentor" — official organ of the Pangasinan High & Trade Schools
(c) President — Student Council — Pangasinan High School
(d) President — Fourth Year Class — Pangasinan High School
(e) Queen Josephine I — as Miss High School

III — University of the Philippines
A — College of Liberal Arts — Pre-medicine — 1946-48
1. Entrance Scholar
2. College Scholar — 1st & 2nd semester — 1st year
3. College Scholar — 1st semester — 2nd year
4. Graduated as Associate In Arts — 1948
5. Member — Sigma Delta Phi. U.P.

B — College of Medicine
1. Graduated in March 28, 1953

C — Extra Curricular Activities
1. Elected Sister Reporter (PRO) — 1st Yr. Med. Student of the Mu Sigma Phi Fraternity — Sorority — 1949-50
2. Elected Sister Recorder (Secretary) — 2nd Yr. Med. Student of Mu Sigma Phi Fraternity — Sorority — 1950-51
3. Elected Secretary of Medical Student Council — 1952 of the College of Medicine, U. P.
4. Elected Most Illustrious Sister (Vice-Pres.) — 3rd Yr. Med. of Mu Sigma Phi Fraternity — Sorority — 1951-52
5. Elected Most Exalted Sister (President) — 4th Yr. Med. of Mu Sigma Phi Fraternity — Sorority — 1952-53

6. Elected — 2nd Vice-President — 1950 Dagupan City Varsitarians Association

IV — Passed Physicians Examination given by the National Board of Medical Examiners on August 11 to Sept. 5, 1953

V — Registered Physician with Certificate No. 11946 dated January 28, 1954

VI — (a) Practicing Private Physician at Hospital de Venecia, Dagupan City — 1953-54
(b) Served as PRO of the Philippine Medical Women's Association, Dagupan City — 1954

POST GRADUATE STUDIES — USA

I — The University of Chicago — University Clinics
Given certificate for having served as:
(a) Junior Assistant Resident in Obstetrics & Gynecology, July 1, 1954 through June 30, 1955
(b) Assistant Resident in Obstetrics & Gynecology July 1, 1955 through December 31, 1955, at Chicago Lying In Hospital, Chicago, Illinois

II — Woman's Hospital — Division of St. Luke's Hospital, N.Y. City.
Given certificate for having served as:
(a) Third Assistant Resident on Obstetrical Service, January 1, through March 31, 1956
(b) Third Assistant Resident on Gynecological Service, April 1, through June 30, 1956

III — The New York University, City of New York — Dept. of Hospitals
Bellevue Hospital Center — New York City
Awarded certificate for having served as:
(a) Assistant Resident — Obstetrical & Gynecological Service at above Hospital, July 1, 1956 to June 30, 1957

IV — The Norwalk General Hospital — Norwalk, Connecticut, affiliated with New York University, New York City
Given certificate for having served as:
(a) Resident in Obstetrics — Gynecology from July 1, 1957 to June 30, 1958
(b) Associate Fellow — American Board of Obstetrics-Gynecology

V — Harvard University & Harvard Medical School, Boston, Massachusetts
Given three (3) certificates separately for having served as:
(a) Teaching Fellow in Obstetrics-Gynecology Pathology — Harvard College of Medicine for one year from July 1, 1955
(b) Resident in Obstetrics-Gynecology Pathology at the Free Hospital for Women, Brookline, Massachusetts, the teaching Hospital for Gynecology of Harvard University from July 1, 1958 to December 31, 1958
(c) Resident Pathologist of the Boston Lying in Hsopital, Boston, Massachusetts, the teaching Hospital for Obstetrics of Harvard University from January 1, 1959 to June 30, 1959

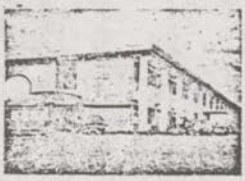
VI — Extra Curricular Activities
(a) Member of the University of Chicago Alumni Association
(b) Member of the Baker-Channing Society, the alumni of Free Hospital for Women & Boston Lying in Hospital, Harvard University — for scientific & social get-together meetings in Boston every three years
(c) Member of the Harvard Faculty Club and the Harvard Faculty and Staff — 1958-59

AS A PRACTITIONER AND ACTIVITIES

I — 1960
(a) Elected Councilor — Pangasinan Medical Society for Dagupan City
(b) Member, Philippine Medical Association
(c) Appointed Chairman, Committee for Special Events Division, Anti-TB Educational Fund Drive
(d) Elected Vice-President-Pangasinan Chapter, Philippine Medical Women's Association
(e) Head — Dept. of Obstetrics — Gynecology — Hospital de Venecia — Dagupan City

II — 1961
(a) University of the Philippines, Quezon City
1. Appointment as Instructor in Obstetrics (part time) in College of Medicine, U.P. without compensation, February 9, 1961 until May 31, 1962
2. Appointed Jr. Consultant in the Department of Obstetrics, Philippine General Hospital, Manila (Feb. 9, 1961 — May 31, 1962)
(b) Elected Secretary-Treasurer of the Pangasinan Chapter of the U.P. Medical Society, Inc.
(c) Delegate of the Pangasinan Medical Association to the 54th Philippine Medical Association Convention & 2nd Congress of the Confederation of Medical Association of Asia & Oceania — April 22-30, 1961, U.P. Diliman, Quezon City
(d) Member, Board of Judges for Scientific and Commercial exhibits of the Confederation of Medical Associations of Asia and Oceania and the Philippine Medical Ass.
(e) Member, Philippine Medical Association
(f) Member, Philippine Federation of Private Medical Practitioners, Inc.
(g) Elected, PRO, Pangasinan Chapter, Philippine Medical Women's Association

III — 1962
(a) Elected Treasurer, Pangasinan Medical Society



NUEVA ECIJA DOCTORS HOSPITAL
MEMBER, PHILIPPINE HOSPITAL ASSOCIATION
CABANATUAN CITY, PHILIPPINES

Telephone Nos. 963-2570 • 963-2670

(18)

Rolando S. Veneracion, M.D.
MEDICAL DIRECTOR
Marcelo Diaz, M.D.
CHIEF OF CLINICS

STAFF:

MEDICINE:
Francisco Marcelo, M.D.
Rolando S. Veneracion, M.D.
Gil Batangan, M.D.
Pedro S. de Guzman, M.D.

SURGERY:
Evigencio Ruiz, M.D.
Marcelo Diaz, M.D.
Francisco de Guzman, M.D.
Lorenzo Santarina, M.D.

PEDIATRICS:
Belen Llado, M.D.
Florida Francisco, M.D.
Rosita Borja-Santarina, M.D.
Epifania Sangle-Paez, M.D.

OB-GYNECOLOGY:
Hernando Cruz, M.D.
Angelina A. Marcelo, M.D.
Cristina Domingo, M.D.

ENT:
Tranquilino Paez, M.D.
Candido de Guzman, M.D.

ANESTHESIA:
Theresita Vera-Diaz, M.D.
Auran Talavera, M.D.

RADIOLOGY:
Benedicto Josen, M.D.

ADMINISTRATIVE OFFICER
Celestino Roque

B I O D A T A of Belen P. Llado, M.D.

1946-1948 - Pre-Med (A.A.) Centro Escolar University

1948-1953 - Doctor of Medicine, Manila Central University

1954-1955 - Post Graduate Internship, Nueva Ecija Provincial Hospital, Cabanatuan, Nueva Ecija

1955-1956 - Post Graduate Residency, Nueva Ecija P Provincia l Hospital, Cabanatuan, Nueva Ecija

1956-1957 - Post Graduate Internship, Laurence Hospital, Bronxville, New York, U.S.A.

1957-1959 - Residency in Pediatrics, St. Catherine Hospital, Brooklyn, New York, U.S.A.

1959-1961 - Residency in Pediatrics, St. Vincents Hospital with affiliation at New York Foundling Hospital, New York, New York, U.S.A.

1962-1968 - Consultant in Peditrics , Nueva Ecija Provincial Hospital, Cabanatuan, Nueva Ecija

1968 -present - Chief, Peditrics Dept., Nueva Ecija Doctors Hospital, Cabanatuan, Nueva Ecija

1962 - present - Active Member, Philippine Medical Associatic

- Active Member, Nueva Ecija Medical Society

1970 - present - Active Member, Philippine Medical Women's association

1970- present - Associate, Philippine Pediatric Society

1976 - Delegate to the Asian Congress in Peditrics, Jakarta, Indonesia

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QUESTIONNAIRE RE INFANT FORMULA BUSINESS

1. Western critics say that infant formula is a prime cause of infant mortality. Do you agree that in the Philippines the use of infant formula is a prime cause of infant mortality?

   No, I don't agree that the use of infant formula is a prime cause of infant mortality in the Philippines.

2. If you do not agree with the above statement, do you feel there is a justified need for infant formula in the Philippines? What, in your opinion, are the benefits to be derived by Filipino mothers and infants on the use of infant formula?

   Yes, I do feel that there is a justified need for infant formula in the Philippines. The use of infant formula will be very useful to the present generation of working Filipino mothers, and mothers with inadequate supply of breast milk, not to mention sick mothers with active PTB and epilepsy.

3. Before the introduction of infant formula in the Philippines, what kind of supplemental food was used for Filipino infants? What were the problems, if any, in connection with the use of such supplemental foods?

   Supplemental food commonly used for Filipino infants before the introduction of infant formula and even up to the present are: rice gruel, squash, potato, papaya and other native fruits.

4. Would you favor dropping the use of infant formula and returning to the use of supplemental food mentioned in the preceding number? Why?

   Of course, not. Infant formula can not be replaced by such supplemental food.

5. Would you say there is widespread abuse of the use of infant formula among the poor families in the Philippines?

   None, as far as I am concerned. Majority of infants in the rural areas are still being breast-fed.

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6. There have been criticisms in western countries that the distribution of free stock of infant formula to the hospital nurseries and that of free samples (of infant formula products) to physicians tend to influence the professional judgment of the nursery personnel and the physicians in recommending formula feeding over breastfeeding. Could you comment on this criticism?

I don't think so. It may influence the choice of a particular brand but not to the extent of discouraging breast feeding in favor of formula feeding.

7. Occasionally infant formula manufacturers, on the solicitation of the hospital administration, donate hospital equipment or hospital supplies to the nursery. Would you care to comment on whether this practice, that of infant formula manufacturers donating hospital equipment or supplies to under-equipped hospital nurseries, should continue or should be stopped? Please give the reasons in support of your view.

As of now, almost all hospitals in the Philippines are not earning enough to be able to purchase expensive hospital equipment. So I think donations to hospitals should continue indefinitely.

8. Are donations of hospital supplies and equipment important to you or your hospital? Would such donations made by the infant formula manufacturers affect your professional judgment in recommending formula feeding over breastfeeding?

It is important to both the pediatricians and the hospital in the management and care of sick as well as normal babies. No, it will not affect our professional judgement in recommending formula feeding over breast feeding.

9. Western critics say that mothercraft nurses exert improper and undue influence in discouraging breastfeeding in the Philippines. Would you comment on this statement?

As far as I know, they don't. As a matter of fact, they teach mothers how to feed and care for their babies properly.

10. Would you care to make a statement relative to what the infant formula companies (such as Mead Johnson Philippines Inc.) are doing in the Philippines in connection with (a) the feeding, nutrition and care of infants, and (b) its marketing practices

I think they are doing a great deal in disseminating information to mothers and prospective mothers on the proper feeding, nutrition and care of infants thru their medical literature, seminar, and mothercraft nurses.

P. Llado M.D.
Belen P. Llado, M.D.

SIGNATURE OF INTERVIEWEE

Date : May 6, 1978
Place: Cabanatuan City
Philippines

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QUESTIONNAIRE RE INFANT FORMULA BUSINESS

1. Western critics say that infant formula is a prime cause of infant mortality. Do you agree that in the Philippines the use of infant formula is a prime cause of infant mortality?
I do emphatically believe that it can't be a prime cause of Infant Mortality.

2. If you do not agree with the above statement, do you feel there is a justified need for infant formula in the Philippines? What, in your opinion, are the benefits to be derived by Filipino mothers and infants on the use of infant formula?
Definitely yes. There is a definite need for infant formula in the Philippines. The vast majority of Pilipino nursing mothers are poorly nourished. Therefore, infant formula is imperative so as not to aggravate the existing ill-health of the mothers. On the other hand the infants are benefited fully in the sense that they get adequate formula compared to breast feeding. A lot of Pilipino mothers can't supply adequate milk as needed for reasons of ill-health.

3. Before the introduction of infant formula in the Philippines, what kind of supplemental food was used for Filipino infants? What were the problems, if any, in connection with the use of such supplemental foods?
Of course, we have bananas, camotes citrus, cereals and a lot of Pilipino products but not strained to really suit the infant G-I tract. Most Pilipino infants developed G.I. problems such as diarrheas, vomiting and probably malabsorption syndromes.

4. Would you favor dropping the use of infant formula and returning to the use of supplemental food mentioned in the preceding number? Why?
No, I won't favor dropping the use of Infant formula because of the aforementioned reasons. Much more so, with the advent of financial scarcity, the poor mother has to get out and work to earn a living for survival.

5. Would you say there is widespread abuse of the use of infant formula among the poor families in the Philippines?

I would not say so. On the contrary, it adds mobility to the mother ~~to/to~~ to at least earn a little more for the family.

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6. There have been criticisms in western countries that the distribution of free stock of infant formula to the hospital nurseries and that of free samples (of infant formula products) to physicians tend to influence the professional judgment of the nursery personnel and the physicians in recommending formula feeding over breastfeeding. Could you comment on this criticism?

No physicians will ever sacrifice health care in favor of personal aggrandishment.

7. Occasionally infant formula manufacturers, on the solicitation of the hospital administration, donate hospital equipment or hospital supplies to the nursery. Would you care to comment on whether this practice, that of infant formula manufacturers donating hospital equipment or supplies to under-equipped hospital nurseries, should continue or should be stopped? Please give the reasons in support of your view.

It has to continue. Donations of equipment to hospitals, will definitely improve health delivery. I do personally believe that physicians nowadays are still within the realm of good norms and values.

8. Are donations of hospital supplies and equipment important to you or your hospital? Would such donations made by the infant formula manufacturers affect your professional judgment in recommending formula feeding over breastfeeding?

I, for one, do not usually ask for donations. If ever I do accept donations, Itwill not at all affect my professional judgement in any way.

9. Western critics say that mothercraft nurses exert improper and undue influence in discouraging breastfeeding in the Philippines. Would you comment on this statement?

I don't believe so. No physicain can ever deny that breast feeding is still superior than formula feeding. Futhermore, manufacturers donot at all say that content wise infant formula is better than breast milk.

10. Would you care to make a statement relative to what the infant formula companies (such as Mead Johnson Philippines Inc.) are doing in the Philippines in connection with (a) the feeding, nutrition and care of infants, and (b) its marketing practices

The practice of homevisits of Mead Johnson in particular does add to the proper evaluation of the efficacy of their products and therefore checking whether thay are properly delivered to the infant. with good results, there goes good marketing.

SIGNATURE OF INTERVIEWEE

RODOLFO R. SAN JUAN, M.D.
MEDICAL DIRECTOR
SAN JUAN LEONGSON GENERAL HOSPITAL
TAYTX$, RIZAL
PHILIPPINES

Date : MAY 5,1978

Place: San Juan Leongson Gen. Hosp. ~~Taytay, Rizal~~
Philippines

CURICULLUM VITAE

Graduated at the University of Santo Tomas, Manila, Philippines in 1958.

1959- Rotating Internship- White Plains Hospital- New York

1960- Residency in Pulmonary Diseases- Bergen Pines County Hospital
Paramus, New Jersey, USA

1961- Residency in Internal Medicine- Altoona Gen. Hospital
Altoona, Pennsylvania, USA

1962- Residency in Internal Medicine- St.Like's Hospital
Fargo, North Dakota, USA

1963- Residency in Internal Medicine- St. Luke's Hospital
Fargo, North Dakota, USA

Member: East Rizal Chamber of Commerce
Member: Taytay, Angono, Cainta Medical Association
Member: Philippine Hospital Association
Member: Philippine Medical Association
Member: (in-active) Rotary Club, Lions Club

(20)

GENEROSA SOLANO, M.D.

1. ACTUALLY, INFATN FORMULA WOULD NOT BE CONSIDERED AS THE PROPER CAUSE OF INFANT MORTALITY IN THE PHILIPPINES. HOWEVER, IN POOR PATIENTS WHERE IMPROPER OR NO STERILIZATION TECHNIQUE IS PRACTICED, BREAST FEEDING IS USUALLY ADVISED.

2. IN SOME CASES I STILL FEEL THAT INFANT FORMULA IS JUSTIFIED IN THE PHILIPPINES. LIKE IN MOTHERS WHO HAVE TO WORK OR NOT PERSONALLY WILLING TO BREASTFEED, WHO WOULD BE EMOTIONALLY DISTURBED IF YOU INSIST IN BREASTFEEDING, THEN I PERSONALLY THINK IT 'IS BEST FOR THESE GROUP OF MOTHERS TO GIVE INFANT FORMULA AS LONG AS PROPER TECHNIQUE OF PREPARATION IS PRACTICED.

3. THE MOST COMMON SUPPLEMENTAL FOODS WERE RICE WATER OR BOILED RICE WHICH CONSIST MOSTLY OF CARBOHYDRATES. MILK FORMULA WOULD BE GOOD SUPPLEMENTAL FOOD SINCE IT IS RICH IN PROTEIN.

4. I WOULD PERSONALLY ADVISE BREAST FEEDING IN THE FIRST SIX MONTHS OF LIFE AND SUPPLEMENT WITH INFANT FORMULA AND TO CONTINUE THE INFANT FORMULA UNTIL THE INFANT IS ONE TO ONE-AND-A-HALF YEARS OLD PLUS SOLID FOODS. THE COMMON SUPPLEMENTAL FOOD USED CONSIST MOSTLY OF CARBOHYDRATE.

5. AMONG POOR FAMILIES, I DON/T THINK THERE IS A WIDE SPREAD /THE USE OF ABUSE OF INFANT FORMULA BECAUSE FINANCIALLY THEY COULD NOT AFFORD.

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GENEROSA SOLANO, MD.
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6. PERSONALLY, I USUALLY CONVINCE THE MOTHERS TO BREAST FEED THE INFANT AND SUPPLEMENT WITH INFANT FORMULA OR SOMETIMES MIX FEED WITH BREAST MILK AND INFANT FORMULA.

7. IF THE HOSPITAL CAN AFFORD IT, I DON/T THINK THEY SHOULD ASK FOR DONATIONS.

8. NO.

9. AS FAR AS I KNOW MOTHERCRAFT NURSES COULD ONLY GIVE OR TEACH THE MOTHER THE PROPER CARE OF THE INFANT AND TEACH HOW TO PREPARE THE FORMULA OR HOW TO FEED BABIES EITHER BY BREAST MILK OR MILK FORMULA.

10. A) /ARE /SOME FORMULA COMPANIES REALLY HELPING IN INFANT CARE AND NUTRITION IN COOPERATION WITH SOME PHYSICIANS IN THEIR PROJECTS.

B) AS FAR AS MARKETING PRACTICES ARE CONCERNED THEY ARE QUITE ETHICAL.

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BIO DATA

1. GRADUATED 1958 - UNIVERSITY OF SANTO TOMAS, COLLEGE OF MEDICINE.
2. PEDIATRIC RESIDENCY - THREE YEARS (1961-1964) BINGHUMTON GENERAL HOSPITAL, NEW YORK.
3. DIPLOMATE, PHILIPPINE PEDIATRIC SOCIETY
4. PRESIDENT-ELECT - PHILIPPINE PEDIATRIC SOCIETY (CEBU CHAPTER)
5. CONSULTANT AND SECRETARY - PEDIATRIC DEPARTMENT - CEBU DOCTORS HOSPITAL, CEBU CITY, PHILIPPINES.
6. CHAIRMAN, DEPARTMENT OF PEDIATRICS, CEBU COMMUNITY HOSPITAL

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QUESTIONNAIRE RE INFANT FORMULA BUSINESS

1. Western critics say that infant formula is a prime cause of infant mortality. Do you agree that in the Philippines the use of infant formula is a prime cause of infant mortality? Actually, infant formula could not be considered as the proper cause of infant mortality in the Phil. However, in poor patients where improper or no sterilization technique is practised, breast feeding is usually advised.

2. If you do not agree with the above statement, do you feel there is a justified need for infant formula in the Philippines? What, in your opinion, are the benefits to be derived by Filipino mothers and infants on the use of infant formula? In some cases, I still feel that infant formula is justified in the Phil., like in mothers who have to work or not personally willing to breast feed & who would be emotionally ~~willing to breast~~ disturbed if you insist on breast feeding, then I personally think it is best for these group of mothers to give infant food as long as proper technique of dryness is practised.

3. Before the introduction of infant formula in the Philippines, what kind of supplemental food was used for Filipino infants? What were the problems, if any, in connection with the use of such supplemental foods? The most common supplemental food were rice water & boiled rice w/c consist mostly of carbohydrate. Milk formula would be good supplemental food since it is rice in protein.

4. Would you favor dropping the use of infant formula and returning to the use of supplemental food mentioned in the preceding number? Why? I would personally advise breast feeding in the 1st 6 mos of life & supplement w/ infant formula & continue infant formula until infant is one to 1½ yrs old plus solid food.

5. Would you say there is widespread abuse of the use of infant formula among the poor families in the Philippines? I don't think there is a widespread abuse of the use of infant formula in poor families in the Phil. because ~~personally~~ financially the can't afford.

6. There have been criticisms in western countries that the distribution of free stock of infant formula to the hospital nurseries and that of free samples (of infant formula products) to physicians tend to influence the professional judgment of the nursery personnel and the physicians in recommending formula feeding over breastfeeding. Could you comment on this criticism?

Personally, I unsuccessfully can minimize the mother to breast feed the infant & supplement w/ infant formula or sometimes mixed feed w/ breast milk & infant formula.

7. Occasionally infant formula manufacturers, on the solicitation of the hospital administration, donate hospital equipment or hospital supplies to the nursery. Would you care to comment on whether this practice, that of infant formula manufacturers donating hospital equipment or supplies to under-equipped hospital nurseries, should continue or should be stopped? Please give the reasons in support of your view.

If the hospital can afford I don't think they should ask for donations.

8. Are donations of hospital supplies and equipment important to you or your hospital? Would such donations made by the infant formula manufacturers affect your professional judgment in recommending formula feeding over breastfeeding?

No

9. Western critics say that mothercraft nurses exert improper and undue influence in discouraging breastfeeding in the Philippines. Would you comment on this statement? As far as mother-craft nurses are concerned they could only give or teach the mother proper care of the infant & teach how to prepare the former & how to feed babies either by breast milk or formula.

10. Would you care to make a statement relative to what the infant formula companies (such as Mead Johnson Philippines Inc.) are doing in the Philippines in connection with (a) the feeding, nutrition and care of infants, and (b) its marketing practices.

Some formula companies are really helping the phil. in infant care & nutrition by to cooperate with some physicians in their projects.

b) as far as their marketing practices are concerned they are quite ethical.

[signature] GENEROSA SOLANO
SIGNATURE OF INTERVIEWEE

Date : 5-6-78
Place: Manila

Remarks - We know very well the advantages of breast feeding over artificially feed infant, however infant formula has still some place in the phil. either in some cases & as supplemental food.

(21)

DR. SYLVIA MOLINA-DAYA

Academic Education : Doctor of Medicine, UST

Professional Qualifications : Pediatric Consultant,
Lucena Doctors' Hospital

Professional Affiliations : PPS, PMA, PMWA,
Maternal & Childhood Care of the Phil.

Title if Officer : Past Sec. - Quezon Medical Association
Past Sec. - PMWA, Quezon Chapter

Hospital Connections & Title : Pediatric Consultant,
Doctors' Hospital, Lucena City

PPS - Phil Ped. Soc.
PMA - " Med Assoc

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QUESTIONNAIRE RE INFANT FORMULA BUSINESS

1. Western critics say that infant formula is a prime cause of infant mortality. Do you agree that in the Philippines the use of infant formula is a prime cause of infant mortality? NO

2. If you do not agree with the above statement, do you feel there is a justified need for infant formula in the Philippines? What, in your opinion, are the benefits to be derived by Filipino mothers and infants on the use of infant formula? YES, lack in infant mal-nutrition.

3. Before the introduction of infant formula in the Philippines, what kind of supplemental food was used for Filipino infants? What were the problems, if any, in connection with the use of such supplemental foods?

= AM, RICE CEREAL, POTATOES, BANANAS, SQUASH.

= MORE INFANTS ARE SEEN WITH MAL-NUTRITION

4. Would you favor dropping the use of infant formula and returning to the use of supplemental food mentioned in the preceding number? Why?

NO, DUE TO INCREASED OF INFANTS WITH MAL-NUTRITION.

5. Would you say there is widespread abuse of the use of infant formula among the poor families in the Philippines? NO

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6. There have been criticisms in western countries that the distribution of free stock of infant formula to the hospital nurseries and that of free samples (of infant formula products) to physicians tend to influence the professional judgment of the nursery personnel and the physicians in recommending formula feeding over breastfeeding. Could you comment on this criticism?
NO, BECAUSE IN MY PERSONAL OPINION MOST OF MY MOTHERS ARE WORKING MOTHERS AND WOULD PREFER INFANT FORMULA THAN BREASTFEEDING.

7. Occasionally infant formula manufacturers, on the solicitation of the hospital administration, donate hospital equipment or hospital supplies to the nursery. Would you care to comment on whether this practice, that of infant formula manufacturers donating hospital equipment or supplies to under-equipped hospital nurseries, should continue or should be stopped? Please give the reasons in support of your view. SHOULD BE CONTINUED BECAUSE IT WILL BE A GREAT HELP TO THE HOSPITAL NURSERY.

8. Are donations of hospital supplies and equipment important to you or your hospital? Would such donations made by the infant formula manufacturers affect your professional judgment in recommending formula feeding over breastfeeding? 1. YES
2. NO

9. Western critics say that mothercraft nurses exert improper and undue influence in discouraging breastfeeding in the Philippines. Would you comment on this statement?
NO - MOTHER CRAFT NURSES IN ARE A BIG HELP TO THE PEDIATRICIAN (AND) ENCOURAGING MOTHERS FOR BREASTFEEDING.

10. Would you care to make a statement relative to what the infant formula companies (such as Mead Johnson Philippines Inc.) are doing in the Philippines in connection with (a) the feeding, nutrition and care of infants, and (b) its marketing practices
A) THEY ARE A BIG HELP IN DEMINISHING MALNUTRITION AND GREAT CARE TO INFANTS IN GIVING FREE SAMPLES OF THERR MILK FORMULA TO FREE CLINICS OF INDIGENT CHILDREN

S.V. Molina-Daya
SIGNATURE OF INTERVIEWEE
DR. SYLVIA MOLINA-DAYA

Date : May 4, 1977
Place: DOCTORS HOSPITAL, LUCENA CITY

Dr. Frederick Gokiatsu

(22)

1. No

2. Yes. Infant formula is the best substitute of breast milk. In the form of powder, it can be kept at home without refrigeration. It supplies the necessary proteins, fats & carbohydrates in proportion closest to mother's milk. It can be prepared anytime and anywhere when needed.

3. Condensed milk for those who can afford it, rice water, or carabao's milk. Carabao's milk are not always available. If available, they are usually adulterated. Condensed milk,& rice water are poor in proteins and fats. Filled milk was introduced to the public much later.

4. No. Carabao's milk are not always available. See above. Filled milk uses coconut oil for its fats and is not suitable during early infancy.

5. There is no wide spread abuse of the use of infant formula among the poor because the poor cannot afford it. They usually use condensed milk or filled milk.

6. Breastfeeding is always encouraged but most mothers prefer bottle feeding because they have to go to work & they want to preserve the normal contour of their breasts. Free samples cannot influence the judgement because they are not obliged to patronize the milk products given.

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-2-

7. Donating hospital equipments and supplies to under-equipped hospital nurseries should continue because those hospitals are not supported by the government or the community. A better equipped nursery in the long run will benefit the community.

8. No, the donations are not important to me or this hosptial. Donations by infant formula manufacturers does not affect my professional judgement in recommending formula feeding nor breastfeeding.

9. Mothercraft Nurses are supposed to carry out the orders of doctors when the mother and baby were discharged from the hospital. They cannot influence or discourage breastfeeding.

10. Mead Johnson Philippines, is one among the few companies supplying infant formula, vitamins and other products for the care and nutrition of infants in the Philippines. Like any formula and drug companies, Mead Johnson send detailmen promoting their products by supplying literatures and samples. In the states, the company supplies doctors milk supplies for the whole year.

FREDERICK GOKIATSU, M.D.
Interviewee

Date: May 4, 1978

-2-

Place: Metropolitan Hospital
Manila,

22

Curriculum Vitae

1942 - Graduated from the University of the Philippines - M.D.

1945 - 1948 - Resident physician, Chinese General Hospital Manila, Philippines.

1948 - 1951 - Resident in Pediatrics & Fellow at University of Maryland Hospital, Baltimore, MD.

1952 - 1965 - Pediatrician in charge, Chinese General Hospital, Manila, Philippines.

1968 - 1973 - Pediatrician in charge, Metropolitan Hospital Manila, Philippines -

1973 - 1978 - On leave.

1978 - - Senior Pediatrician Metropolitan Hosp.

Dr. FREDERICK GOKIATSU ~~GOKIATSU~~
METROPOLITAN HOSPITAL

22

QUESTIONNAIRE RE INFANT FORMULA BUSINESS

1. Western critics say that infant formula is a prime cause of infant mortality. Do you agree that in the Philippines the use of infant formula is a prime cause of infant mortality?

No

2. If you do not agree with the above statement, do you feel there is a justified need for infant formula in the Philippines? What, in your opinion, are the benefits to be derived by Filipino mothers and infants on the use of infant formula?

Yes. Infant formula is the best substitute of breast milk. In the form of powder, it can be kept at home without refrigeration. It supplies the necessary proteins, fats & carbohydrates in proportion closest to natural milk. It can be prepared anytime and anywhere when needed.

3. Before the introduction of infant formula in the Philippines, what kind of supplemental food was used for Filipino infants? What were the problems, if any, in connection with the use of such supplemental foods?

Condensed milk for those who can afford it, rice water, or Carabao's milk. Carabao's milk are not always available. If available, they are usually adulterated. Condensed milk & rice water are poor in protein and fats. Filled milk are introduced to the public market later.

4. Would you favor dropping the use of infant formula and returning to the use of supplemental food mentioned in the preceding number? Why?

No. Carabao's milk are not always available. See above. Filled milk can use coconut oil for its fats and is not suitable during early infancy.

5. Would you say there is widespread abuse of the use of infant formula among the poor families in the Philippines?

There is no widespread abuse of the use of infant formula among the poor because the poor cannot afford it. They usually use Condensed milk or filled milk.

6. There have been criticisms in western countries that the distribution of free stock of infant formula to the hospital nurseries and that of free samples (of infant formula products) to physicians tend to influence the professional judgment of the nursery personnel and the physicians in recommending formula feeding over breastfeeding. Could you comment on this criticism?

Breast feeding is always encouraged but most mothers prefer bottle feeding because they have to go to work & they want to preserve the normal contour of the breast. The samples cannot influence the judgement because they are not obliged to patronize the milk presented.

7. Occasionally infant formula manufacturers, on the solicitation of the hospital administration, donate hospital equipment or hospital supplies to the nursery. Would you care to comment on whether this practice, that of infant formula manufacturers donating hospital equipment or supplies to under-equipped hospital nurseries, should continue or should be stopped? Please give the reasons in support of your view.

Donating hospital equipment and supplies to under-equipped hospital nurseries should continue because these hospitals are not supported by the government or the community. A better equipped nursery in the city area will benefit the Community.

8. Are donations of hospital supplies and equipment important to you or your hospital? Would such donations made by the infant formula manufacturers affect your professional judgment in recommending formula feeding over breastfeeding?

No, the donations are not important to me or the hospital. Donations by infant formula manufacturers does not affect my professional judgment in recommending formula feeding over breastfeeding.

9. Western critics say that mothercraft nurses exert improper and undue influence in discouraging breastfeeding in the Philippines. Would you comment on this statement?

Mothercraft nurses are supposed to carry out the orders of doctors when the mother and baby were discharged from the hospital. They cannot influence or discourage breastfeeding.

10. Would you care to make a statement relative to what the infant formula companies (such as Mead Johnson Philippines Inc.) are doing in the Philippines in connection with (a) the feeding, nutrition and care of infants, and (b) its marketing practices

Mead Johnson Philippines is one among a few companies supplying infant formula, Vitamins and other products for the care and nutrition of infants in the Philippines. Like any formula and drug companies, Mead Johnson sends detail men promoting their products by supplying literature and samples. On the other, the company supplies doctors with supplies for the whole year.

SIGNATURE OF INTERVIEWEE

Date Dec 4/78

Place: Iloilo, Philippines

(23)

GREGORIO GLORIA FF M

1. I DISAGREE THAT IN THE PHILIPPINES THE USE OF INFANT FORMULA IS A PRIME CAUSE OF INFANT MORTALITY.

2. THERE ARE MOTHERS WHO DUE TO ILLNESS AND BECAUSE OF OCCUPATIONS THAT TAKE THEM OUT OF THE HOUSE DURING DAYTIME CANNOT BREAST FEED THEM. INFANT FORMULA ARE NECESSARY.

3. I WAS NOT AROUND BEFORE INFANT FORMULA WERE INTRODUCED SO I CANNOT ANSWER THE ABOVE QUESTION.

4. WE HAVE A PRACTICE OF KEEPING INFANTS MOSTLY ON MILK FEEDINGS UP TO AGE 4 MONTHS AND ALLOWING SUPPLEMENT OF FOODS AFTER. CEREALS ARE STARTED AT 4 MONTHS OF AGE.

5. THERE IS NO WIDE SPREAD ABUSE SINCE THE POOR FAMILIES ARE UNEMPLOYED - THE MOTHER STAYS AT HOME SO MOST BREAST FEEDING IS BEING DONE BY POOR MOTHERS. THEY SELDOM GIVE INFANT FORMULA.

6. WE ALWAYS ADVISE THE MOTHERS TO BREAST FEED BUT IF THEY CANNOT BREAST FEED THEM INFANT FORMULA ARE USED. THE FREE STOCK OF INFANT FORMULAS DOES NOT AFFECT OUR JUDGEMENT WITH REGARD TO THE SUPERIORITY OF BREAST FEEDING.

7. IF THE ABOVE WERE TRUE - IT MAY INFLUENCE THE PHYSICIAN WITH REGARD VARIOUS INFANT FORMULA BRANDS OVER ANOTHER INFANT FORMULA BRAND WHICH ARE ESSENTIALLY THE SAME AND NEVER INFLUENCES US OVER THE SUPERIORITY OF BREAST FEEDING. SO IF STOPPING DONATIONS WILL LEAD TO THE DECREASE IN PRICE OF MILK IT SHOULD BE STOPPED.

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8. WE CAN FUNCTION WITHOUT DONATIONS. AS I SAID BREAST FEEDING IS SUPERIOR TO BOTTLE FEEDING AND THIS IS STRESSED TO THE MOTHER.

9. I CANNOT COMMENT ON WHAT MOTHERCRAFT NURSES DO. I HAVE HAD NO DIRECT CONTACT WITH THE ABOVE - PROBLEM - SHOULD SUCH BE TRUE.

10. THE COMPANY SUPPLIES US WITH ENFAMIL, ALACTA, SOBEE, PROSOBEE, AND CASEC WITH POLYVISOL DROPS. THESE ARE THE MILK PRODUCTS WE OFTEN USE.

CASEC, SOBEE, PROSOBEE WE USE FOR MILK ALLERGIC CHILDREN AND FOR THOSE WITH LACTOSE INTOLERANCE FOLLOWING DIARRHEAS MOSTLY. WHATEVER MILK FORMULA IS CHOSEN BY THE HOSPITAL - THE COMPANY AT TIMES SUPPLY STARTER CANS - THE MOTHER MAY CONTINUE THIS IF SHE CANNOT BREAST FEED OR SHIFT TO A CHEAPER BRAND OF INFANT FORMULA REGARDLESS OF THE COMPANY MANUFACTURING THE MILK. MOST OF THE TIME MOTHERS WHO BREAST ALSO MIX FEED WITH INFANT FORMULA - ESPECIALLY WHEN THEY ARE AWAY FROM THE HOUSE. THIS WIDE CLAIM OF LESS GASTROENTERITIS AND RESPIRATORY INFECTIONS WHILE ON BREAST FEEDING IS KNOWN TO US - HOWEVER WE HAVE NOTICED IN OUR GASTROENTERITIS SECTION OF THE HOSPITAL THAT OUR INFECTIONS GASTROENTERITIS CASES ARE BEING BREAST FED BY MOTHERS AND DIARRHEA ALSO OCCURS DESPITE BREAST FEEDING SO I PERSONALLY FEEL THAT MAYBE THE FACTORS IN MILK IN THE PARTICULAR CASE IS INFERIOR BECAUSE OF THE MASSIVE GERM LOAD

23

(GASTROINTESTINAL TRACT). WE ARE SURPRISED TO KNOW THAT OUR DIARRHEA CASES (INFECTIONS) WERE BEING BREAST FED AT THE TIME OF THE DIARRHEA (WHOLLY BREAST FED).

MEAD JOHNSON SUPPORTS PEDIATRIC TEACHING SEMINARS IN VARIOUS REGIONS 4-6 X/YEAR - AND I UNDERSTAND OTHER SEMINARS (MEDICINE, OB, ETC.) FOR MEDICAL ADVANCEMENT OF MEDICAL PRACTITIONERS BRINGING SPECIALISTS TO VARIOUS REGIONS OF THE PHILIPPINES.

GREGORIO GLORIA FE M
PAGE -4-

BIO DATA

1. U.E.R.M.M.M. C. - PHILIPPINES (1964)

2. DIPLOMATE OF THE AMERICAN BOARD OF PEDIATRICS - 1971

TRAINED - UNITED STATES

A) INTERNSHIP - MEDICAL RESIDENCY (ONE YEAR) LUTHERAN HOSPITAL, CLEVELAND METROPOLITAN GENERAL HOSPITAL - 1965-67.

B) RESIDENCY - CHARITY HOSPITAL OF LOUISIANA - 1967-69.

C) THIRD YEAR PEDIATRICS (SUBSPECIALTIES)
CHILDRENS MEDICAL CENTER, UNIVERSITY OF OKLAHOMA,
OKLAHOMA CITY - 1969-70.

D) CHIEF RESIDENCY - CITY HOSPITAL
ST. LOUIS, MISSOURI - 1970-71.

3. PRESENTLY PEDIATRICIAN - SILLIMAN MEDICAL CENTER SINCE 1972 UP TO PRESENT.

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QUESTIONNAIRE RE INFANT FORMULA BUSINESS

1. Western critics say that infant formula is a prime cause of infant mortality. Do you agree that in the Philippines the use of infant formula is a prime cause of infant mortality?

I disagree that in the Philippines the use of infant formula is a prime cause of infant mortality

2. If you do not agree with the above statement, do you feel there is a justified need for infant formula in the Philippines? What, in your opinion, are the benefits to be derived by Filipino mothers and infants on the use of infant formula?

There are mothers who are due to illness and because of occupations that take them out of the house during daytime cannot breast feed them infant formulas are necessary.

3. Before the introduction of infant formula in the Philippines, what kind of supplemental food was used for Filipino infants? What were the problems, if any, in connection with the use of such supplemental foods?

I was not around before infant formulas were introduced so I cannot answer the above question.

4. Would you favor dropping the use of infant formula and returning to the use of supplemental food mentioned in the preceding number? Why?

We have a practice of keeping infants mostly on milk feedings up to the 4th or 5th month and allowing supplemental foods after. Cereals are started at 4 to 5 months of age.

5. Would you say there is widespread abuse of the use of infant formula among the poor families in the Philippines?

There is no wide spread abuse. Since the poor families are unemployed - the mother stays at home so most breast feeding is being

done by poor mothers. They seldom give infant formulas 23

6. There have been criticisms in western countries that the distribution of free stock of infant formula to the hospital nurseries and that of free samples (of infant formula products) to physicians tend to influence the professional judgment of the nursery personnel and the physicians in recommending formula feeding over breastfeeding. Could you comment on this criticism?

We always advise the mothers to breast feed - but if they cannot breast feed then infant formulas are used. The free stock of infant formulas does not affect our judgment with regard to the superiority of breast feeding.

7. Occasionally infant formula manufacturers, on the solicitation of the hospital administration, donate hospital equipment or hospital supplies to the nursery. Would you care to comment on whether this practice, that of infant formula manufacturers donating hospital equipment or supplies to under-equipped hospital nurseries, should continue or should be stopped? Please give the reasons in support of your view.

If the above were true - it may influence the physician with regard various infant formula brands over another infant formula brand which are essentially the same and never influences us over the superiority of breast feeding. So stopping donations will lead to the decrease in price of milk if should be stopped

8. Are donations of hospital supplies and equipment important to you or your hospital? Would such donations made by the infant formula manufacturers affect your professional judgment in recommending formula feeding over breastfeeding?

We can function with out donations. As I said breast feeding is superior to bottle feeding and this is stressed to the mother

9. Western critics say that mothercraft nurses exert improper and undue influence in discouraging breastfeeding in the Philippines. Would you comment on this statement?

I cannot comment on what mothercraft nurses do. I have had no direct contact with the above - problem - should such be true

10. Would you care to make a statement relative to what the infant formula companies (such as Mead Johnson Philippines Inc.) are doing in the Philippines in connection with (a) the feeding, nutrition and care of infants, and (b) its marketing practices

The company supplies us with Enfamil, Alacta, Sobee, Prosobee and Casec with Palyasol drops. These are the milk products we often use.

(Please refer to other page)

Gregoria Maria Fe M
SIGNATURE OF INTERVIEWEE

Date: 5-5-78

Place: Silliman Medical Center

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SILLIMAN UNIVERSITY MEDICAL CENTER
P. O. Box No. 49
Dumaguete City, 6501, Philippines

Casec Sobee, Prosobee we use for milk allergic children and for those with lactose intolerance following diarrheas mostly. Whatever milk formula is chosen by the hospital - the company at times supply starter cans - the mother may continue this if she cannot breast fed or shift to a cheaper brand of infant formula regardless of the company manufacturing the milk. Most of the time mothers who breast also mix fed with infant formulas - especially when they are away from the house. This wide claim of less gastroenteritis and respiratory infections while on breast feeding is known to us - however we have noticed in our gastroenteritis section of the hospital that our infectious gastroenteritis cases are being breast fed by mothers and diarrhea also occurs despite breast feeding so I personally feel that maybe the factors in milk in the particular case is inferior because of the massive germ load (gastrointestinal tract). We are surprised to know that our diarrhea cases (infectious) were being breast fed at the time of the diarrhea (wholly breast fed)

Mead Johnson supports Pediatric teaching seminars in various regions 4-6 x/year - and I understand other seminars (Medicine, OB etc) for medical advancement of medical practitioners bringing specialists to various regions of the Philippines.

> Biodata:

(1.) U.E.R.M.M.M.C. - Philippines (1964)

(2.) Diplomate of the American Board of Pediatrics - 1971.

Trained - United States

(a.) Internships - Medical Residency (one year) Lutheran Hospital, Cleveland Metropolitan General Hospital 1965-67.

(b.) Residency - Charity Hospital of Louisiana, Tulane Subdivision; New Orleans, Louisiana. 1967-69.

(c.) Third year Pediatrics (Subspecialties) Childrens Medical Center, University of Oklahoma, Oklahoma City, 1969-70.

(d.) Chief residency - City Hospital St. Louis Missouri. 1970-71.

(2) Presently Pediatrician - Sillimain Medical Center since 1972 - up to present. Gregorio Gloria F.M.

(24)

BETTY PARRENAS-FLORES, M.D.

1. No.

2. Yes, the only benefit is convenience for the working mothers.

3. Breast feeding was being done as to supplemental food-rice and corn grits (binlod)

4. No, but if possible I recommend breast feeding, not supplemental food.

5. No.

6. I don't believe in this. I use the formula depending upon the needs of the baby. Example I use routine Enfamil, but I encourage them breastfeeding, and they have the choice of milk after their baby goes home. In cases of jetteriness due to hypocaleenia, I prescribed S-26 since this has lower phosphate content.

7. This does not influence the pediatrician since infants condition is priority not to please infant formula manufacturers.

8. Not necessarily important. No.

9. Depends.Most mothers, even without them prefer artificially feeding, so they need education, especially the kind of formula since they use condensed milk for economic reason.

24

10. THE COMPANY, ESPECIALLY THE MOTHERCRAFT NURSES, HAVE HELPED IN THE UNDERSTANDING OF FEEDING, PROPER SANITATION AND HYGIENE, AND PREVENTIVE ASPECTS SUCH AS IMMUNIZATION.

24

BIO DATA

1. GRADUATE OF UNIVERSITY OF SANTO TOMAS - 1960.

2. PEDIATRIC SPECIALTY TRAINING
   A) IN PITTSFIELD AFFILLIATED HOSPITALS
      PITTSFIELD MASSACHUSSETTS
   B) CHILDREN'S MERCY HOSPITAL
      KANSAS CITY MISSOURI
   C) MEXICO CITY - INTERNATIONAL CONGRESS

3. SUBSPECIALTY TRAINING IN HEMATOLOGY & ONCOLOGY (FELLOWSHIP)
   A) CHILDRENS HOSPITAL MILWAUKEE
      MILWAUKEE, WINCONSIN
   B) CANCER SOCIETY AMERICAN
      DALLAS, TEXAS
   C) UNIVERSITY OF COLORADO
      DENVER, COLORADO

4. SECRETARY TREASURER OF NEGROS ORIENTAL SOCIETY - 1967 TO 1969.

5. PRESIDENT - NEGROS ORIENTAL MEDICAL SOCIETY - 1970.

6. HEAD, DEPARTMENT OF PEDIATRICS
   SILLIMAN UNIVERSITY MEDICAL CENTER

7. CHAIRMAN, COMMITTEE ON MEDICAL EDUCATION,
   SILLIMAN UNIVERSITY MEDICAL CENTER

24

QUESTIONNAIRE RE INFANT FORMULA BUSINESS

1. Western critics say that infant formula is a prime cause of infant mortality. Do you agree that in the Philippines the use of infant formula is a prime cause of infant mortality?

no

2. If you do not agree with the above statement, do you feel there is a justified need for infant formula in the Philippines? What, in your opinion, are the benefits to be derived by Filipino mothers and infants on the use of infant formula?

yes.
The only benefit is convenience for the working mothers.

3. Before the introduction of infant formula in the Philippines, what kind of supplemental food was used for Filipino infants? What were the problems, if any, in connection with the use of such supplemental foods?

Breast feeding was being done as to supplemental food — rice and corn grits (binlod)

4. Would you favor dropping the use of infant formula and returning to the use of supplemental food mentioned in the preceding number? Why?

no, but if possible I recommend breast feeding, not supplemental food.

5. Would you say there is widespread abuse of the use of infant formula among the poor families in the Philippines?

no

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6. There have been criticisms in western countries that the distribution of free stock of infant formula to the hospital nurseries and that of free samples (of infant formula products) to physicians tend to influence the professional judgment of the nursery personnel and the physicians in recommending formula feeding over breastfeeding. Could you comment on this criticism?

I don't believe in this. I use the formula depending upon the needs of the baby. Example I use pediatric Enfamil, but I encourage their breastfeeding and they have the choice of milk after the baby goes home. In cases of fillerness due to hypocalcemia, I prescribed 5-2.6 since this

next page

7. Occasionally infant formula manufacturers, on the solicitation of the hospital administration, donate hospital equipment or hospital supplies to the nursery. Would you care to comment on whether this practice, that of infant formula manufacturers donating hospital equipment or supplies to under-equipped hospital nurseries, should continue or should be stopped? Please give the reasons in support of your view.

This does not influence the pediatrician - since infants condition is priority not to please infant formula manufacturers

8. Are donations of hospital supplies and equipment important to you or your hospital? Would such donations made by the infant formula manufacturers affect your professional judgment in recommending formula feeding over breastfeeding?

Not necessarily important.

No

9. Western critics say that mothercraft nurses exert improper and undue influence in discouraging breastfeeding in the Philippines. Would you comment on this statement?

Depends. most mothers, even without them prefer artificially feeding, so they need education, especially the kind of formula since they use Condensed milk for economic reason

10. Would you care to make a statement relative to what the infant formula companies (such as Mead Johnson Philippines Inc.) are doing in the Philippines in connection with (a) the feeding, nutrition and care of infants, and (b) its marketing practices

Question #10 - In another sheet (attached)

PLS. SEE SIGNATURE

SIGNATURE OF INTERVIEWEE

IN Another sheet (attached) TOGETHER W/ ANSWER TO # 10 QUESTION.

Date : 5-5-78

Place: 3 11 MC

SILLIMAN UNIVERSITY MEDICAL CENTER
P. O. Box No. 49
Dumaguete City, 6501, Philippines

10. The company, especially the mother craft nurses, have helped in the understanding of feeding, proper nutrition and hygiene, and preventive aspects such as immunization.

SIGNED Bio data (OF INTERVIEWEE)
By: ✓ B Parreñas-Flores, M. D.

1. Graduate of University of Santo Tomas 1960
2. Pediatric Specialty Training in
   ① Pittsfield Affiliated Hospitals Pittsfield Massachusetts
   ② Children's Mercy Hospital Kansas City Missouri
   ③ Mexico City - International Congress
3. Sub specialty Training in Hematology & Oncology (Fellowship)
   ① Childrens Hospital Milwaukee milwaukee, Wisconsin

(2) Cancer Society American
Dallas, Texas
(3) University of Colorado
Denver, Colorado

4. Secretary Treasurer of Neg. Or. Society
1968 to 1969.
5. President - Neg. Or. Med Society 1970
6. Head, Department of Pediatrics
Tillman University medical Center
7. Chairman, Committee on medical
Education, Tillman University
medical Center

(25)

PACITA TAN-KHO, M.D.

1. No. I think malnutrition and infection rather than infant formula as the prime causes of infant mortality.

2. Yes, there is a justified need for infant formula in the Philippines.
   With the use of infant formula, a working mother can mixed feed or place her infant on a formula that can provide all the nutritional needs of the baby.

3. I don't know. The old folks claim they just gave rice, water or overcooked ground rice as supplemental food.

4. No. Infant formula is more nutritious than boiled ground rice.

5. No, because the poor families cannot afford infant formula so they breast feed their infants.

6. With or without the free samples, mothers would still need infant formula whether for mixed feeding or purely bottle feeding.

7. Without the help of the milk companies the under-equipped hospital nursery will remain under equipped. If the service of the nursery can be improved or made almost ideal because of their donations then I feel that donations should be continued.

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8. YES, IT DOES NOT AFFECT MY JUDGMENT IN RECOMMENDING FORMULA FEEDING OVER BREAST FEEDING BUT IT AFFECTS THE CHOICE OF THE KIND OF FORMULA FEEDING. I AM AN ADVOCATE OF BREASTFEEDING ± FORMULA.

9. I HAVE ALWAYS BEEN OF THE IMPRESSION THAT MOTHERCRAFT NURSES TEACH MOTHERS THE PROPER WAY OF INFANT FEEDING, WHETHER BREAST OR FORMULA, NOT TO DISCOURAGE BREAST FEEDING.

10. A) THE INFANT FORMULA COMPANIES SUPPLY THE NEED THAT WILL ALWAYS BE THERE BECAUSE BREAST FED INFANTS WILL STILL NEED OTHER SUPPLEMENTAL FOOD (I.E. MILK FORMULA) INDIRECTLY THEY HELP IMPROVE THE NUTRITION OF THE INFANTS.

B) THE PRACTICE OF PROVIDING FREE MILK HELPS THE HOSPITAL THAT IS USUALLY IN NEED OF FINANCIAL HELP. WHATEVER FINANCIAL HELP THE HOSPITAL GETS, IMPROVE THE SERVICE OF THE HOSPITAL AND THUS BENEFIT THE PATIENT (OR THE INFANTS)

BIO DATA

SCHOOL - UNIVERSITY OF THE PHILIPPINES

QUALIFICATION - DIPLOMATE, AMERICAN BOARD OF PEDIATRICS

PROF. AFFILIATION - MEMBER PPS (SPECIALIST)
MEMBER PMA

PAST PRESIDENT LOCAL PPS CHAPTER

HOSP. CONNECTION - PEDIATRIC CONSULTANT - MADONNA & CHILD HOSPITAL

25

PACITA TAN-KHO, M. D.
DIPLOMATE AMERICAN BOARD OF PEDIATRICS

PHILAMLIFE BLDG.
DON APOLINAR VELEZ ST.
CAGAYAN DE ORO CITY

TEL. NOS.:
CLINIC - 22-82
RES. - 48-48

School = University of the
Philippines

Qualification :
Diplomate, American
Board of Pediatrics

Prof. affiliation :
member PPS
(Specialist)
member PMA

Past President local PPS
chapter

Hosp. connection = Pediatric
consultant Madonna &
child Hospital

QUESTIONNAIRE RE INFANT FORMULA BUSINESS

25

1. Western critics say that infant formula is a prime cause of infant mortality. Do you agree that in the Philippines the use of infant formula is a prime cause of infant mortality? No. I think malnutrition, poverty is greater than infant formula as the prime cause of infant mortality.

2. If you do not agree with the above statement, do you feel there is a justified need for infant formula in the Philippines? What, in your opinion, are the benefits to be derived by Filipino mothers and infants on the use of infant formula?

Yes, there is a justified need for infant formula in the Philippines. With the use of infant formula, a working mother can provide food or place her infant on a formula that can provide all the nutritional needs of the baby.

3. Before the introduction of infant formula in the Philippines, what kind of supplemental food was used for Filipino infants? What were the problems, if any, in connection with the use of such supplemental foods?

I don't know. The old folks claim they just gave rice water or overcooked ground rice as supplemental food.

4. Would you favor dropping the use of infant formula and returning to the use of supplemental food mentioned in the preceding number? Why?

No. Infant formula is more nutritious than boiled ground rice.

5. Would you say there is widespread abuse of the use of infant formula among the poor families in the Philippines?

No, because the poor families can not afford infant formula so they must feed their infants.

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6. There have been criticisms in western countries that the distribution of free stock of infant formula to the hospital nurseries and that of free samples (of infant formula products) to physicians tend to influence the professional judgment of the nursery personnel and the physicians in recommending formula feeding over breastfeeding. Could you comment on this criticism?

With or without the free samples, mothers would still need infant formula whether for mixed feeding or purely bottle feeding.

7. Occasionally infant formula manufacturers, on the solicitation of the hospital administration, donate hospital equipment or hospital supplies to the nursery. Would you care to comment on whether this practice, that of infant formula manufacturers donating hospital equipment or supplies to under-equipped hospital nurseries, should continue or should be stopped? Please give the reasons in support of your view.

Without the help of the milk companies the under-equipped hosp. nursery will remain under equipped. If the service of the nursery can be improved or made almost ideal because of the donations then I feel that donations should be continued.

8. Are donations of hospital supplies and equipment important to you or your hospital? Would such donations made by the infant formula manufacturers affect your professional judgment in recommending formula feeding over breastfeeding?

Yes. It does not affect my judgment in recommending formula feeding over breastfeeding but it affects the choice of the kind of formula feeding. I am an advocate of breastfeeding ± formula feeding.

9. Western critics say that mothercraft nurses exert improper and undue influence in discouraging breastfeeding in the Philippines. Would you comment on this statement?

I have always been of the impression that mother-craft nurses teach mothers the proper way of infant feeding, whether breast or formula, not to discourage breast feeding.

10. Would you care to make a statement relative to what the infant formula companies (such as Mead Johnson Philippines Inc.) are doing in the Philippines in connection with (a) the feeding, nutrition and care of infants, and (b) its marketing practices

a) The infant formula companies supply the need that will always be there because breast fed infants will still need other supplemental food (i.e. milk formula) indirectly they help improve the nutrition of the infants.

b) The practice of providing free milk helps the hospital that is usually in need of financial help. Whatever financial help the hospital gets, improve the service of the hospital + thus benefit the patient (or the infants)

SIGNATURE OF INTERVIEWEE

Date: May 4, 1978

Place: Madonna & Child Hospital
Cagayan de Oro City

Pacita I. Kho

QUESTIONNAIRE RE INFANT FORMULA BUSINESS

(16)

1. Western critics say that infant formula is a prime cause of infant mortality. Do you agree that in the Philippines the use of infant formula is a prime cause of infant mortality?
   No, because No. 1 cause of infant mortality in the Philippines is Pneumonia and No. 2 is Gastroenteritis.

2. If you do not agree with the above statement, do you feel there is a justified need for infant formula in the Philippines? What, in your opinion, are the benefits to be derived by Filipino mothers and infants on the use of infant formula?
   Yes. The benefits derived - on the part of the mother - easy preparation and on the part of the infant - it is a complete infant formula.

3. Before the introduction of infant formula in the Philippines, what kind of supplemental food was used for Filipino infants? What were the problems, if any, in connection with the use of such supplemental foods?
   Evaporated milk and Powdered Whole Cow's Milk

4. Would you favor dropping the use of infant formula and returning to the use of supplemental food mentioned in the preceding number? Why?
   No, because they serve the purpose for infant nutrition.

5. Would you say there is widespread abuse of the use of infant formula among the poor families in the Philippines?
   No, because not all families especially the low income group use the infant formula. The most common milk used is condensed milk because of the high cost of the infant formula.

6. There have been criticisms in western countries that the distribution of free stock of infant formula to the hospital nurseries and that of free samples (of infant formula products) to physicians tend to influence the professional judgment of the nursery personnel and the physicians in recommending formula feeding over breastfeeding. Could you comment on this criticism?

This is not true. I always recommend breast feeding since there is no milk that can compare with mother's milk. But in the absence of mothers milk and a wet nurse milk, the infant formula is the best milk for infant feeding.

7. Occasionally infant formula manufacturers, on the solicitation of the hospital administration, donate hospital equipment or hospital supplies to the nursery. Would you care to comment on whether this practice, that of infant formula manufacturers donating hospital equipment or supplies to under-equipped hospital nurseries, should continue or should be stopped? Please give the reasons in support of your view.

Donations should continue because the under-equipped poor hospital nurseries need them.

8. Are donations of hospital supplies and equipment important to you or your hospital? Would such donations made by the infant formula manufacturers affect your professional judgment in recommending formula feeding over breastfeeding?

Yes, It will not influence my professional judgement because I always recommend first breast feeding before infant formula.

9. Western critics say that mothercraft nurses exert improper and undue influence in discouraging breastfeeding in the Philippines. Would you comment on this statement?

There is no survey done on this matter as far as my knowledge is concerned.

10. Would you care to make a statement relative to what the infant formula companies (such as Mead Johnson Philippines Inc.) are doing in the Philippines in connection with (a) the feeding, nutrition and care of infants, and (b) its marketing practices

They extend help to medical organizations in conducting research, updating physicians and education of masses in infant nutrition.

SIGNATURE OF INTERVIEWEE
Assist Professor
U of Santo Tomas

Date : May 5, 1977
Place: University of Santo Tomas

CURRICULUM VITAE

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Personal Data:

Name - - - - - - - - - - - - Isidora Yatco-Salamea, M.D.
Birthday - - - - - - - - - - December 15, 1915
Status - - - - - - - - - - - Widow
Husband - - - - - - - - - - Alberto L. Zalamea, M.D.
Address - - - - - - - - - - 1227 Ma. Y. Cruza, Ermita, Manila

Scholastic Data:

1929	Grade School	La Concolacion College, Manila
1933	High School	La Consolation College, Manila
1935	A.A.	University of Santo Tomas
1940	M.D.	University of Santo Tomas

Special Honors as Student:

High School — Salutatorian
Medical Board Exam., Preliminary, Nov. 1939 - 2nd Placer
Final, May 1940 - 6th Placer

Data on University Employment:

June 1947	Assistant Instructor, College of Medicine
June 1950	Instructor
July 1964	Assistant Professor
Dec. 1973	Associate Professor

Post-graduate Studies:

Resident - Sternberger Hospital for Women and Children, Greensboro North Carolina- an affiliate to Duke University, 1947-1948

Postgraduate Course in Pediatrics - University of Carolina, Chapel Hill, 1948

Observation Studies in Bellevue Hospital, N. Y. C. and Johns Hopkins Hospital in Baltimore and Department of Pediatrics, University of Pennsylvania in 1948.

Professional Recognition and Awards:

Specialist - Philippine Pediatric Society, 1963
Certificate of Appreciation - Medical Women's International Association, 1963

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Certificate of Appreciation - Philippine Academy of General Practice, Feb. 14, 1965

Silver Jubilee Certificate - U.S.T. 1963

Certificate of Appreciation - Philippine Pediatric Third Annual Convention, May 1966

Certificate of Appreciation - Philippine Pediatrics Fourth Annual Convention, May 1967

Certificate of Appreciation - Philippine Pediatrics Fifth Annual Convention, April 20, 1968

Service Award in the Field of Science - La Consolation Alumni Association, November 1968

Fellow - Philippine Pediatrics Society, December 1968

Certificate of Appreciation - as Chairman, Committee on Ways and Means, Philippine Pediatric Society, May 1969

Certificate of Appreciation - as Chairman, Committee on Socials, Philippine Pediatric Society, May 1969

Certificate of Appreciation - Over-all Chairman, Third Philippine Medical Women's Association, Westmont Post-Graduate and Refresher Course, Philippine Medical Women's Association, June, 27, 1970

Certificate of Recognition and Centennial Award - in Physiology and Pharmacology, UST, February 27, 1971

Silver Plaque Award - for 25 years service in UST, October 30, 1971

Certificate of Appreciation - As Chairman, Sub-Committee on Registration and Attendance, 8th PPS Annual Convention, Philippine Pediatric Society, June 8, 1971

Certificate of Appreciation - As Chairman, Committee on Membership and attendance, Philippine Pediatric Society, May 13, 1972

Certificate of Appreciation- As Co-Chairman, Sub Committee on Ways and Means, 9th PPS Annual Convention, Philippine Pediatric Society, May 1973.

Token of Appreciation (plaque) - As Co-Chairman, Committee on Publicity in the Asian Regional Conference on Family Planning held from January 6-11, 1974 in Manila in commemoration of the "World Population Year".

Testimonial Plaque - As Member, Movie Premier Group, Social Events Division of the 1973 Anti-TB Educational and Fund Campaign on February 15, 1974, City of Manila, by the Philippine

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Tuberculosis Society, Inc.

Certificate of Commendation - given by the UST Council No.4321 of the Knights of Columbus on Feb. 24, 1974 as Daughter of Isabela, UST Chapter.

Plaque of Appreciation - As Co-Chairman, Ways and Means Committee of the Asian Congress of Pediatrics given by the Philippine Pediatric Society, Inc., held on April 30 - May 4, 1974 in Makati, Rizal, Philippines, on May 3, 1974.

Plaque of Appreciation - As Member, Civic and Professional Divisio Countdown '74 Educational and Fund Campaign, Jan. 28, 1974.

Token of Appreciation - as Co-Chairman, Committee on Publicity Asian Regional Conference on Family Planning, "World Population Year", January 6-11, 1974, on June 15, 1974 at the Meralco Light House.

Certificate of Appreciation as Chairman, Residential Division III 1975 Anti-TB Fund Campaign

Certificate of Appreciation- As Chairman, Ways and Means, Phil. Pediatric Society, 1975 to 1976.

Certificate of Appreciation as Co-Chairman, Ways and Means, Philippine Pediatric Society, 13th Annual Convention, 1975.

Plaque of Appreciation as Chairman Residential Division III 1976 Anti-TB Fund Campaign

Community Service:

Assistant Treasurer - UST Medical Association, 1957-1959

Treasurer - Philippine Medical Women's Association, 1956- 1958; 1959- 1962

Board Member - Philippine Medical Women's Association, 1962-1966

Board Member - Philippine Medical Women's Association (Greater Manila Chapter, 1966- 1967

Board Member - Philippine Medical Women's Association, 1967 to 19

Assistant Treasurer- IXth International Congress Medical Women's International Association, December 1962- January,196

Member - Finance Committee, XI International Congress for Catholi Doctors, 1966

Chairman - Committee on Prizes, Post-Graduate Course (First) Philippine Medical Women's Association, March 1965.

Chairman - Committee on Arrangements Second Post-graduate Course, PMWA May 1966

Member - Committee on Attendance Philippine Pediatric Society,196 1966

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Co-Chairman- Committee on Awards, Philippine Pediatric Society Third Annual Convention, May 1966

Chairman - Ways and Means Committee Philippine Medical Women's Association (Greater Manila Chapter) 1966

Co-Chairman - Committee on Socials, Philippine Pediatric Society 1966-1967

Chairman - Committee on Invitation, Philippine Medical Women's Association, 1967

Chairman - Committee on Socials, Philippine Pediatric Society, 1967-1968

Member - Scientific Committee, Philippine Pediatric Society, 1967-

Member - Scientific Committee, Philippine Pediatric Society, 1967-6

Chairman - Ways and Means Committee, Philippine Pediatric Society, 1968

Over-All Chairman - Philippine Medical Women's Association, Westmont PostGraduate Course, June 22, 1970

Member - Standing Committee on Scholarships UST College of Medicir and Surgery, 1968 to date.

Member - Fund Raising Committee, Maria Project and Philippine Medical Association Building, 1969-1972

Member - Committee on Ways and Means, UST Faculty of Medicine and Surgery, Centennial Celebrations, 1969-1971

Member - Committee on Socials, UST Medicine and Surgery, Centennia Celebrations, 1969-1972

Chairman - Post-Graduate Course, Department of Pediatrics, Registration and Attendance, October 5-17, 1970

National Corresponding Secretary - Philippine Medical Women's Association, 1970 to date

Member - Ways and Means Committee, 7th Annual Convention, Philippi Pediatric Society, May 15-16, 1970

Member - Committee on Finance, Philippine Medical Association, 1970-1972

Member - Ladies Auxillary Committee to UST Hospital, 1970-1972

Member - Committee on Reception of Asian Bishops Conference and the Papal Visit, November 1970

Chairman - Committee on Ways and Means, UST Medical Choral Concert 1971

Observer - Representative - Medical Women's International Association to the 22nd Session of World Health Regional Confer

for the Western Pacific, Sept. 2-29, 1971
Co-Chairman - Committee on Post-Graduate Course for School Physicians Philippine Pediatric Society -Feb. 1-12,1971
Chairman - Sub-Committee on Registration and Attendance,PPS, 1971-1972
Member- Committee on Reception, 3rd Annual Meeting of the Association of the Philippine Medical Colleges at UST June 29-30 1971
Chairman- Centennial Post-Graduate Course in Pediatrics, Registration and Attendance, Oct. 18-30, 1971
Member - Post Graduate Course for School Physicians, Philippine Pediatric Society, Feb. 1972
Director - Catholic Women's League, San Marcelino Unit, 1972-1973
Co-Chairman- Post-Graduate in Pediatrics, UST, Oct. 8-20, 1973
Co-Chairman- Committee on Hospitality, Balikbayan Reception at UST, Dec. 18-20, 1973
Member- Committee on Fiesta Filipina, Balikbayan Reception at UST, Dec. 20, 1973
Co-Chairman- Committee on Publicity, Medical Women's International Association Regional Conference on Family Planning, Jan.6-11 1974
Member - Health Child Content, Sponsored by the Children's Museum and Library held at P. Gomez Elem. School, March 2, 1973
Co-Chairman- Gregorio Gabriel Memorial Scholarship and Fund Campaign, March 8, 1975
Board of Trustees- Philippine Pediatric Society, 1974 to 1976
Chairman- Committee on Prince, PMMA, 25th Silver Anniversary Celebration, May 30-31, 1974
Chairman - Committee on Exhibits, PMMA 26th Annual Convention, April 19-20, 1975
Chairman - Committee on Reception and Hospitality, 68th Annual Convention, April 23-26, 1975, PMA
Co-Chairman- Ways and Means Committee, Asian Congress of Pediatri April 30- May 3, 1974
Member - Civic and Professional Division, National Fund Campaign of the Executive Committee Education and Fund Campaign for

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Co-Chairman- Committee on Publicity, MIA Asian Regional Conference on Family Planning, Jan. 6-11, 1974 with PMMA as Hosting Society

Member- Committee on Ways and Means, Confederation of Medical Association of Asia and Oceania (CMAAO) April 21-23,1975

Co-Chairman- Committee on the Movie Premier of the Group X Business Division of the Panamin Fund Campaign,July 2,1974

Official Delegate- of the University of Santo Tomas and the Philippine Pediatrics Society to the XIV International Congre of Pediatrics, Oct. 3-9, 1974 held at Buenos Aires,Argentina

Official Delegate- of the University of Santo Tomas to the XIV International Congress of the Medical Women's International Organization in Rio de Janeiro, Brezil from Oct.11-19,1974

Member - of the Medical Group who observed on the Medical Educati and Health Programs and Acupuncture in the People's Republic of China, from March 9-23, 1974 under the auspices of the Professional Regulation Commission of the Republic of the Philippines (Medical Board)

Board Member - Catholic Physician's Guild, 1975-1977

Chairman - Residential Division III, 1975 Anti-TB Fund Campaign

Chairman - Ways and Means PMS, 1975-1976

Co-Chairman - Ways and Means, PMS, 13th Annual Convention

Co-Chairman - Committee on Professional Advancement, 1974-1975 1975-1976

Co-Chairman - Library PMMA 1975-1976

Treasurer - Philippine Pediatric Society 1976-1977

Co-Chairman - Committee on Trust Fund, PMMA, 1976

Member - Committee on Library, PMMA, 1976

Member - Committee on Ways and Means, PMMA, 1976

Chairman - Committee on Ways and Means, PMMA, Manila Chapter,1976

Board Member - Maternal and Child Health Association of the Phil. 1976

Official Delegate of UCT to the Eucharistic Congress in Philadelp August, 1976

Official Delegate of UCT to the Medical Women's International Convention in Tokyo, August 23-28, 1976

Official Delegate to the Asian Catholic Physicians Guild in Hongkong, Nov. 5-10, 1976

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LUCRECIA REGALA-CASTILLO, M.D.

BIO DATA

1. Graduated University of the Philippines Class 1954 - College of Medicine
2. Fellow American Academy of Pediatrics,
3. Fellow Philippine Pediatric Society
4. Diplomate, American Board of Pediatrics
5. Head, Departmentof Pediatrics, Veterans Memorial Medical Center, Quezon City, Philippines (1,100 beds capacity)

DR. LUCRECIA REGALA-CASTILLO, M.D. (21)

QUESTIONNAIRE RE INFANT FORMULA BUSINESS

1. Western critics say that infant formula is a prime cause of infant mortality. Do you agree that in the Philippines the use of infant formula is a prime cause of infant mortality? No.
   The high infant mortality rate in the Philippines is due to perinatal factors in the first few weeks of life and to infections.

2. If you do not agree with the above statement, do you feel there is a justified need for infant formula in the Philippines? What, in your opinion, are the benefits to be derived by Filipino mothers and infants on the use of infant formula?
   There is a need for infant formula in our country. Though a developing country, with its high rate of literacy and equal status for women, many if not most of our women, especially in urban areas are working mothers. For that matter even the rural women help their menfolk. So, supplemental formula feedings are needed. This vital role of women is all the more necessary in a developing country.

3. Before the introduction of infant formula in the Philippines, what kind of supplemental food was used for Filipino infants? What were the problems, if any, in connection with the use of such supplemental foods?
   Rice broth, sweetened water, tubers, cereals.
   All of the above are very low in nutritive values especially on protein.

4. Would you favor dropping the use of infant formula and returning to the use of supplemental food mentioned in the preceding number? Why? Definitely NO.
   We would be raising malnourished infants.

5. Would you say there is widespread abuse of the use of infant formula among the poor families in the Philippines? No.
   Many Filipino mothers especially among the poor breastfeed their babies. If they use infant formula, the abuse is probably on the use of the wrong type of formula mainly due to ignorance and economic reasons.

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6. There have been criticisms in western countries that the distribution of free stock of infant formula to the hospital nurseries and that of free samples (of infant formula products) to physicians tend to influence the professional judgment of the nursery personnel and the physicians in recommending formula feeding over breastfeeding. Could you comment on this criticism?

The pediatrician should be guided by what she/he thinks is best for a particular infant considering the needs of the infant and the attitudes and capabilities of the mother (especially on breastfeeding).

7. Occasionally infant formula manufacturers, on the solicitation of the hospital administration, donate hospital equipment or hospital supplies to the nursery. Would you care to comment on whether this practice, that of infant formula manufacturers donating hospital equipment or supplies to under-equipped hospital nurseries, should continue or should be stopped? Please give the reasons in support of your view.

The donations of equipment or supplies to under-equipped hospital nurseries is a worthy contribution and support of formula manufacturers, that should not only continue but be sincerely acknowledged and appreciated. We can only underscore how much these donations help in improving newborn care and thus help reduce infant morbidity and mortality (especially in a developing country).

8. Are donations of hospital supplies and equipment important to you or your hospital? Would such donations made by the infant formula manufacturers affect your professional judgment in recommending formula feeding over breastfeeding?

Very important. No (same reason as in 6).

9. Western critics say that mothercraft nurses exert improper and undue influence in discouraging breastfeeding in the Philippines. Would you comment on this statement?

I do not think so. The usual practice of those mothercraft nurses is to see to it that the instructions of the physician (who referred these babies for follow up) are correctly followed.

10. Would you care to make a statement relative to what the infant formula companies (such as Mead Johnson Philippines Inc.) are doing in the Philippines in connection with (a) the feeding, nutrition and care of infants, and (b) its marketing practices

The infant formula companies (such as Mead Johnson Phil.) are playing a vital role in the development of the most important of resources, especially in a developing country- that is, the children. Not only are their products necessary for the optimum development of infants but their support to the educational and clinical aspects of medical practice are valuable.

Lucrecia Regala-Castillo

LUCRECIA REGALA-CASTILLO, M.D.,
F.P.P.S., F.A.A.P.
SIGNATURE OF INTERVIEWEE

Head, Department of Pediatrics
Veterans Memorial Medical Center
Quezon City, Philippines

Date : May 4, 1978
Place: VMMC, Diliman, Q.C.

May 5, 1978
Manuel L. Teves Mem'l Hosp.
Dumaguete City
DR. MELBA LOPEZ MACIAS

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1. No. Infant mortality is highest among the belonging to the low socio-economic group who cannot afford infant formulas.

2. Yes. There is a growing numbers of working Filipino mothers who, after returning to work, depend on infant formulas for mixed feedings. There are also mothers who do not have a sufficient supply of breast milk. Wit nurses are not easy to find.

3. Gruel - purely carbohydrate food. Very little protein to be significant as far as supplying protein needs are concerned,

4. No. For those who cannot avail of breast milk, there would be no adequate food substitute.

5. No. Poor families cannot afford the supply of infant formulas. In fact, mothers who cannot breastfeed their babies for some reason or another, depend on substitutes that cannot adequately supply the infants needs for the basic food elements resulting in a high incidence of protein deficiency, malnutrition and manasmus.

6. I believe in the professional integrity of the physician and the nurse! It is an insult to be told otherwise.

7. From my knowledge and observation, these companies do not expect or demand any favor of any kind, when a donation is given to a hospital. A donation is given and received in the interest of better health service which will redound to better health for the nation - better production - progress.

8. A donation given because a drug company can afford it without any strings attached is definitely most welcome. To the next question the answer is DEFINITELY NOT.

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9. I do not believe this is so. On the contrary, medical and para-medical, Family Planning workers have been promoting breastfeeding.

10. ~~No answer~~.

no obtuvo

MELBA LOPEZ MACIAS, M.D., F.P.O.G.S., F.P.C.S.
OBSTETRICS-GYNECOLOGY
MANUEL L. TEVES MEMORIAL HOSPITAL
DUMAGUETE CITY 6501, TEL. 31-84

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10. Mead Johnson Philippines has been actively supporting scientific meetings and seminars especially Pediatric Conferences where competent authorities speak on and promote the virtues of breast feeding.

- Mead Johnson Phil. has been putting out educational reading materials for mothers like a prenatal handbook, on "Breastfeeding your Baby." A Mother's Guide, etc.

- Mead Johnson, Phil. has made available to the public a good line of milk products (infant formulas) which can be availed of by babies who really need them.

- Mead Johnson, Phil. has been promoting its products on a most ethical and professional way. They are a help to the medical profession.

MELBA LOPEZ MACIAS, M.D., F.P.O.G.S., F.P.C.S.
OBSTETRICS-GYNECOLOGY
MANUEL L. TEVES MEMORIAL HOSPITAL
DUMAGUETE CITY 6501, TEL. 31-84

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Biodata:

1. Academic Education (school)
2. Professional qualifications (diplomate?)
3. Professional affiliations (PDS, PMA, POGS, etc.)
4. Title if officer (past president, VP, etc.)
5. Hospital connections and title (active hospital) government position & title.

1. Doctor of Medicine, University of the Philippines - 1957
2. Fellow, Philippine Obstetrical & Gynecological Society (equivalent of diplomate)

   Fellow, Philippine College of Surgeons.
3. PMA, Negros Oriental chapter
   Philippine Obstetrical - Gynecological Society
   Philippine College of Surgeons
4. Past President - Negros Oriental Medical Society

(1) Consultant - Obstetrics and Gynecology
Manuel L. Veves Memorial Hospital

Family Planning Physician - Institute of Maternal + Child Health - Manuel L. Veves Memorial Hospital Family Planning Clinic (Program - DEDA. USAID assisted)

Principal: Manuel L. Veves Memorial Hospital School of Midwifery

QUESTIONNAIRE RE INFANT FORMULA BUSINESS

1. Western critics say that infant formula is a prime cause of infant mortality. Do you agree that in the Philippines the use of infant formula is a prime cause of infant mortality? No. Infant Mortality is highest among those belonging to the low socio-economic group who cannot afford infant formulas.

2. If you do not agree with the above statement, do you feel there is a justified need for infant formula in the Philippines? What, in your opinion, are the benefits to be derived by Filipino mothers and infants on the use of infant formula? Yes. There is a growing number of working Filipino mothers who, after returning to work, depend on infant formulas for mixed feedings. There are also mothers who do not have a sufficient supply of breast milk. Wet nurses are not easy to find.

3. Before the introduction of infant formula in the Philippines, what kind of supplemental food was used for Filipino infants? What were the problems, if any, in connection with the use of such supplemental foods?

   Gruel - purely carbohydrate food. Very little protein to be significant as far as supplying protein needs are concerned

4. Would you favor dropping the use of infant formula and returning to the use of supplemental food mentioned in the preceding number? Why? No. For those who cannot avail of breast milk. There would be no adequate food substitute.

5. Would you say there is widespread abuse of the use of infant formula among the poor families in the Philippines? Do. Poor families cannot afford the supply of infant formulas. In fact, mothers who cannot breastfeed their babies for some reason or another, depend on substitutes that cannot adequately

supply the infants needs for the basic food elements resulting 28
in a high incidence of protein deficiency malnutrition
and marasmus.

6. There have been criticisms in western countries that the distribution of free stock of infant formula to the hospital nurseries and that of free samples (of infant formula products) to physicians tend to influence the professional judgment of the nursery personnel and the physicians in recommending formula feeding over breastfeeding. Could you comment on this criticism?

I believe in the professional integrity of the physician and the nurse! It is an insult to be told otherwise.

7. Occasionally infant formula manufacturers, on the solicitation of the hospital administration, donate hospital equipment or hospital supplies to the nursery. Would you care to comment on whether this practice, that of infant formula manufacturers donating hospital equipment or supplies to under-equipped hospital nurseries, should continue or should be stopped? Please give the reasons in support of your view.

From my knowledge and observation, these companies do not expect or demand any favor of any kind, when a donation is given to a hospital. A donation is given and received in the interest of better health service which will redound to better health for the nation → better productivity → progress

8. Are donations of hospital supplies and equipment important to you or your hospital? Would such donations made by the infant formula manufacturers affect your professional judgment in recommending formula feeding over breastfeeding? A donation given because a drug company can afford it without any strings attached is definitely most welcome

To the next question the answer is DEFINITELY NOT.

9. Western critics say that mothercraft nurses exert improper and undue influence in discouraging breastfeeding in the Philippines. Would you comment on this statement?

I do not believe this is so. On the contrary, medical and para-medical, Family Planning workers have been actively promoting breastfeeding.

10. Would you care to make a statement relative to what the infant formula companies (such as Mead Johnson Philippines Inc.) are doing in the Philippines in connection with (a) the feeding, nutrition and care of infants, and (b) its marketing practices

[signature]
SIGNATURE OF INTERVIEWEE

Date : 5/5/78
Place: Manuel L. Teves Memorial Hospital
Dumaguete City

April 6, 1978
Manila
DR. LINO EDRALIN LIM

(29)

1. No.

2. There is always a place for infant formula, based on the needs of the infant. If doctors prescribe infant formula, it is to their belief it is good. I think doctors need only re-education of advantages of breastfeeding.

3. There was none except crushed rice,cereals & scraped bananas and papayas. It is true the rich families use infant formula because the liberated mothers go to work & prefer infant formula to be given to their child.

4. Do not stop production of infant formulas. It certainly has a place. The one to be dropped is condensed milk. Filled milk for coffee & cakes & cookies but if no other acceptable milk is available, filled milk will be a poor substitute.

5. Poor families follow infant formula because it becomes status symbol but no fault of infant formula manufacturers,

6. This is true but milk manufacturers give other services in return to the community. Example: an infant in an incubator or nursery,will you allow a mother to go in the Nursery and breastfeed the baby there?

7. It should continue for previously the USAID used to give incubators to the Gov't-own hospital to save the prematures & distress infants. This is a service to humanity.

8. No, for we know the advantages of breastfeeding & the points of indication.

9. It certainly can influence the physicians in the long run but if physicians are properly prepared, do not think they can be influenced.

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10. The company is doing a good job. If the incidence of malnutrition it is high in the Philippines/is due to impact of industrialization, urbanization, not progress before martial law; Poor food production. I'm sure the New Society is doing everything to solve food production.

CURRICULUM VITAE

LINO EDRALIN LIM, M.D.
Class '43 Married Male Filipino

Fellow — Philippine Pediatric Society
Fellow — American Academy of Pediatrics
Fellow — International College of Pediatrics

Present Positions:

Administration:	Head, Department of Pediatrics, Chinese General Hospital and Medical Center (on leave)
Teaching:	Associate Professor in Pediatrics, University of the Philippines, UP-PGH Medical Center
Research:	Research Coordinator, Department of Pediatrics, UP-PGH Medical Center
Practice:	Limited to Pediatrics, Medical Arts Center

Society Activities:

Chairman, Ad Hoc Committee, Association of Pediatric Societies of the Southeast Asian Region
National Nutrition Coordinator, Philippine Medical Association
President, Manila Medical Society, 1976

Past Positions:

Medical Officer, 21st Infantry Regiment, MMD, ECLGA
Resident Pediatrician, Cook County Children's Hospital, Mt. Sinai Hospital, Chicago
Head, Department of Pediatrics, Marian General Hospital
Medical Director, Manila Children's Hospital
President, Philippine Pediatric Society
Member of the Qualifying Board, Philippine Pediatric Society
Vice-President, Afro-Asian Pediatric Association, 1968
Chairman, Organizing Committee, Asian Congress of Pediatrics, 1974, Manila

Awards and Honor:

Certificate of Honor — Rizalian Medical Society, Feb., 1958
Physician of the Year, Lions Club, Aparri, 1960
Professional of the Year, Lions Club, Aparri, 1964.
Honorary Fellow, American Academy of Pediatrics, April, 1966
Third Prize, Scientific Exhibit — Philippine Pediatric Society, May, 1966
Second Prize, Scientific Paper — 59th Annual Convention, Phil. Med. Ass., May, 1966
Certificate of Honor as Most Outstanding CVI Alumnus, Cagayan Valley Institute, April, 1968
Second Prize, Scientific Paper — 8th Annual Convention, Philippine Pediatric Society, May, 1971
Distinguished Service Award — Filipino-Chinese Medical Society, 1972
Fellow, International College of Pediatrics, July, 1974
Pediatrician of the Year, Philippine Pediatric Society, May, 1975

Medical Writings and Publications:

Circulation Editor, Philippine Journal of Pediatrics
Business Editor, Bulletin of the Filipino-Chinese Medical Society
Contributing Editor, Pakistan Pediatric Journal, Karachi
Member, Honorary Editorial Board, Medical Progress, Sydney, Australia
Member, Editorial Board, Mother and Child (Jr. of Pediatrics, Obstetrics and Gynecology), Australia
Contributor, Handbook on Infectious Diseases, 1st, 2nd and 3rd editions, Manila
Contributor, Manual of Pediatrics, India

Papers Published:

1. Infectious diseases, allergy and immunology — 34 articles
2. Pediatric surgery — 3 articles
3. Pediatrics psychiatry — 2 articles

Civic Organizations Membership:

Lions Club Army & Navy Club Free Mason Community Chest
Philippine Pistol and Rifle Association

Seminars and Congresses Attended:

Hospital Administration
Teaching Methods
Personnel Management
Organization and Management
International Pediatric Congresses in 1935, 1959, 1962, 1965, 1968, 1971 and 1974
American Academy of Pediatric Meetings in 1950, 1965, 1968, 1971 and 1974
American Hospital & International Hospital Association, 1968, Chicago
Asian Pediatric Congresses in 1958 Singapore, 1964 Jakarta, 1968 Karachi, 1974 Manila
1st Medical Congress on Mental Retardation, Portland, Maine, 1959
SEAMEO Seminar on Tropical Pediatric Problems, Bangkok, November 1975

January 20/78 29

CURRICULUM VITAE

LINO EDRALIN LIM, born in Aparri, Cagayan, Philippines on Sept. 23, 1915.

High School - Cagayan High School	1936
Associate in Arts - University of the Philippines	1938
Doctor of Medicine - University of the Philippines	1943
Clinical Pediatrics - Cook County Graduate School, Chicago..	1949-50

POSITIONS:

Physician in-Charge, Malamig Health Center	1943
Medical Officer, 21st Infantry Regiment	1943-46
Resident - Pediatrics: Cook County Hospital, Chicago Mt. Sinai Hospital, Chicago	1950-52
Assistant Director, Manila Children's Hospital	1952-54
Director, Manila Children's Hospital	1955-57
Instructor of Pediatrics, UP College of Medicine	1955-60
Assistant Professor of Pediatrics, UP College of Medicine ...	1968-74
Associate Professor of Pediatrics, UP College of Medicine ...	1974-76
Clinical Associate Professor of Pediatrics, UP Col. of Med...	1976-present
Head, Dept. of Pediatrics, Marian Gen. Hospital	1961-63
Head, Dept. of Pediatrics, Chinese Gen. Hospital & Med. Ctr...	1966-present

MEMBERSHIP & POSITION IN SPECIAL COMMITTEES & SOCIETIES:

Member, Hemorrhagic Fever Board, Department of Health
" International Pediatric Association
" Philippine Medical Association
" Philippine Federation of Private Medical Practitioners
" American Federation for Clinical Research
" Philippine Society for Microbiology and Infectious Diseases

President, Philippine Pediatric Society	1964-66
Chairman, Qualifying Board, Phil. Ped. Society	1964-66
Vice-President, Filipino-Chinese Medical Society	1967-68
President, Filipino-Chinese Medical Society	1970-71
Councilor, Manila Medical Society	1972
President, Manila Medical Society, 2nd.District.Chapter....	1974
President, Manila Medical Society	1976-77
National Nutrition Coordinator, Philippine Medical Association	1975-76
President, Philippine Medical Association	1977-78
Professional Rural Service Corps (PRUSCOR) National Committee Coordinator for Region II	1977-78
Member, Board of Medical Education, Dept of Educ & Culture	1977-78

Member, Board of Schistosomiasis Control Commission 1977-78
" NEDA Health Economics Development Authority

C-Vitug, Dr. L.Ed. Lim 29

MEMBERSHIP. (cont'd)

Commissioner, Philippine Medical Care Commission 1977-78
Member, Board of Trustees, Capital Mg Manila 1976
Chairman, MAYEP and DBP Insurance, Phil. Med. Association 1976
Member, Board of Directors & Vice President Physician, Colegio Medico Farmaceutico de Filipinas 1976
Director, UP Medical Alumni Society ..... 1967-68 and 1977-78
Vice President, Afro-Asian Pediatric Association 1968-71
Delegate, VIII International Congress of Pediatrics, Copenhagen ... 1955
" IX -do- Montreal, Canada ... 1959
" X -do- Lisbon, Portugal ... 1962
Chief Delegate XI -do- Tokyo, Japan... 1965
Delegate XII -do- Mexico 1968
" XIII -do- Vienna, Austria.. 1971
" XIV -do- Buenos Aires,Argentina 1974
" XV -do- New Delhi, India ... 1977
Delegate, First Asian Regional Pediatric Congress, Singapore 1958
" 2nd Afro-Asian Congress of Ped., Jakarta ... 1964
Guest Speaker, 3rd Afro-Asian Congress of Ped., Pakistan 1968
Observer, WHO Seminar on Arbovirus Diseases, Phil. ... 1971
" " " " Mosquito-Borne Hemorrhagic Fever in Southeast Asia & Western Pacific Regions, Bangkok, Thailand 1964
UP Representative, Seminar on Infectious Diseases, PGH Institute of Medicine 1972
Guest Speaker, 15th Southeast Asian Regional Seminar on Tropical Medicine & Public Health (SEAMEO-TROPMED), Bangkok, Thailand 1975
Chairman, Organizing Committee, Asian Congress of Pediatrics, Manila, Philippines ..... April 30-May 4, 1974
Chairman, Ad Hoc Committee, Association of Pediatric Societies of Southeast Asian Regions (APSSEAR) ... 1974
Member, Editorial Staff, Pakistan Pediatric Journal
" " " Phil. Journal of Pediatrics
" " Board, Medical Progress, Southeast Asia Edition, Australia
" " " Mother & Child, Australia
Contributor, Handbook on Infectious Diseases, Manila
" Manual of Pediatrics, India

Member, Lions Club of Aparri
Army & Navy Club of Manila
Rotary Club of Manila
Community Chest of the Philippines
Free Mason
Phil. Pistol & Rifle Association

AWARDS:

Certificate of Honor - Rizalian Medical Society for lecture in Tuberculosis in Children	Feb. 1958
Physician of the Year, Lions Club, Aparri	1960
Professional of the Year, Lions Club, Aparri	1964
Fellow, American Academy of Pediatrics	1966
Third Prize, Scientific Exhibits - "Diagnosis & Treatment of Streptococcal Infection", 3rd Annual Convention, Philippine Pediatric Society	May 1966
Certificate of Honor as Most Outstanding CVI Alumnus, by the Cagayan Valley Institute Board of Trustees	April 1968
Second Prize, Scientific Paper - "Epidemic Diarrhea in a Nursery Due to Non-specific Enteric Bacilli, "The Opportunists", 8th Annual Convention, Phil. Ped. Soc..	May 1971
Distinguished Service Award - Filipino-Chinese Med. Society	1972
Fellow, International College of Pediatrics	1974
Pediatrician of the Year, Phil. Pediatric Society	1975

PAPERS PUBLISHED:

40 papers written and published in different medical journals, local and abroad, on hemorrhagic fever, infectious diseases, child allergy and T.B.

PAPERS PUBLISHED:

LIM: Gastrointestinal Allergy in Infancy and Childhood, Phil. J of Pediatrics, 1953, 2:11

QUINTOS & LIM: Diagnostic Difficulties of Tuberculous Meningitis, ibid, 1953, 2:27

LIM & LEGASTO: Diagnosis and Treatment of Myasthenia Gravis, JPMA, 1954, 30:74

LEVINSON & LIM: Myasthenia Gravis with Mental Retardation, Jr of Ped. (U.S.), 1954, 45:1:80

QUINTOS, LIM, DACANAY & SANTOS: Acute Diarrhea as Observed in Two Manila Hospitals, PJP, 1954, 3:2:1

LIM: Epidemic Hemorrhagic Fever, A Review of Literature, JPMA, 1954, 30:586

QUINTOS, LIM, JULIANO, REYES & LACSON: Hemorrhagic Fever Observed in Children in the Philippines, PJP, 1954, 3:3:1

LIM & QUINTOS: Capillary Fragility in Children with Philippine Hemorrhagic Fever: Rumpel-Leeds Test as a Screen Test, PJP, 1954, 3:4:1

LAVADIA, LIM & QUINTOS: Intestinal Obstruction in the Newborn: 1. Malrotation of the Colon, PJP, 1954,

QUINTOS & LIM: Cortisone as an Adjuvant in the Therapy of Tuberculous Meningitis, PJP, 1955, 4:2:1

HIDALGO, LIM & QUINTOS: Retargents in Respiratory Dyspnea in Children, PJP, 1955, 4:2:62

STRANSKY & LIM: On Acute Infectious Thrombocytopenia Purpura: VIIIth International Congress of Pediatrics, Copenhagen, 1956, p/147

LAVADIA, LIM, TAN & DENOGA: Congenital Megacolon, PJP, 1955, 4:3:129

STRANSKY & LIM: On Infectious Thrombocytopenia Purpura (Hemorrhagic Fever) Observed in Children in the Philippines, Annales Pediatrici, 1956, 187:4:22

QUINTOS & LIM: Philippine Hemorrhagic Fever, UST Jr of Medicine, 1956, 11:5:319

LIM: Cow's Milk Allergy in Infancy, PJP, 1956, 6:4:134

LIM & TAN: Guide in the Diagnosis and Treatment of Philippine Hemorrhagic Fever, JPMA, 40:787, 1964

LIM, TAN & DEL MUNDO: Clinical Aspects of Mosquito-Borne Hemorrhagic Fever in the Philippines and other Southeast Asian Countries, PJP, 1965, 14:97

LIM, TAN & MITCHELENA: Childhood Mortality in the Philippines, JPMA 1965, 41:4:304

QUINTOS & LIM: Hemorrhagic Fever Observed among Children of the Philippines, PJP, 1954, III:1:19

LIM, TAN & VILLANUEVA: Diarrhea: A Comparative Study between 1953 and 1963 Cases of Manila Children's Hospital, JPMA, 1965, 41:304

29

TAN & LIM: Use of Gamma-Globulin in the Control of Chicken pox Outbreak in a Nursery, 1965, PJP, XIV:6:346

TAN & LIM: Intestinal Pathogens of Hospital-Borne Infants Admitted to a Nursery, PJP, 1965, XIV:6:322

TAN & LIM: Cytogenetics in Neonatal Disorders, PJP, 1966, XV:1:56

LIM & TAN: Trends in BCG Vaccination, PJP, 1966, XV:2:117

LIM, TAN & ROLDAN: Choice of Antimicrobials for the Treatment of Common Diarrhea in General Practice, JPMA, 1966, 42:6:293

TAN & LIM: On Clinical Designation of Philippine Hemorrhagic Fever; Its Relation with Dengue Fever, Jr. of Manila Medical Society, Sept-Oct 1966, 4:5:237

LIM, TAN & ROLDAN: Diarrhea: A One-Year Bacteriological Survey in Pediatric Practice, PJP, 1967, XVI:1:44

LIM & TAN: Philippine Hemorrhagic Fever in Children, Acta Medica Philippines, 1967, 3:3:304

TAN & LIM: Aerobacter Aerogenes Pneumonia in Infancy, PJP, 1967 16:6:373

LIM, TAN & LIM: Bacteriologic Survey of Summer Furunculosis in the Philippines, PJP, 1967, 16:5:303

LIM, TAN & TAN: Phage Typing of Staphylococcus Aureus in a Out-Patient Children's Clinic, JPMA, 44:5:251, 1968

CUBE & LIM: A Supratentorial Mixed Glioma in a Six-Year Old Asian Boy; Far East Med. Jr., 1968, 4:9:270

LIM, TAN & MOLINA: Incidence of Beta-Hemolytic Streptococci in Private Practice in the Philippines, The Pakistan Med. Review, 1969, 4:8:89

LIM, TAN, CHUA CHIACO & CASTRO: Hemorrhagic Fever and Cardiac Affections, Far East Med. Jr., Vol. 6, March 1970

TAN, LIM, RONSAYRO & BALAGOT: Staphylococcus Albus Meningitis, PJP, 1970, XIX:3:142-144

TAN, LIM & RONSAYRO: Stool Frequency as Observed among Well Babies in a Hospital Nursery, PJP, 1970, XIX:2:88-94

TAN, LIM & RONSAYRO: Thumb and Finger Sucking in Infancy, PJP, 1970, XIX:6:291

LIM & TAN: Epidemic Diarrhea in a Nursery Due to Nonspecific Enteric Bacilli, "The Opportunists", Bx PCMS Bul. I:1:14, 1972

LIM: Mosquito-Borne Hemorrhagic Fever - A Review, The Filipino Family Physician Jr., XIV:3:1, 1976

WORK IN PROGRESS

Gram Negative Infection of the Respiratory Tract
Mima Herella Infection of the Newborn
Exchange Transfusion in Hepatic Coma

/ved

QUESTIONNAIRE RE INFANT FORMULA BUSINESS 29

1. Western critics say that infant formula is a prime cause of infant mortality. Do you agree that in the Philippines the use of infant formula is a prime cause of infant mortality?

No

2. If you do not agree with the above statement, do you feel there is a justified need for infant formula in the Philippines? What, in your opinion, are the benefits to be derived by Filipino mothers and infants on the use of infant formula?

There is always a place for infant formula, based on the needs of the infant. If doctors prescribe infant formula it is to their belief it is good. I think doctors needs only re-education of advantages of breast feeding.

3. Before the introduction of infant formula in the Philippines, what kind of supplemental food was used for Filipino infants? What were the problems, if any, in connection with the use of such supplemental foods?

There was none except crushed rice cereals & scraped bananas & payagas. It is true the rich families use infant formula because they liberated mothers go to work & prefer infant formula to be given to their child.

4. Would you favor dropping the use of infant formula and returning to the use of supplemental food mentioned in the preceding number? Why?

Do not stop production of infant formulas. It certainly has a place. The one to be dropped is condensed milk. Filled milk for coffee & cakes & coffee cut if no other acceptable milk is available. Filled milk will be a poor substitute.

5. Would you say there is widespread abuse of the use of infant formula among the poor families in the Philippines?

Poor families follow infant formula because it becomes status symbol but no fault of infant formula manufactures

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6. There have been criticisms in western countries that the distribution of free stock of infant formula to the hospital nurseries and that of free samples (of infant formula products) to physicians tend to influence the professional judgment of the nursery personnel and the physicians in recommending formula feeding over breastfeeding. Could you comment on this criticism?

This is true but much manufacturers give other services in return to the community. Example - an infant in an incubator or nursery will you allow a mother to go in the nursery & breast the baby there

7. Occasionally infant formula manufacturers, on the solicitation of the hospital administration, donate hospital equipment or hospital supplies to the nursery. Would you care to comment on whether this practice, that of infant formula manufacturers donating hospital equipment or supplies to under-equipped hospital nurseries, should continue or should be stopped? Please give the reasons in support of your view.

It should continue for previously the USAID used to give incubators to the Govt own hospital to save the preparatives & distress infants. This is a service to humanity

8. Are donations of hospital supplies and equipment important to you or your hospital? Would such donations made by the infant formula manufacturers affect your professional judgment in recommending formula feeding over breastfeeding?

No for we know the advantages of breast feeding of the points of indication

9. Western critics say that mothercraft nurses exert improper and undue influence in discouraging breastfeeding in the Philippines. Would you comment on this statement?

It certainly can influence the physicians in the long run but if physicians are properly prepared I do not think they can be influenced

10. Would you care to make a statement relative to what the infant formula companies (such as Mead Johnson Philippines Inc.) are doing in the Philippines in connection with (a) the feeding, nutrition and care of infants, and (b) its marketing practices

The company is doing a good job. If the incidence of malnutrition is high in the Philippines is due to impact of industrialization, urbanization, Hot progress before martial law. Poor food production. I'm sure the new society is doing everything to solve food products.

SIGNATURE OF INTERVIEWEE

Date : 4/6/78

Place: Manila

ANSWERS TO QUESTIONNAIRE REGARDING
INFANT FORMULA BUSINESS

By: Dr. Florentino Gonzalez, M. D.

(30)

1. No.

2. There is a need for infant formula and it goes without saying that breast milk is still the primary choice. However, if unable, infant formula is the next choice.

3. Evaporated milk, condensed milk, powdered whole milk.
Problem: Storage in relation to evaporated milk--not all can afford to have a refrigerator. Anemia with condensed milk.
Powdered whole milk--too heavy.

4. No. It won't change the value and need of the infant formula.

5. No. They cannot even afford it, but certainly can make use of it if the prices are brought lower.

6. I don't think it does influence the pediatrician's primary choice of breast feeding over artificial feeding.

7. This should be limited to avoid misunderstanding and suspicion.

8. Personally--to me--it is not important. What is important is the ethical relation between the physician and the Company.

9. I have no direct knowledge of this. No comment.

10. By and large, the milk companies have done a lot in improving the feeding and nutrition and care of the infant in the Philippines since they work hand in hand with the Philippine Pediatric Society.

(SGD.) DR. FLORENTINO GONZALEZ
Fellow, Philippine Pediatric Society
Diplomate, American Board of Pediatrics

DR. FLORENTINO GONZALEZ, M. D.

QUESTIONNAIRE RE INFANT FORMULA BUSINESS

1. Western critics say that infant formula is a prime cause of infant mortality. Do you agree that in the Philippines the use of infant formula is a prime cause of infant mortality?

No.

2. If you do not agree with the above statement, do you feel there is a justified need for infant formula in the Philippines? What, in your opinion, are the benefits to be derived by Filipino mothers and infants on the use of infant formula?

There is a need for infant formula and it goes without saying that breast milk is still the primary choice. However if unable, infant formula is the next choice

3. Before the introduction of infant formula in the Philippines, what kind of supplemental food was used for Filipino infants? What were the problems, if any, in connection with the use of such supplemental foods?

Evap. milk
Condensed milk, powdered whole milk
Problems storage in relation to Evap milk not all can afford to have a refrigerator. Anemia with condensed milk - powdered whole milk too heavy

4. Would you favor dropping the use of infant formula and returning to the use of supplemental food mentioned in the preceding number? Why?

No. It won't change the value & need of the infant formula.

5. Would you say there is widespread abuse of the use of infant formula among the poor families in the Philippines?

No. They cannot even afford it, but certainly can make use of it if the prices are brought lower.

6. There have been criticisms in western countries that the distribution of free stock of infant formula to the hospital nurseries and that of free samples (of infant formula products) to physicians tend to influence the professional judgment of the nursery personnel and the physicians in recommending formula feeding over breastfeeding. Could you comment on this criticism?

I don't think it does influence the Pediatrician's primary choice of breast feeding over ~~artificial~~ artificial feeding

7. Occasionally infant formula manufacturers, on the solicitation of the hospital administration, donate hospital equipment or hospital supplies to the nursery. Would you care to comment on whether this practice, that of infant formula manufacturers donating hospital equipment or supplies to under-equipped hospital nurseries, should continue or should be stopped? Please give the reasons in support of your view.

This should be limited to avoid misunderstanding & suspicion.

8. Are donations of hospital supplies and equipment important to you or your hospital? Would such donations made by the infant formula manufacturers affect your professional judgment in recommending formula feeding over breastfeeding?

Personally - to me - it is not important. What is important is the ethical relation between physician & the company

9. Western critics say that mothercraft nurses exert improper and undue influence in discouraging breastfeeding in the Philippines. Would you comment on this statement?

I have no direct knowledge of this: No comment.

10. Would you care to make a statement relative to what the infant formula companies (such as Mead Johnson Philippines Inc.) are doing in the Philippines in connection with (a) the feeding, nutrition and care of infants, and (b) its marketing practices

By and large the milk companies have done a lot in improving the feeding & nutrition and care of the infant in the Philippines since they work hand & glove with P.P.S.

[signature] M.D. F.P.P.S.
SIGNATURE OF INTERVIEWEE
Dr. FLORENTINO GONZALEZ
Diplomate, American Board of Pediatrics

Date : May 8 '74
Place: Manila, Philippines

QUESTIONNAIRE RE INFANT FORMULA BUSINESS

1. Western critics say that infant formula is a prime cause of infant mortality. Do you agree that in the Philippines the use of infant formula is a prime cause of infant mortality?
No, in the Philippines, the prime cause of infant mortality is infection —— respiratory, gastrointestinal, T.B., etc.

2. If you do not agree with the above statement, do you feel there is a justified need for infant formula in the Philippines? What, in your opinion, are the benefits to be derived by Filipino mothers and infants on the use of infant formula?
Yes, there is a justified need for infant formula in the Philippines, especially for mothers who cannot breastfeed their babies because they have no milk at all or they are working mothers or they are too weak or sick to feed their babies.

3. Before the introduction of infant formula in the Philippines, what kind of supplemental food was used for Filipino infants? What were the problems, if any, in connection with the use of such supplemental foods?
Before the introduction of infant formula in the Philippines, "am" or rice water was used as supplemental food. Such food is very deficient in nutrients, even in CHO content, & given too late in infancy. Inspite of breast milk, the infants suffer from nutritional deficiencies.

4. Would you favor dropping the use of infant formula and returning to the use of supplemental food mentioned in the preceding number? Why?
No, because the use of supplemental food mentioned in #3 is very deficient in nutritional contents — both in quality and quantity — it is a one-sided diet — only CHO. Infant formula is a complete food for the baby — supplying the recommended food requirements.

5. Would you say there is widespread abuse of the use of infant formula among the poor families in the Philippines?
I dont think so. The majority of my patients are ~~xx~~ in the average-income group who follow my advice on infant formula. I do not encounter such "abuses" of the use of infant formula.

6. There have been criticisms in western countries that the distribution of free stock of infant formula to the hospital nurseries and that of free samples (of infant formula products) to physicians tend to influence the professional judgment of the nursery personnel and the physicians in recommending formula feeding over breastfeeding. Could you comment on this criticism?

We have always advocated and encouraged mothers to breastfeed their babies as much as possible. If for some reasons they cannot use breastfeeding, then we resort to infant formula as a solution.

7. Occasionally infant formula manufacturers, on the solicitation of the hospital administration, donate hospital equipment or hospital supplies to the nursery. Would you care to comment on whether this practice, that of infant formula manufacturers donating hospital equipment or supplies to under-equipped hospital nurseries, should continue or should be stopped? Please give the reasons in support of your view.

Even if infant formula manufacturers donate equipments or supplies, we are not committed to use their products if there are no justifiable reasons. We do always consider what is best for our babies.

8. Are donations of hospital supplies and equipment important to you or your hospital? Would such donations made by the infant formula manufacturers affect your professional judgment in recommending formula feeding over breastfeeding?

No, our hospital is sufficiently equiped. Such donations if given, will not affect our professional judgement in recommending formula feeding over breastfeeding.

9. Western critics say that mothercraft nurses exert improper and undue influence in discouraging breastfeeding in the Philippines. Would you comment on this statement?

These mothercraft nurses are being sent out to follow-up the babies fed on infant formula from birth — whether the doctors advice and instructions are followed properly. If a mother prefers to breastfeed her baby later on, she is allowed to do so without any discouraging remarks.

10. Would you care to make a statement relative to what the infant formula companies (such as Mead Johnson Philippines Inc.) are doing in the Philippines in connection with (a) the feeding, nutrition and care of infants, and (b) its marketing practices

(a) Mead Johnson Philippines, Inc. has been an asset to the medical profession not in the feeding nutrition & care of infants but in helping medical organizations in their programs on medical education, particularly on Nutrition. Provisions such as Baby's Book and Mothers Guide are given away during scientific Seminars.

(b) The Company provides services in updating the medical doctors on their latest products.

Carmen G. Lazo, M.D.
SIGNATURE OF INTERVIEWEE

Date : May 5, 1978
Place: Dept of Pediatrics
Faculty of Medicine & Surgery
University of Sto. Tomas
Manila

UNIVERSITY OF SANTO TOMAS
THE CATHOLIC UNIVERSITY OF THE PHILIPPINES
MANILA, PHILIPPINES

FACULTY OF MEDICINE & SURGERY

DEPARTMENT OF PEDIATRICS

CELSUS G. LOPEZ, M. D.

√ FULL PROFESSOR & CHAIRMAN - Department of Pediatrics
Faculty of Medicine and Surgery
University of Santo Tomas

√ HEAD, DIVISION OF PEDIATRICS - Medical Staff
Santo Tomas University Hospital

ASSOCIATE IN ARTS - U.S.T. - March, 1933 - WITH HONORS

DOCTOR OF MEDICINE - U.S.T. - March 31, 1938 - CUM LAUDE - MERITISSIMUS.

GOVERNMENT MEDICAL BOARD EXAMINATION - July 13, 1938 - FIRST PLACE (TOPNOTCHER)
On Mar. 30, 1939 - [illegible] - "DR. WILLIAM BURKE GOLD MEDAL AWARD" -(As U.S.T. TOPNOTCHER)

Post-Graduate Studies: Clinical Pediatrics - Babies Hospital, Presbiterian Medical Center, New York City - May to Nov., 1947.

EXTERN PEDIATRICIAN - New York Hospital, New York City.
May - Nov., 1947.

POST-GRADUATE COURSE- CLINICAL PEDIATRICS - Harvard Medical Post-Graduate School and Children's Medical Center.
Boston & Cambridge, Massachusetts, U.S.A.
Certificate issued on Oct. 14, 1948.

"THE PSYCHOLOGY OF THE TEACHING-LEARNING PROCESS". - In-Service Training Program Seminar Workshop. A Course given for the members of the Faculty of Medicine & Surgery, U.S.T. - Credit - 3 Units - May 9 - June 17, 1972.

"TEACHING TRAINING WORKSHOP ON EVALUATION OF STUDENT LEARNING" - Inter-university inter-disciplinary Workshop for the Health Sciences - Under the auspices of the University of the Philippines System, College of Medicine Teacher Training Program. Held in Baguio City, Apr. 15-20, 1975.

Carmen ... , M. D. 31

GOVERNMENT POSITIONS HELD:

Office of the President, Republic of the Philippines-
PRESIDENTIAL APPOINTMENTS HELD:

MEMBER, BOARD OF MEDICAL EXAMINERS - September 29, 1963

CHAIRMAN, BOARD OF MEDICAL EXAMINERS - Oct. 1, 1963 to May 20, 1966

EXECUTIVE CHAIRMAN, ALL BOARDS OF EXAMINERS - Oct. 29, 1963 to May 20, 1966

MEMBER, BOARD OF MEDICAL EDUCATION
(As Chairman of the Board of Medical Examiners) - Oct. 1, 1963 to May 20, 1966

TRUSTEE, NATIONAL [illegible] FOR THE [illegible] OF PHILIPPINE [illegible] - May 4, 1963 to Dec. 31, 1965

MEMBERSHIP & PARTICIPATION IN ORGANIZATIONS DEDICATED TO THE ENHANCEMENT OF PUBLIC WELFARE AND INTEREST: -

INTERNATIONAL ORGANIZATIONS:-

1. INTERNATIONAL PEDIATRIC SOCIETY -
Philippine Delegate - Vth International Congress of Pediatrics Held in New York City - July, 1947.
Official Delegate of:
Phil. Pediatric Society - XIVth International Congress of Pediatric
University of the [illegible] Held in Buenos Aires, Argentina in Oct. 3-9, 1974

2. MEDICAL WOMEN'S INTERNATIONAL ASSN. -
Member, Organizing Committee
Chairman, [illegible]
- First Regional Meeting in Southeast Asia and the Western Pacific. Held in Manila, Jan. 28 to Feb. 3, 1956.

President, Phil. M.W. Int. Assn.(Past)
Council Member
Member, Committee on Status
Chairman, [illegible]
- IXth International Congress of M.W.I.A. Held in Manila, on Dec. 30 to Jan. 6, 1965.

Council Member
Chief Delegate of P.M.W.A.
President of the P.M.W.A.
- Xth General Assembly of the M.W.I.A. Held in Sandefjord, Norway, on June 29 to July 3, 1964.

Official Delegates:-
Phil. M.W. Int. Assn.
Univ. of [illegible]
- XIVth Congress of the M.W.I.A. Held in Rio de Janeiro, Brazil, on Oct. 13-18, 1974.

MEMBER, EXECUTIVE BOARD
COMMITTEE, M.W.I.A. (1975-76)
Official Delegate of P.M.W.A.
- XVth Congress of the M.W.I.A. Held in Tokyo, Japan on Aug. 22-27/76.

Julian G. Lopez, M. D. (3)

3. WORLD MEDICAL ASSOCIATION -

Official Delegate of Philippine Medical Assn.	- XVIIIth General Assembly, World Medical Association, Held in Helsinki, Finland. in June 13-19, 1964.
Member, Organizing Committee Chairman, Com. on Finance Chairman, Ladies Committee	- XXth General Assembly, World Medical Association. Held in Manila, on Nov. 6-13, 1964.

4. INTERNATIONAL ASSOCIATION OF CATHOLIC PHYSICIANS -

Member, Committee on Finance	- XIth International Congress of Catholic Physicians. Held in Manila, on Nov. 2-6, 1966.
Chairman, Committee on Medicine	- Ist Asian Congress of Catholic Physicians. Held in Manila, on Jan. 7-9/ 60
Official Delegate of The Catholic Physicians Guild of the Philippines.	- VIth Congress of the Asian Federation of Catholic Medical Associations. Held in Hongkong, on Nov. 5-9, 1976.

5. AMERICAN MEDICAL ASSOCIATION -

Philippine Delegate to	- 100th (CENTENNIAL) Anniversary & Convention of the American Medical Assn. Held in Atlantic City, U.S.A. in June/47

NATIONAL & LOCAL ORGANIZATIONS:-

1. PHILIPPINE [illegible] SOCIETY -

FELLOW	- July 28, 1955
SECRETARY-[illegible]	- 1952-1955
MEMBER, [illegible] BOARD (6 terms)	- 1955-1961
VICE-[illegible] (re-elected for 2 terms)	- 1961-1963
MEMBER, SPECIALTIES QUALIFYING BOARD	- 1962-1963
MEMBER, BOARD OF [illegible]	- 1963-1964
MEMBER, SPECIALTIES QUALIFYING BOARD	- 1976 - up to present

2. PHILIPPINE MEDICAL [illegible] ASSOCIATION -

LIFE MEMBER	- May 23, 1952
TREASURER	- 1951-1954
VICE-PRESIDENT & ACTING PRESIDENT	- 1954-1955
COMMITTEE	- 1955-1958
VICE-PRESIDENT & ACTING PRESIDENT	- 1958-1960
PRESIDENT (re-elected for 3 terms)	- 1961-1964
EX-OFFICIO MEMBER	- 1964-1965
ADVISER	- 1965-1971
MEMBER, BOARD OF TRUSTEES	- 1976- up to present

AWARDED - PLAQUE OF APPRECIATION - for 3 terms of LEADERSHIP as PRESIDENT -1964
AWARDED - MEDAL OF HONOR & DIPLOMA - for services rendered as PRESIDENT -1972
AWARDED - "[illegible] ACHIEVERS" - - as 1 of 10 P.M.W.A. ACHIEVERS -1978

M. D. ...

3. Philippine Medical Women's Association (GREATER MANILA CHAPTER - Later as MANILA CHAPTER) -

ADVISER - - - - 1969-1979-up to present

4. COUNCIL OF ... OF THE PHILIPPINES, INC. (CHAP) -

VICE-CHAIRMAN (or VICE-PRESIDENT) - - 1961-1962
DIRECTOR - 1962-1965
VICE-CHAIRMAN) or VICE-PRESIDENT) - - 1963-1964
AWARDS - 1967 OUTSTANDING C.H.A.P. AWARD FOR SERVICE - Sept. 29, 1968.

5. CIVIC ASSEMBLY OF ... OF THE PHILIPPINES, INC. -

COUNCIL ... - (3 terms) - - 1961-1964

6. PHILIPPINE ... OF ... ENGINEERS, INC. -

EXECUTIVE CHAIRMAN and ADVISER - 1963-1966
(of all Boards of the Asian)

7. PHILIPPINE ASSOCIATION OF UNIVERSITY WOMEN - U.S.T. CHAPTER -

ASSOCIATE DIRECTOR - 1952-1953
DIRECTOR - representing the Faculty of Medicine - 1953-1958

8. CATHOLIC PHYSICIANS' GUILD OF THE PHILIPPINES, INC. -

SECRETARY - (3 terms) - 1951-1954

9. FAMILY LIFE ... OF THE PHILIPPINES, INC. -

DIRECTOR - 1964-1966
TREASURER - 1966-1968
MEDICAL ADVISER - 1954-1968

10. PHILIPPINE ASSOCIATION OF ... MEDICAL WRITERS, INC. -

CORPORATE ... - 1962
DIRECTOR - 1962-1966

11. PHILIPPINE MEDICAL ... ASSOCIATION -

CHAIRMANSHIP of various Committees:-
National Nutrition Week Celebrations - Sept. 27, 1958
Library - 1960-1961
Board of Judges, ... National Art Contest - 1962-1964
4th Day of Philippine ... Week Celebrations - Sept. 25, 1965

12. PHILIPPINE ... OF ..., INC. -

MEMBER, Committee on Professional Group - 1962-1963
MEMBER, Committee on ... Membership - 1963-1966

13. YOUNG LADIES ASSOCIATION OF CHARITY, INC. (YLAC) -

ADVISER - 1963-1964

14. DAUGHTERS OF ISABELLA - U.S.T. CIRCLE 1198 -

CHAIRMAN, Committee on Membership - 1973 - up to present

16. INTER-UNIVERSITY HEALTH SCIENCES TEACHER TRAINING ALUMNI ASSOCIATION -

MEMBER, BOARD/EXECUTIVE COUNCIL (representing U.S.T.)- April 30, 1977 - up to present.

17. MATERNAL AND CHILD [illegible] ASSOCIATION OF THE PHILIPPINES -

LIFE MEMBER - May 15, 1977
CHAIRMAN, [illegible] - Jan. 19, 1978

18. ASSOCIATION OF PHILIPPINE MEDICAL COLLEGES, INC. -

CHAIRMAN / MEMBER of various Committees - 1967 - up to present

19. U.S.T. MEDICINE CLASS 1938 -

CHAIRMAN / CO-CHAIRMAN of various Celebrations - 1963 - up to present
Given "AWARD OF MERIT" - As OUTSTANDING SILVER JUBILARIAN WITH ACHIEVEMENTS in the Fields of Medicine, Medical Education and Professional Leadership. Given by UST Medicine Class 1938.

20. U.S.T. ALUMNI ASSOCIATION, INC. -

Given an AWARD - as "OUTSTANDING THOMASIAN CLASS - MEDICINE CLASS 1938" As MEMBERS who have contributed to its Achievements"
MEMBER, JUBILARIAN 1978 Committee - October, 1977

21. FACULTY ASSOCIATION OF THE UNIVERSITY OF SANTO TOMAS, INC. - "FAUST" -

DIRECTOR (representing Faculty of Medicine)- Sept. 11, 1977
TREASURER - Sept. 12, 1977 - present

22. U.S.T. MEDICAL ASSOCIATION, INC. -

LIFE MEMBER - Feb. 13, 1967
CHAIRMAN / MEMBER of various Committees

23. U.S.T. MEDICAL FACULTY ASSOCIATION -

DIRECTOR - (representing the Dept. of Pediatrics) - Jan. 18, 1975
TREASURER - Jan. 24, 1975 - up to present

24. U.S.T. COLLEGE OF [illegible] -

INSTRUCTOR - appointed by Fr. Rector	- June 1, 1950
ASSISTANT PROFESSOR	- Jan. 1, 1951
ASSOCIATE PROFESSOR	- Jan. 1, 1960 - Sept. 30, 63

25. SANTO TOMAS UNIVERSITY HOSPITAL -

SUPERVISOR OF THE NURSERY, Private Division	- Aug. 18, 1954 - Dec. 31/72
SUPERVISOR OF THE NEW BORN NURSERY and BOARDING NURSERY	- Jan. 15, 1973 - present
ADVISER, S.T.U.H. Plan of Organization	- 1974-1975
CONSULTANT, MEDICAL CLINIC, PRIVATE DIVISION	- Nov. 13, 1974 - present
HEAD, DIVISION OF PEDIATRICS - Appointed by Fr. Rector	- Oct. 1, 1975 - present

26. FACULTY OF MEDICINE & SURGERY -

DEPARTMENT OF PEDIATRICS -

INSTRUCTOR - Appointed by Fr. Rector	- June 1, 1939
ASSISTANT PROFESSOR	- Jan. 1, 1951
ASSOCIATE PROFESSOR	- Jan. 1, 1960
FULL PROFESSOR	- Nov. 1, 1973 - present
ACTING CHAIRMAN - Appointed by Fr. Rector	- Nov. - Dec., 1968
	- Apr. 1, 1975 - Oct. 31/75
CHAIRMAN - Appointed by Fr. Rector	- April 1, 1976 - present

AUTHOR of 26 Scientific and Medical Papers - which were Published in various medical journals.

Mead Johnson PHILIPPINES INC./P.O. BOX 1234, COMMERCIAL CENTER POST OFFICE, MAKATI, RIZAL, PHILIPPINES

May 2, 1978

Dear Dr. Mabilangan:

We understand that the business practices adopted by infant formula manufacturers operating in developing countries will be the subject of a US Senate inquiry in the near future. This inquiry is probably the result of recent criticisms hurled against infant formula manufacturers by well meaning but obviously misinformed critics. A recent magazine article states:

> ".... congressional hearings have begun into the activities of the US infant milk industry. Congressman Mike Harrington, who initiated the hearings, has called the companies' marketing activities "a potential threat to infant nutrition in developing nations."

To properly prepare ourselves against the unwarranted and unsupported charges, we are soliciting your assistance. We are requesting for your honest views on certain related topics that will likely be discussed in the hearing. These topics are listed in the enclosed questionnaire.

If you feel that you can give your professional views on the topics outlined in the questionnaire, we feel that your signed reply will help clarify the many misunderstandings and misrepresentations made against the business practices of infant formula manufacturers in the Philippines.

We thank you most kindly for your assistance in bringing light to a muddled issue.

Very truly yours,

MEAD JOHNSON PHILIPPINES INC.

E. E. ENRIQUEZ
Executive Vice President

Research for Life

FORTUNATO R. GOMEZ, M.D.

1. No.

2. MANY FILIPINO MOTHERS BELONG TO THE WORKING CLASS AND MANY ARE INCONVENIENCED BY SOLELY BREAST FEEDING. SO, WE GIVE THEM PROPER INFANT FORMULA OR SUPPLEMENT, INFANT FORMULA TO MIX FEEDING. THOSE WITH AFFECTIOUS OF THE BREAST AND CANNOT BREASTFEED AND THOSE WITH INADEQUATE BREAST SECRETION AND DURING POST WEANING PERIOD, INFANT FORMULA WILL BENEFIT.

3. RICE WATER OR RICE PORRIDGE. RESULT: MALNUTRITION DUE TO PROTEIN DEFICIENCY.

4. No. I STILL FEEL THE NECESSITY OF INFANT FORMULA AS FAR AS UTILIZING A HIGHLY NUTRITIOUS SUPPLEMENT OR SUBSTITUTE TO BREAST FEEDING ON THE ORDINARY FILIPINO INFANTS DIET.

5. No. THE CAUSES OF MALNUTRITION IN POOR FAMILIES IS THAT THE LIMIT THEIR DIET TO RICE MEAL WITH INADEQUATE PROTEIN. THOSE POOR BABIES WHO ARE ON BREASTFEEDING OR WHO ARE ON PROPER INFANT FORMULA DO NOT BECOME UNDERNOURISHED.

6. I DON'T THINK SO. IN THE HOSPITALWHERE I AM CONNECTED ALL THE CONSULTANT PEDIATRICIANS ARE CONSCIOUSLY ADVOCATING BREASTFEEDING TO ALL NEWBORNS, AND THE JUDGEMENT TO USE FORMULA IS NEVER INFLUENCED BY WHATEVER FREE SAMPLES GIVEN.

7. AS LONG AS THERE IS NO STRING ATTACHED TO THE DONATION OF NECESSARY EQUIPMENTS TO NURSERIES THAT REALLY ARE IN DIRE NEED I FEEL IT IS JUSTIFIED. THESE DONATIONS ARE REALLY OF GREAT HELP TO SOME OF OUR NURSERIES - LIKE INCUBATORS. MANY HOSPITALS ARE INADEQUATELY SUPPLIED WITH NURSERY EQUIPMENT.

8. YES, THESE SUPPLIES AND EQUIPMENTS ARE IMPORTANT TO US OR OUR HOSPITALS.

   NO, OUR PROFESSIONAL JUDGEMENT ARE NEVER INFLUENCED BY WHATEVER DONA DONATIONS GIVEN.

9. YES, I THINK THIS PRACTICE SHOULD BE STOPPED.

10. A) THEY ARE DOING A LOT OF HELP TO SOLVE THE FEEDING AND NUTRITION PROBLEMS OF OUR FILIPINO INFANTS. MORTALITIES WOULD BE VERY HIGH ESPECIALLY AMONG BABIES WITH MILK INTOLERANCE HAD NOT THESE COMPANIES PRODUCE THE NECESSARY THERAPEUTIC MILKS SPECIFIC FOR THE VARIED MILK INTOLERANCE. MANY BABIES WOULD ALSO BE UNDER NOURISHED AS THEY WOULD SHIFT TO RICE MEALS.

    B) I BELIEVE THE MARKETING PRACTICES OF MEAD JOHNSON PHIL. AND OTHER MILK COMPANIES ARE WELL WITHIN ETHICAL LEVELS. WE ARE GIVEN A FREE HAND AS FAR AS PRESCRIBING OR PROFESSIONAL JUDGEMENT IS CONCERNED.

BIO DATA

1. ACADEMIC EDUCATION" - GRADUATED DOCTOR OF MEDICINE - 1956
   UNIVERSITY OF STO. TOMAS, MANILA, PHILIPPINES.

2. PROFESSIONAL QUALIFICATIONS"
   PEDIATRIC RESIDENCY - 1959-1963
   SOUTHER ISLANDS HOSPITAL, CEBU CITY, PHILIPPINES
   ✗ DIPLOMATE IN PEDIATRICS - MARCH 16, 1963 (PHIL PED SOC)
   ✗ FELLOW, PHIL. PEDIATRIC SOCIETY - DEC. 16, 1976

3. PROFESSIONAL AFFILIATION"
   PHILIPPINE PEDIATRIC SOCIETY - (INCUMBENT PRESIDENT -
   CEBU CITY CHAPTER (JULY 1977-JUNE 1978)
   ✗ PHILIPPINE MEDICAL ASSOCIATION - MEMBER

4. HOSPITAL CONNECTIONS:
   ✗ CEBU DOCTORS HOSPITAL - CONSULTANT, PEDIATRIC (CEBU CITY)
   ✗ CEBU COMMUNITY HOSPITAL - CONSULTANT, PEDIATRICS (CEBU CITY)
   (PAST CHAIRMAN - 1975-77) PEDIATRICS

5. GOVERNMENT POSITIONS:
   CHAIRMAN, PEDIATRICS - 1966 - 1977
   SOUTHERN ISLAND HOSPITAL, CEBU CITY

QUESTIONNAIRE RE INFANT FORMULA BUSINESS

1. Western critics say that infant formula is a prime cause of infant mortality. Do you agree that in the Philippines the use of infant formula is a prime cause of infant mortality?

   No.

2. If you do not agree with the above statement, do you feel there is a justified need for infant formula in the Philippines? What, in your opinion, are the benefits to be derived by Filipino mothers and infants on the use of infant formula? Many Filipino mothers belong to the working class & many are inconvenienced by solely breast feeding. So, we give them proper infant formula or supplement infant formula to mix feeding. Those w/ affections of the breast & cannot breast feed & those with inadequate breast secretion & during post weaning period, infant formula will benefit.

3. Before the introduction of infant formula in the Philippines, what kind of supplemental food was used for Filipino infants? What were the problems, if any, in connection with the use of such supplemental foods? Rice water or rice porridge. Result: Malnutrition due to protein deficiency.

4. Would you favor dropping the use of infant formula and returning to the use of supplemental food mentioned in the preceding number? Why? NO. I still feel the necessity of infant formula as far as utilizing a highly nutritious supplement or substitute to breast feeding or the ordinary Filipino infants diet.

5. Would you say there is widespread abuse of the use of infant formula among the poor families in the Philippines? No. The causes of malnutrition in poor families is that the limit their diet to rice meal with inadequate protein. Those poor babies who are on breast feeding or who are on proper infant formula do not become under-nourished.

6. There have been criticisms in western countries that the distribution of free stock of infant formula to the hospital nurseries and that of free samples (of infant formula products) to physicians tend to influence the professional judgment of the nursery personnel and the physicians in recommending formula feeding over breastfeeding. Could you comment on this criticism?
I don't think so. In the hospital where I am connected all the consultant pediatricians are conscious advocating breastfeeding to all newborns, and the judgement to use formula is never influenced by whatever free samples given.

7. Occasionally infant formula manufacturers, on the solicitation of the hospital administration, donate hospital equipment or hospital supplies to the nursery. Would you care to comment on whether this practice, that of infant formula manufacturers donating hospital equipment or supplies to under-equipped hospital nurseries, should continue or should be stopped? Please give the reasons in support of your view. As long as there is no strong attached to the donation of necessary equipments to nurseries that really are in dire need I feel it is justified. These donations are really of great help to some of our nurseries - like incubators. Many hospitals are inadequately supplied with nursery equipments.

8. Are donations of hospital supplies and equipment important to you or your hospital? Would such donations made by the infant formula manufacturers affect your professional judgment in recommending formula feeding over breastfeeding?
Yes, these supplies & equipments are important to us or our hospital.
No, our professional judgement are never influenced by whatever donations given.

9. Western critics say that mothercraft nurses exert improper and undue influence in discouraging breastfeeding in the Philippines. Would you comment on this statement? Yes. I think this practice should be stopped.

10. Would you care to make a statement relative to what the infant formula companies (such as Mead Johnson Philippines Inc.) are doing in the Philippines in connection with (a) the feeding, nutrition and care of infants, and (b) its marketing practices
(a) they are doing a lot of help to solve the feeding & nutrition problems of our Filipino infants. Mortalities would be very high especially among babies with milk intolerance had not these companies produce the necessary therapeutic milks specific for the varied milk intolerance. Many babies would also be undernourished as they would shift to rice meals.
(b) I believe the marketing practices of Mead Johnson Phil. + other milk companies are well within ethical levels we are given a free hand.
as far prescribing or professional judgment is concerned.

Fortunato R. Gonzaga B.
SIGNATURE OF INTERVIEWEE

Date: May 4, 1921
Place: Cebu City, Phil.

Fortunato R. Gomez, M. D.
Pediatrician

Office: Cebu Doctors Hosp., Cebu City
Rm. A-214 Mezzanine
Res. : Tabunoc, Talisay, Cebu
Infront Police Station

Tel. 7-02-22
4:00-6:00 P.M.
Tel. 9-50-32
9:00-12:00 A.M.

- Biodata -

Academic Education:
Graduated Doctor of Medicine - 1956
University of Sto. Tomas, Manila, Phil.

Professional Qualifications:
Pediatric Residency - 1959-1963
Southern Islands Hosp., Cebu city Phil.
Diplomate in Pediatrics - March 16, 1963
(Phil. Ped. Society)
Fellow, Phil. Pediatric Society - Dec. 16, 1976

Professional Affiliation:
Philippine Pediatric Society -
(Incumbent President - Cebu city chapter (July 1977 - June 1979
Philippine Medical Association ___ member

Hospital connections:
Cebu Doctors Hospital - consultant, Pediatrics
(Cebu city, Phil.)
Cebu community Hosp - consultant, Pediatrics
(Cebu city) (Past chairman - 1975-77 Pediatrics

Government Positions:
Chairman, Pediatrics - 1966 - 1972
Southern Island Hospital
Cebu city, Phil.

LICERIO A. CERNA, M.D. 33

1. No! Perinatal mortality due to factors operating adversely prenatally, during labor and immediately after birth are the major cause of infant mortality. Infection in later months is another factor.

2. Yes, there is this justified need for infant formula in the Philippines - being a developing country. There is no other food substitute to mother's milk other than these infant formulas. Where mothers refuse to breastfeed even on vehement prodding by Pediatricians, then the formula is the answer to both mother and child.

3. Home prepared cereals, fruit juices, and milk from cows, goats and carabaos - all of which lack the sterility we find in most proprietary formula. These results in gastrointestinal problems and the disparity of vitamin, mineral, protein, carbohydrate and fat contents appropriate for babies.

4. No. This is definitely a move towards retogression - going back to prehistoric ages. Mother's milk is ideal for babies up to about 5-7 months only, after which, it cannot be depended upon solely, quantitatively and qualitatively.

5. No. In the Philippine population and setting this is the group that gets the least of infant formula because they cannot afford it. We cannot abuse on something that constitutes as a luxury.

6. TO THE UNINFORMED INDIVIDUAL, THIS PRACTICE INFLUENCES A LOT IN THEIR CHOICE OF INFANT FEEDING. HOWEVER, TO THE PEDIATRICIANS, OTHER MD'S AND HOPINGLY TO THE OTHER NURSERY PERSONNEL THEY KNOW THE ADVANTAGE OF MOTHER'S MILK.

7. TO THE UNDEREQUIPPED HOSPITALS AND MEAGERLY FINANCED NURSERY, THIS IS A GREAT HELP AND A SAMARITAN GESTURE THAT SHOULD BE THANKED FOR NOT ONLY BY THE INSTITUTION BUT BY THE PUBLIC IN GENERAL WHO ULTIMATELY STAND TO BENEFIT OF THE CHARITY. THIS IS ESPECIALLY SO A NON-GOVERNMENT SUBSIDIZED HOWPITALS. LIKE IN THE PHILIPPINES.

8. I ACKNOWLEDGE THAT BENEFTIS IN ALL THE HOSPITALS AND NURSERIES WHICH ARE RECIPIENTS OF SUCH DONATIONS. AS A PROFESSIONAL THESE FORMULAS ARE NO COMPARISON TO THE BEST MILK. HOWEVER, IN THE CHOICE OF FORMULAS THEN SUCH DONATIONS ARE A GOOD REMINDER OF THE COMPANY.

9. YES. ESPECIALLY BY SOME OTHER COMPANIES AND THIS IS NOT PECULIAR IN THE PHILIPPINES ONLY, ALL THE COUNTRIES WHERE THESE FORMULAS ARE AVAILABLE SUFFER THE SAME UNETHICAL INFLUENCE BY SOME COMPANIES.

10. YES. PLEASE SEE IN THE ATTACHED ADDITION SHEET. THERE IS NO QUESTION OF THE ADVANTAGE OF HAVING PROPRIETARY MILK FORMULA AVAILABLE TO THE MEDICAL PROFESSION, NOT TO MENTION OF THE SPECIAL FORMULAS SUITED TO FIT THE

10 (CONT)

THE SPECIAL NEEDS OF UNSUAL.. BABIES. THIS IS A GREAT BOLSTER TO INFANT FEEDING AND NUTRITION. ASIDE FROM HAVING THESE AVAILABLE ON TOP OF THE EASILY AVAILABLE MOTHER/S MILK, THE BOOKLETS GIVEN OUT BY THE COMPANY THRU THE MD'S REGARDING INFANT FEEDING, BATHING, IMMUNIZATION, ETC. - INFANT CARE IN GENERAL IS A GREAT HELP TO BOTH MD'S AND PARENTS.

THERE ARE THREE MAJOR COMPANIES IN THE PHILIPPINES THAT CATER INFANT FEEDING FORMULAS. ALL EXCEPT ONE STRICLY ADHERE TO THE TENETS OF ETHICAL PROMOTION - THEY DO NOT ADVERTISE THEIR MILK PRODUCTS IN NEWSPAPERS OR MAGAZINES, TV OR RADIO, FOR PUBLIC CONSUMPTION, NOR DO THEY GO TO THE EXTENT OF DOLLING OUT FREE MILK SAMPLES TO THE MOTHERS AND NON-MD NURSERY PERSONNEL.

JUST LIKE PHARMACEUTICAL PRODUCTS, FOR AS LONG AS STRICT ETHICAL PROMOTION IS ADHERED TO, THERE SHOULD NOT BE ANY HARM DONE TO THE PUBLIC OR THESE MILK PRODUCTS. THERE IS NOTHING WRONG WITH THE PRODUCT - BUT ONCE ITS USE IS ABUSED THESE UNETHICAL PROMOTION, THEN THE PUBLIC MAY STAND TO SUFFER THE CONSEQUENCES. THESE MILK PRODUCTS ARE GOOD AND THEIR PROMOTION AND DISTRIBUTION SHOULD BE THE ONE THAT SHOULD BE CONGROLLED AND STRICTLY SUPERVISED. AND SADLY, ONLY MEAD

JOHNSON AND PARTIALLY NESTLE HAVE FULFILLED THE EXPECTATIONS OF THE PEDIATRICIANS AS FAR AS MARKETING ETHICS.

BIO DATA

1. PEDIATRICIAN - CDH, CCH, CHH, CVGH

2. CHAIRMAN - DEPARTMENT OF PEDIATRICS CCRM

3. HEAD, DEPARTMENT OF PEDIATRICS, DVGH

4. PAST-PRESIDENT - PHILIPPINE PEDIATRIC SOCIETY - CEBU CHAPTER

QUESTIONNAIRE RE INFANT FORMULA BUSINESS

1. Western critics say that infant formula is a prime cause of infant mortality. Do you agree that in the Philippines the use of infant formula is a prime cause of infant mortality? No! Perinatal mortality due to factors operating adversely prenatally during labor & immediately after birth are the major cause of infant mortality. Infection in later months is [illegible]

2. If you do not agree with the above statement, do you feel there is a justified need for infant formula in the Philippines? What, in your opinion, are the benefits to be derived by Filipino mothers and infants on the use of infant formula? Yes, there is this justified need for infant formula in the Philippines - being a developing country. There is no other good substitute to mother's milk other than these infant formulas. Where mothers refuse to breastfeed even on vehement prodding by Pediatricians, then the formula is the answer to both mother & child.

3. Before the introduction of infant formula in the Philippines, what kind of supplemental food was used for Filipino infants? What were the problems, if any, in connection with the use of such supplemental foods? Home prepared cereals, fruit juices, and milk from cows, goats & carabaos all of which lack the sterility we find in most proprietary formula. These results in gastrointestinal problems and the disparity of vitamin, mineral, protein, carbohydrate and fat contents appropriate for babies.

4. Would you favor dropping the use of infant formula and returning to the use of supplemental food mentioned in the preceding number? Why? No. This is definitely a move towards retrogression - going back to prehistoric ages. Mother's milk is ideal for babies up to about 5-7 months only, after which, it can not be depended upon solely, quantitatively and qualitatively.

5. Would you say there is widespread abuse of the use of infant formula among the poor families in the Philippines? No. In the Philippine population of setting this is the group that gets the least of infant formula because they can not afford it. We can not abuse on something that constitutes as a luxury.

6. There have been criticisms in western countries that the distribution of free stock of infant formula to the hospital nurseries and that of free samples (of infant formula products) to physicians tend to influence the professional judgment of the nursery personnel and the physicians in recommending formula feeding over breastfeeding. Could you comment on this criticism?
To the uninformed individual, this practice influences a lot in their choice of infant feeding. However to the Pediatricians, other MD's whoping to the other nursery personnels, they know the advantage of both sides.

7. Occasionally infant formula manufacturers, on the solicitation of the hospital administration, donate hospital equipment or hospital supplies to the nursery. Would you care to comment on whether this practice, that of infant formula manufacturers donating hospital equipment or supplies to under-equipped hospital nurseries, should continue or should be stopped? Please give the reasons in support of your view. To the underequipped hospitals and the meagerly financed nursery, this is a great help and a Samaritan gesture that should be thanked for, not only by the institution but by the public in general who although stand to benefit of the charity, this is especially so in NON-government subsidiaries.

8. Are donations of hospital supplies and equipment important to you or your hospital? Would such donations made by the infant formula manufacturers affect your professional judgment in recommending formula feeding over breastfeeding? I acknowledge Hosp. Ins. in R.P. such benefits in all the hospitals & nurseries which are recipient of such donations. As a professional - these formulas are no comparison to the breast-milk. However, in the choice between formulas - then such donations are a sure reminder to the company.

9. Western critics say that mothercraft nurses exert improper and undue influence in discouraging breastfeeding in the Philippines. Would you comment on this statement? Yes, especially by some other companies. And this is not peculiar in the Philippines only, all the countries where these formulas are available suffer the same unethical influence by some companies.

10. Would you care to make a statement relative to what the infant formula companies (such as Mead Johnson Philippines Inc.) are doing in the Philippines in connection with (a) the feeding, nutrition and care of infants, and (b) its marketing practices
Yes, Please see in the attack addition sheet.

Licinio C. Cenmure
SIGNATURE OF INTERVIEWEE

Date : May 4, 1978
Place: Cebu City, Philippines.

Licerio A. Cerna, M.D.
PEDIATRICS-ADOLESCENT MEDICINE
CEBU DOCTORS' HOSPITAL
Suite A-113, Osmeña Blvd.
Cebu City

May 4, 1978
Cebu City

Re: Question # 10

There is no question of the advantage of having proprietary milk formula available to the medical profession, not to mention of the special formulas suited to fit the special needs of unusual babies. This is a great boon to infant feeding and nutrition. Aside from having these available on top of the easily available mothers milk, the booklets given out by the company thru the M.D's regarding infant feeding, bathing, immunization, etc - infant care in general is a great help to both M.D's & parents.

There are three major companies in the Philippines that sales infant feeding formulas. All except one strictly adhere to the tenets of ethical promotion - they do not advertise their milk products in newspapers & magazines for public consumption, nor do they go to the extent of calling

out free milk samples to the mothers and non-MD nursery personals.

Just like pharmaceutical products, for as long as strict ethical promotion is adhered to, there should not be any harm done to the public on these milk products. There is nothing wrong with the product - but once its use is abused thru unethical promotion, then the public may stand to suffer the consequence. These milk products are good and their promotion and distribution should be the ones that should be controlled and strictly supervised. And sadly, only Mead Johnson and partially Nestlé have fulfilled the expectations of the Pediatricians as far as marketing ethics.

Lucien G. Cammer
- Pediatrician - CDH, CEH, CHH, EVGH
- Chairman - Dept of Pediatrics
- Head, CCM, Dept. of Pediatrics,
- ~~Partner~~ CDEH, Past-President - Phil. Ped. Society - Eastern Chapter.

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DR. JOSEFINA DEL VILLAR-CALAYAN

1. We have been managing 2 nurseries for 12 years now and so far our infant mortality were not due to infant formula.

2. Yes. Not all Filipino mothers are healthy. Most of our mothers belong to the low-income bracket so that they can't support their offsprings by breastfeeding their babies.

3. Rice water may widely used as supplemental food together with camote and rice. Too much carbohydrates are given instead of protein rich food which during infancy only infant formula can give.

4. Definitely NOT. Because the infant formula is the food which closely approximate breasts' milk.

5. No.

6. Physicians are not influenced in their judgement by these free stocks of infant formula. The well-being of the infant comes first.

7. I think when infant formula manufacturers give or donate hospital equipment it is the spirit of helping & we're grateful for receiving such help.

8. The answer is a big YES esp. for us - private institutions without any subsidy from the government, however, our professional judgement is still on top of this.

9. This is not rue with our mothercraft nurses here.

10. It's highly on a professional level.

DR. JOSEFINA DEL VILLAR-CALAYAN

Academic Education : Doctor of Medicine, University of the Philippines

Professional Qualifications : Fellow - POGS
Fellow - PCS

Professional Affiliations : PMA, POGS, PCS, PMWA

Hospital Connections & Title : Principal - Medical Center of Lucena City.
Assistant Director - Medical Center of Lucena City.

QUESTIONNAIRE RE INFANT FORMULA BUSINESS

1. Western critics say that infant formula is a prime cause of infant mortality. Do you agree that in the Philippines the use of infant formula is a prime cause of infant mortality?

We have been managing 2 nurseries for 12 years now & so far our infant mortality were not due to infant formula

2. If you do not agree with the above statement, do you feel there is a justified need for infant formula in the Philippines? What, in your opinion, are the benefits to be derived by Filipino mothers and infants on the use of infant formula?

Yes.
Not all Filipino mothers are healthy. Most of our mothers belong to the low-income bracket so that they can't support their offsprings by breastfeeding their babies

3. Before the introduction of infant formula in the Philippines, what kind of supplemental food was used for Filipino infants? What were the problems, if any, in connection with the use of such supplemental foods?

Rice water was widely used as supplemental food together with camotes and rice. Too much carbohydrates are given instead of protein-rich foods which during infancy only infant formula can give

4. Would you favor dropping the use of infant formula and returning to the use of supplemental food mentioned in the preceding number? Why?

Definitely Not. Because the infant formula is the food which closely approximates breast milk.

5. Would you say there is widespread abuse of the use of infant formula among the poor families in the Philippines?

No.

6. There have been criticisms in western countries that the distribution of free stock of infant formula to the hospital nurseries and that of free samples (of infant formula products) to physicians tend to influence the professional judgment of the nursery personnel and the physicians in recommending formula feeding over breastfeeding. Could you comment on this criticism?

Physicians are not influenced in their judgment by these free stock of infant formula. The well-being of the infant comes first.

7. Occasionally infant formula manufacturers, on the solicitation of the hospital administration, donate hospital equipment or hospital supplies to the nursery. Would you care to comment on whether this practice, that of infant formula manufacturers donating hospital equipment or supplies to under-equipped hospital nurseries, should continue or should be stopped? Please give the reasons in support of your view.

I think when infant formula manufacturers give or donate hosp. equipment it is in the spirit of helping + symbiosis, in other words a give + take basis, + we're very grateful for receiving such help.

8. Are donations of hospital supplies and equipment important to you or your hospital? Would such donations made by the infant formula manufacturers affect your professional judgment in recommending formula feeding over breastfeeding?

The answer is a big "yes" esp. for us — private institutions without any subsidy fr. the government. However our professional judgment is still on top of this.

9. Western critics say that mothercraft nurses exert improper and undue influence in discouraging breastfeeding in the Philippines. Would you comment on this statement?

This is not true with our mothercraft nurses here.

10. Would you care to make a statement relative to what the infant formula companies (such as Mead Johnson Philippines Inc.) are doing in the Philippines in connection with (a) the feeding, nutrition and care of infants, and (b) its marketing practices

It is highly on a professional level.

Fr. Josefina del Villar-Calayan
SIGNATURE OF INTERVIEWEE FPOGS FPCS

Date : _____

Place: _____

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May 5, 1978
Cebu City
DR. I. F. FRAIR

1. It is not the prime factor but it could be one of the factors since the bulk of the mothers are economically underprivileged, hence, they may dilute.

2. There is a justified need for infant formula especially most of the mothers now are working.

3. Some of the supplemental foods are rice gruel* condensed milk**

*Hypoproteinemia

**anemia' infection, etc.

4. No.

5. No.

6. It maybe possible but it depends always on the decision of the mother as to whether she would like to nurse the baby or give infant formula.

7. It should not stopped since I am a consultant of a non-profit, non-stock hospital and is always short of funds. We could always improve our services if there are additional supply of every essential equipment such as Isolette, etc.

8. Yes. No such donations will not affect because at present we are already rooming in babies and inspite of the donations given by milk companies we are strongly recommending breast feeding.

9. Not in our hospital - Cebu Peuriculture and Maternity Hospital Inc.

10. All companies ofcourse exert undue pressure of salesmanship. This is understandable.

QUESTIONNAIRE RE INFANT FORMULA BUSINESS

1. Western critics say that infant formula is a prime cause of infant mortality. Do you agree that in the Philippines the use of infant formula is a prime cause of infant mortality? It is not the prime factor but it could be one of the factors since the bulk of the mothers are economically underprivileged hence they may dilute

2. If you do not agree with the above statement, do you feel there is a justified need for infant formula in the Philippines? What, in your opinion, are the benefits to be derived by Filipino mothers and infants on the use of infant formula? There is a justified need for infant formula especially most of the mothers now are working.

3. Before the introduction of infant formula in the Philippines, what kind of supplemental food was used for Filipino infants? What were the problems, if any, in connection with the use of such supplemental foods? Some of the supplemental foods are rice gruel, condensed milk

↓ ↓

Hypoproteinemia — anemia Infection etc.

4. Would you favor dropping the use of infant formula and returning to the use of supplemental food mentioned in the preceding number? Why?

No

5. Would you say there is widespread abuse of the use of infant formula among the poor families in the Philippines? No

1. the milks and may cause undernutrition.

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6. There have been criticisms in western countries that the distribution of free stock of infant formula to the hospital nurseries and that of free samples (of infant formula products) to physicians tend to influence the professional judgment of the nursery personnel and the physicians in recommending formula feeding over breastfeeding. Could you comment on this criticism?

It maybe possible but it depends always on the decision of the mother as to whether she would like to nurse the baby or give infant formula.

7. Occasionally infant formula manufacturers, on the solicitation of the hospital administration, donate hospital equipment or hospital supplies to the nursery. Would you care to comment on whether this practice, that of infant formula manufacturers donating hospital equipment or supplies to under-equipped hospital nurseries, should continue or should be stopped? Please give the reasons in support of your view. It should not stopped since I am a consultant of a non-profit, non stock hospital and is always short of funds we could always improve our services if there are additional supply of very essential equipment such as Incubator etc.

8. Are donations of hospital supplies and equipment important to you or your hospital? Would such donations made by the infant formula manufacturers affect your professional judgment in recommending formula feeding over breastfeeding? Yes. No such donations will not affect because at present we are already rooming in babies and inspite of the donations given by milk companies we are strongly recommending breast feeding.

9. Western critics say that mothercraft nurses exert improper and undue influence in discouraging breastfeeding in the Philippines. Would you comment on this statement? not in our hospital — Cebu Puericulture and Maternity Hospital Inc.

10. Would you care to make a statement relative to what the infant formula companies (such as Mead Johnson Philippines Inc.) are doing in the Philippines in connection with (a) the feeding, nutrition and care of infants, and (b) its marketing practices

All companies of course exert undue pressure I salesmanship. This is understandable

Teresa F. Fraser
SIGNATURE OF INTERVIEWEE

Consultant of Pediatrics
Cebu Puericulture &
Maternity Hosp Inc.

Date : May 5 1978
Place: Cebu City

May 5, 1978
Cagayan de Oro City
DR. PEDRO ABALOS.

1. No.

2. Yes, a working mother can go to her work without worrying about a hungry infant. Instances when mothers don't have sufficient milk to provide optimum growth and development of an infant hence the need for an infant formula.

3. Rice poridge was used. Usually infants develop malnutrition as this supplements contain more carbohydrates and lacks the necessary proteins.

4. No - this is our problem now - Malnutrition.

5. No infant formula abuse as poor families can't buy milk.

6. No, it is going to broaden the knowledge of the physician in the use of a particular product. Few days after delivery while waiting for the mother's milk to appear, an infant is already taking a formula but mothers had been brief of what to use but priority is given to breast-feeding giving several advantages.

7. No - why stop a certain company giving help as long as physicians connected to such an establishments are free to prescribe the formula of their choice.

8. Both. No - donations do not affect my professional judgement in recommending a formula as I always advise mothers that mothers'milk is still the best milk which can be had without much expense- and with several plus benefits.

9. I would not say so, however, there are always a certain percentage who may do so but I am sure majority don't. How about the dollar drain that my country is losing.

9. (Cont'd.)

No amount of mothercraft nurse nagging on a poor mother to buy a milk formula can help - No money.

10. Not much to say but your choice of a milk formula is as free as anybody else. Most infant formula companies make their products available to open consciousness among physicians thereby apply or prescribe it to their patients. Marketing practices - all has business foresights, and business is business and so there must be competitions.

SUBJECT: _____ 5-5-78
DATE

TO: _____

n Pedro T. ABALOS, M.D.

Date of Birth- Nov. 26, 1928
Place of birth - Bayambang, Pangasinan
Occupation -Physician (Pediatrician)
Doctor of Medicine 1958
Internship 1959-1960- All Souls Hospital
Morristown , New Jersey
Pediatric Residency- Hahnneman Medical School
1960-1961 Philadelphia, Henna.

1961-1964 St Lukes Hosp. & Children! Hosp.

Present
X Head Dept. of Pediatrics- Cagayan de Oro Med. Center
Capitol Gen. Hospital
X Consultant - Doctors Gen. Hospital Cagayan de Oro City
Maria Reyna Hospital

ABALOS MEDICAL CLINIC
No. 2 Lt. Guillermo St.
Cagayan de Oro City
Tel. No. 45-00
LIC. No. 20905

PEDRO T. ABALOS, M.D.

QUESTIONNAIRE RE INFANT FORMULA BUSINESS

1. Western critics say that infant formula is a prime cause of infant mortality. Do you agree that in the Philippines the use of infant formula is a prime cause of infant mortality?

no

2. If you do not agree with the above statement, do you feel there is a justified need for infant formula in the Philippines? What, in your opinion, are the benefits to be derived by Filipino mothers and infants on the use of infant formula?

yes, a working mother can go to her work without worrying about a hungry infant
instances when mothers don't have sufficient
milk to provide optimum growth & development
of an infant hence the need for an infant formula

3. Before the introduction of infant formula in the Philippines, what kind of supplemental food was used for Filipino infants? What were the problems, if any, in connection with the use of such supplemental foods?

Rice porridge was used. usually infants
develops malnutrition as this supplements
contain more carbohydrate and lacks
the necessary proteins

4. Would you favor dropping the use of infant formula and returning to the use of supplemental food mentioned in the preceding number? Why?

no — this is our problem now
malnutrition.

5. Would you say there is widespread abuse of the use of infant formula among the poor families in the Philippines?

no infant formula abuse as poor families can't buy
milk.

6. There have been criticisms in western countries that the distribution of free stock of infant formula to the hospital nurseries and that of free samples (of infant formula products) to physicians tend to influence the professional judgment of the nursery personnel and the physicians in recommending formula feeding over breastfeeding. Could you comment on this criticism?

no, it is going to broaden the knowledge of the physician in the use of a particular product. Two days after delivery while waiting for the mothers milk to appear an infant is already taking a formula but mothers had been brief of what to use but priority is given to breast feeding giving several advantages -

7. Occasionally infant formula manufacturers, on the solicitation of the hospital administration, donate hospital equipment or hospital supplies to the nursery. Would you care to comment on whether this practice, that of infant formula manufacturers donating hospital equipment or supplies to under-equipped hospital nurseries, should continue or should be stopped? Please give the reasons in support of your view.

NO why stop a certain company giving help as & long as physicians connected to such an establishments are free to prescribe the formula of their choice.

8. Are donations of hospital supplies and equipment important to you or your hospital? Would such donations made by the infant formula manufacturers affect your professional judgment in recommending formula feeding over breastfeeding?

Both. NO — Donations do not affect my professional judgement in recommending a formula as I always advise mothers that mothers milk is still the best milk which can be had w/o much expense and with several plus benefits.

9. Western critics say that mothercraft nurses exert improper and undue influence in discouraging breastfeeding in the Philippines. Would you comment on this statement?

I would not say so however there are always a certain percentage who may do so but I am sure majority don't. How about the dollar drain that my country is losing. no amount of mother craft nurse nagging on poor mother to buy milk formula can help. — NO money

10. Would you care to make a statement relative to what the infant formula companies (such as Mead Johnson Philippines Inc.) are doing in the Philippines in connection with (a) the feeding, nutrition and care of infants, and (b) its marketing practices

not much to say but your choice of a milk formula is as free as any body else. most infant formula companies make their products available to open consciousness among physicians thereby apply to prescribe it to their patients. Marketing practices — all has business forsights, and business is business and so there must be competitions.

ABalos, M.D.
SIGNATURE OF INTERVIEWEE
PEDRO T. ABALOS, M.D.

Date : 5-5-78

Place: ABALOS clinic
#2 Lt. Guillermo St -
Cagayan de Oro city
Philippines

Dr. Guillermo R. Blanco, Cebu 31

1. No. Prime Cause is 1) Respiratory 2) Tuberculosis

2. Yes. There is a need. Benefits: 1) When breastfeeding is not available. 2) Powdered milk prepatations do not need refrigeration, which is not available to many of our people. 3) Gives the necessary nutrients to the babies (except condensed milk)

3. Rice water - mostly carbohydrates only.
Problems that arise: relative malnutrition especially if breast milk was no available, also avitaminosis.

4. No - for the above problems that arise.

5. No - for all milk preparations, except condensed milk which should not be used for infant feeding, but our poor families can most often only afford condensed milk.

6. Never! Any physician, "worth his salt" can never place any milk formula as superior to breast feeding. It is M.D.'s who prescribe formulas in hospital nurseries, and the hospital personnel.

7. No - provided that it is clearly understood that the donations has no string attached to it. Thedonation will improve hospital-care provided for the patient, which in the final analysis is what medicine is all about - The patient.

2-

8. Yes - to improve the quality of patient care, again provided not "string" is attached.

No - see # 6, above.

9. In some isolated instances, Yes, due to over-zealous personnel. But most leading hospitals do not allow mothercraft nurses from being even in the obstetric floor, much less see the patients in the hospital.

10. a) It is helping a great deal! And these companies have always maintained that breast feeding is the best for infant feeding; to use their product only in the absence of breastfeeding.

b) Marketing practices have been generally very ethical.

GUILLERMO R. BLANCO, M.D.
Interviewee

Date: May 4, 1978

Place: Cebu Doctor's Hospital
Cebu City

QUESTIONNAIRE RE INFANT FORMULA BUSINESS

1. Western critics say that infant formula is a prime cause of infant mortality. Do you agree that in the Philippines the use of infant formula is a prime cause of infant mortality?

NO.
Prime cause is: ① Respiratory Disease ② Tuberculosis

2. If you do not agree with the above statement, do you feel there is a justified need for infant formula in the Philippines? What, in your opinion, are the benefits to be derived by Filipino mothers and infants on the use of infant formula?

Yes, there is a need. Benefits: ① When breastfeeding is not available ② Powdered milk preparations do not need refrigeration, which is not available for many people. ③ Gives the necessary nutrients to be better (except Condensed milk)

3. Before the introduction of infant formula in the Philippines, what kind of supplemental food was used for Filipino infants? What were the problems, if any, in connection with the use of such supplemental foods?

Rice water - mostly carbohydrates only.
Problems that arise: relative malnutrition, esp. if breast milk are not available; also avitaminosis.

4. Would you favor dropping the use of infant formula and returning to the use of supplemental food mentioned in the preceding number? Why?

NO - for the above problems that arise.

5. Would you say there is widespread abuse of the use of infant formula among the poor families in the Philippines?

NO - for all milk preparations except: condensed milk which should NOT be used for infant feeding, but as poor families can most often only afford condensed milk.

6. There have been criticisms in western countries that the distribution of free stock of infant formula to the hospital nurseries and that of free samples (of infant formula products) to physicians tend to influence the professional judgment of the nursery personnel and the physicians in recommending formula feeding over breastfeeding. Could you comment on this criticism?

Never! Any physician, "worth his salt", can never place any milk formula as superior to breast feeding. It is M.D.s who prescribe formulas in hospital nurseries + not the hospital personnel.

7. Occasionally infant formula manufacturers, on the solicitation of the hospital administration, donate hospital equipment or hospital supplies to the nursery. Would you care to comment on whether this practice, that of infant formula manufacturers donating hospital equipment or supplies to under-equipped hospital nurseries, should continue or should be stopped? Please give the reasons in support of your view.

NO - provided that it is clearly understood that the donation has no string attached to it. The donation will improve hospital-care provided for the patient, which in the final analysis, is what medicine in all aspects + the patient

8. Are donations of hospital supplies and equipment important to you or your hospital? Would such donations made by the infant formula manufacturers affect your professional judgment in recommending formula feeding over breastfeeding?

Yes - to improve the quality of patient care, again, provided no "string" is attached.

NO - see # 6. above.

9. Western critics say that mothercraft nurses exert improper and undue influence in discouraging breastfeeding in the Philippines. Would you comment on this statement?

In some isolated instances - yes, due to over-zealous personnel. But most leading hospitals do not allow mothercraft nurses from being seen in the obstetric floor, much less see the patients in the hospital.

10. Would you care to make a statement relative to what the infant formula companies (such as Mead Johnson Philippines Inc.) are doing in the Philippines in connection with (a) the feeding, nutrition and care of infants, and (b) its marketing practices

a) It is helping a great deal! And these companies have always maintained that breastfeeding is the best for infant feeding; to use their product only in the absence of breastfeeding.

b) Marketing practices have been generally very ethical.

SIGNATURE OF INTERVIEWEE
GUILLERMO R. BIMCO, M.D.
PTR 0651617 (Jan 13, 1978)

Date : Aug. 4, '78
Place: Cebu Doctors' Hospital
Cebu City
Philippines

From the desk of:

Guillermo R. Blanco, M. D.

PEDIATRICIAN

Daily Mondays to Saturdays. Sundays by appointment only.

9:00–12:00 A. M.
CEBU DOCTORS' HOSPITAL
RM. A-202 TEL. 9-60-55

3:00–7:00 P. M.
THE CHILDREN'S CLINIC
353-A, GEN. MAXILOM AVE.
CEBU CITY, CEBU. TEL. 7-19-41

RESIDENCE: TEL. 7-21-64

Academic: Pre-Med = U.P. Diliman
Medicine: UST Coll of Medicine
(Class '58)

Qualification: Diplomate & Fellow in Pediatrics
Phil. Pediatric Society, Inc.

Affiliations:
1) Phil. Pediatric Society, Inc.
President - Cebu chapter
1967-69
2) Phil. Medical Association
3) Cebu Medical Society
4) UST Medical Alumni Assoc.,
Cebu chapter
President - 1968

Hospitals: 1) Cebu Doctors Hospital - Active Pedia. Staff
a) Pediatrics Dept. Chairman
1972-74
b) Member, Board of Directors
1970-77 (now)

(2) Visiting Consultant (Pediatrics)
a) Perpetual Succour Hospital
b) Wong Hua Hospital
c) Wm Community Hospital
d) Sacred Heart Hospital

(3) St. Theresa's Charity Clinic, Whitby
Medical Director & founder.

(4) Special Child Association of Wm, Inc.
(Mentally Retarded Children)
Board member & Medical Director.

May 4, 1978
Baguio City
DR. RHODORA DAMASO DIAZ

1. No.

2. Definitely. Although we do encourage breastfeeding and prefers it to any modified cow's milk formulas, there are many instances where infant formula is of importance. The prematurity rate is higher (compared to US), and often we cannot obtain breast milk for premature infants, nor can we do some "thickening" to increase calorie content. Iron fortified formulas are of special benefit. Besides, solids given during the first year are often of poor quality protein.

3. Supplemental foods given by mothers often consisted of rice water or rice gruel, sometimes with some fish or vegetable broth (of course, better mother-education improved food quality).

   The main problem with such supplemental foods was of course its very low protein content.

4. No. I would favor encouraging more breastfeeding but certainly not dropping use of infant formulas.

5. No. The poorer families do not "abuse" infant formulas. Rather because if the poor keeping quality of certain milks and their limited capacity to buy, they may use very dilute condensed milk formulas.

6. This is probably true to some extent, but I think the fault is in the ethics of our nurses, midwives and physicians. Of course, some companies have to be condemned also, in that, they give a can of infant formula to the personnel who can 'prescribe' their particular brand.

7. *This practice may be continued with certain limitations. Reasons: Some hospitals just cannot afford or the administration refuses to see the need for certain equipment that would improve service in a nursery, and this may seem to be the only solution.*

   Limitations on the agreement should be that -

   1) Mother's choice be respected and breastfeeding encouraged

   2) Special needs should be confined to company brand.

8. *No donation would influence my recommending breastfeeding as the best method of infant feeding.*

9. *Some probably do, but this is because the importance of breastfeeding was not really emphasized to them during their own training.*

10. *Mead-Johnson on the whole, appears to be trying hard to be ethical in its marketing of its products.*

DBMC: RHODORA DAMASO DIAZ

UNIVERSITY OF THE PHILIPPINES. B.S., M.D.

Post Graduate Training:

Newark

Pediatric Resident - Newark Beth Israel Med. Center, Newark. N.J. 1972 - 74

Third year pediatric resident:
6 mos chief resident
6 mos acting fellow in neonatology } 1974 - 1975

Combined fellowship in pediatrics (infectious disease and ambulatory pediatrics) 1975-1976

X Fellow of the American Board of Pediatrics

Presently:

X Member of the Phil Ped. Society (fulfilling requirement for Fellow)

X Instructor, Cebu Institute of Medicine - Cebu Valley General Hospital

X Director of Medical Education, Cebu Community Hospital

X Consultant in Pediatrics: Cebu Doctors' Hospital, Cebu (Velez) General Hospital, Cebu Community Hospital, Perpetual Succour Hospital.

QUESTIONNAIRE RE INFANT FORMULA BUSINESS

1. Western critics say that infant formula is a prime cause of infant mortality. Do you agree that in the Philippines the use of infant formula is a prime cause of infant mortality?

No

2. If you do not agree with the above statement, do you feel there is a justified need for infant formula in the Philippines? What, in your opinion, are the benefits to be derived by Filipino mothers and infants on the use of infant formula?

Definitely. Although we do encourage breast-feeding and prefer it to any modified cow's milk formula, there are many instances where infant formula is of importance. The prematurity rate is higher (comp. to [illegible]) and often we cannot obtain breast milk for premature infants, nor can we do some "thickening" to increase calorie content. Iron-fortified formulas are of special benefit. Besides solids, during the first year and often of poor quality

3. Before the introduction of infant formula in the Philippines, what kind of supplemental food was used for Filipino infants? What were the problems, if any, in connection with the use of such supplemental foods?

Supplemental foods given by mothers often consisted of rice water or rice gruel, sometimes with some fish or vegetable broth [of course, better mother-education improved food quality]

The main problem with such supplemental foods was of course its very low protein content

4. Would you favor dropping the use of infant formula and returning to the use of supplemental food mentioned in the preceding number? Why?

No. I would favor encouraging more breast feeding but certainly not dropping use of infant formulas.

5. Would you say there is widespread abuse of the use of infant formula among the poor families in the Philippines?

No. The poor families do not "abuse" infant formulas. Rather, because of the poor keeping quality of certain milks and their limited capacity to buy, they may use very dilute condensed milk formulas.

6. There have been criticisms in western countries that the distribution of free stock of infant formula to the hospital nurseries and that of free samples (of infant formula products) to physicians tend to influence the professional judgment of the nursery personnel and the physicians in recommending formula feeding over breastfeeding. Could you comment on this criticism?

This is probably true to some extent, but I think the fault is in the ethics of our nurses, midwives and physicians. Of course some companies ~~may~~ have to be condemned also, in that they give a can of formula (effect) to the personnel who can 'prescribe' their particular brand.

7. Occasionally infant formula manufacturers, on the solicitation of the hospital administration, donate hospital equipment or hospital supplies to the nursery. Would you care to comment on whether this practice, that of infant formula manufacturers donating hospital equipment or supplies to under-equipped hospital nurseries, should continue or should be stopped? Please give the reasons in support of your view.

This practice ~~should~~ be continued with certain limitations

Reasons: Some hospitals just cannot afford or the administration refuses to see the need for certain equipment that would improve service in a nursery, and this may seem to be the only solution.

Limitations on the agreement should be that (1) mothers choice be respected & breast-feeding encouraged (2) special needs should not be confined to company brand.

8. Are donations of hospital supplies and equipment important to you or your hospital? Would such donations made by the infant formula manufacturers affect your professional judgment in recommending formula feeding over breastfeeding?

No donation would influence my recommending breast-feeding as the best method of infant feeding

9. Western critics say that mothercraft nurses exert improper and undue influence in discouraging breastfeeding in the Philippines. Would you comment on this statement?

Some probably do, but this is because the importance of breast-feeding was not really emphasized to them during their own training

10. Would you care to make a statement relative to what the infant formula companies (such as Mead Johnson Philippines Inc.) are doing in the Philippines in connection with (a) the feeding, nutrition and care of infants, and (b) its marketing practices

Mead Johnson, on the whole, appears to be trying hard to be ethical in its marketing of its products. ~~Ey~~

Rhodora Damasco Diaz MD
SIGNATURE OF INTERVIEWEE

Date : May 4, 1978
Place : Baguio City
Philippines

Dr. Pablo U. Abella

1. No. I do not think even for a moment that the use of infant formula could be a cause of infant mortality here in the Philippines.

2. Yes. There is a need for prepared milk for infant formula use in our country. It has benefited the Filipino mothers in -
   1) Easy availability of scientifically prepared milk
   2) Simplified ways of formula preparation

3. Mainly rice gruel ("lugao")
   Problems due to such supplement: Too much carbohydrates (CHO injury)

4. No. That would be retrogressing inst ead of progressing.

5. I cannot imagine how such necessity can be abused.

6. Thi is , I believe, S.O.P. for all - whether drug or milk companies. This is also done abroad, and I believe, all over the world.

7. Donations with no strings attached are always welcome d by the poorly equipped hospitals all over the country.

8. Donations of hospital supplies are important to the hospitals directly and indirectly would also benefit the practicing physicians . However, it usually does not affect professional judgement.

9. I have not encountered any such nurses.

10. Most of the companies dealing on prepared milk for infant formulas have carried their products on a very high ethical level - promotion wise. Mead Johnson Philippines, especially, has been marketing their infant formula through the doctors. Their help by way of highly trained nurses following up our cases in the fields and barrios - This has been invaluable. Their willingness to donate as much of their stock for our indigent and mal-ward patients - This we appreciate very much.

In fine, Mead Johnson and the other milk companies are a necessary adjunct to our pediatric practice in this country.

PABLO U. ABELLA, M.D.
Interviewee

Date: May 6, 1978

Place: Cebu City

QUESTIONNAIRE RE INFANT FORMULA BUSINESS

1. Western critics say that infant formula is a prime cause of infant mortality. Do you agree that in the Philippines the use of infant formula is a prime cause of infant mortality?

No, I do not think even for a moment that the use of infant formula could be a cause of infant mortality here in the Philippines.

2. If you do not agree with the above statement, do you feel there is a justified need for infant formula in the Philippines? What, in your opinion, are the benefits to be derived by Filipino mothers and infants on the use of infant formula?

Yes, there is a need for prepared milk for infant formula use in our country. It has benefited the Filipino mothers in — ① easy availability of scientifically prepared milk ② simplified ways of formula preparation

3. Before the introduction of infant formula in the Philippines, what kind of supplemental food was used for Filipino infants? What were the problems, if any, in connection with the use of such supplemental foods?

- Mainly rice gruel ("lugao").
- Problems due to such supplement: Too much carbohydrate (CHO injury)

4. Would you favor dropping the use of infant formula and returning to the use of supplemental food mentioned in the preceding number? Why?

No. That would be retrogressing instead of progressing.

5. Would you say there is widespread abuse of the use of infant formula among the poor families in the Philippines?

I cannot imagine how such necessity can be abused.

6. There have been criticisms in western countries that the distribution of free stock of infant formula to the hospital nurseries and that of free samples (of infant formula products) to physicians tend to influence the professional judgment of the nursery personnel and the physicians in recommending formula feeding over breastfeeding. Could you comment on this criticism?

This is, I believe, SOP for all — whether drug or milk companies. This is also done abroad and, I believe, all over the world.

7. Occasionally infant formula manufacturers, on the solicitation of the hospital administration, donate hospital equipment or hospital supplies to the nursery. Would you care to comment on whether this practice, that of infant formula manufacturers donating hospital equipment or supplies to under-equipped hospital nurseries, should continue or should be stopped? Please give the reasons in support of your view.

Donations with no strings attached are always welcomed by the usually poorly equipped hospitals all over the country.

8. Are donations of hospital supplies and equipment important to you or your hospital? Would such donations made by the infant formula manufacturers affect your professional judgment in recommending formula feeding over breastfeeding?

Donations of hospital supplies are important to the hospitals directly — and indirectly would also benefit the practicing physicians. However, it usually does not affect professional judgment

9. Western critics say that mothercraft nurses exert improper and undue influence in discouraging breastfeeding in the Philippines. Would you comment on this statement?

I have not encountered any such nurses.

10. Would you care to make a statement relative to what the infant formula companies (such as Mead Johnson Philippines Inc.) are doing in the Philippines in connection with (a) the feeding, nutrition and care of infants, and (b) its marketing practices

Please see separate (attached) sheet.

SIGNATURE OF INTERVIEWEE

Date : May 6, 1978
Place: Cebu City

QUESTIONNAIRE RE INFANT FORMULA BUSINESS

1. Western critics say that infant formula is a prime cause of infant mortality. Do you agree that in the Philippines the use of infant formula is a prime cause of infant mortality? no

2. If you do not agree with the above statement, do you feel there is a justified need for infant formula in the Philippines? What, in your opinion, are the benefits to be derived by Filipino mothers and infants on the use of infant formula? yes in a way, that is, if the mother could not breast feed.
Infant formulas provide the necessary proteins etc. to the growing infant.

3. Before the introduction of infant formula in the Philippines, what kind of supplemental food was used for Filipino infants? What were the problems, if any, in connection with the use of such supplemental foods? Rice water or rice porridge.
The problems encountered is malnutrition, marasmus & kwashiorkor.

4. Would you favor dropping the use of infant formula and returning to the use of supplemental food mentioned in the preceding number? Why? No. There is a need of intensive nutrition information & education regards infant feeding & supplementation to prevent & minimize malnutrition in children of the 0-6 yrs. old.

5. Would you say there is widespread abuse of the use of infant formula among the poor families in the Philippines?
I don't think so.

6. There have been criticisms in western countries that the distribution of free stock of infant formula to the hospital nurseries and that of free samples (of infant formula products) to physicians tend to influence the professional judgment of the nursery personnel and the physicians in recommending formula feeding over breastfeeding. Could you comment on this criticism?

It doesn't affect my personal judgement as I for one had been on breastfeeding, nothing could exactly substitute breast milk. "Nature is always a good provider."

7. Occasionally infant formula manufacturers, on the solicitation of the hospital administration, donate hospital equipment or hospital supplies to the nursery. Would you care to comment on whether this practice, that of infant formula manufacturers donating hospital equipment or supplies to under-equipped hospital nurseries, should continue or should be stopped? Please give the reasons in support of your view.

There is nothing wrong with it if the company can afford & of course without strings attached. Frankly this has not happen yet in the hospital where I'm in.

8. Are donations of hospital supplies and equipment important to you or your hospital? Would such donations made by the infant formula manufacturers affect your professional judgment in recommending formula feeding over breastfeeding?

Maybe donations are also important but it doesn't affect my professional judgement as I'm & had been really on breastfeeding.

9. Western critics say that mothercraft nurses exert improper and undue influence in discouraging breastfeeding in the Philippines. Would you comment on this statement?

In the first place we teach student nurses the importance of breastfeeding & supplementary feeding so they could not teach after graduation otherwise unless the company employs non-nurse.

10. Would you care to make a statement relative to what the infant formula companies (such as Mead Johnson Philippines Inc.) are doing in the Philippines in connection with (a) the feeding, nutrition and care of infants, and (b) its marketing practices

Please see attached

[signature], M.D.
SIGNATURE OF INTERVIEWEE

Date : May 4, 1978
Place: Southern Islands Hospital

Lourdes Avila-Macavinta, M.D.
PEDIATRICIAN

Address: HAPPY VALLEY
Cebu City
Tel. No. 7-63-45

Office: SOUTHERN ISLANDS HOSPITAL
Tel. No. 7-37-26
7-37-27

Lic. No. .....

℞ Date: .....

Milk formula is a good substitute to breast feeding for a working mother or a busy house wife.

Donations in the form of equipment is of help not only to the hospital but to the community as well especially in a developing country like ours, though poor, but whose populace has the highest rate of literacy in Southeast Asia.

Macavinta, M.D.

Patient .....

ALUPENT SYRUP • ALUPENT SYRUP • ALUPENT SYRUP

Lourdes Avila-Macavinta, M.D.
PEDIATRICIAN

Address: HAPPY VALLEY
Cebu City
Tel. No. 7-63-45

Office: SOUTHERN ISLANDS HOSPITAL
Tel. No. 7-37-26
7-37-27

Lic. No. _____

℞ Date: _____

Personally I have not heard that Mead Johnson mothercraft nurses or representative practicing unethical promotion. They even assist or supplement health personnel in the dissemination of health care, nutrition information and education.

Regarding mothers who can't breast feed they practice proper sanitation and hygiene in the preparation of the milk formula, besides the company is not addressing their promotion to the lower segments of the populace.

_____, M.D.

~~Patient~~ _____

ALUPENT SYRUP • ALUPENT SYRUP • ALUPENT SYRUP

Dr. Lourdes A. Macaninta

Bachelor of Science in Pharmacy, CEU, 1951
Doctor of Medicine, CIT College of Medicine, 1962
x Diplomate in Pediatrics
x Board of Director, PPS & PSMID
x WHO, Fellow in Public Health and Nutrition
x Chairman, Dept. of Pediatrics, SIH MC
x Faculty, CIH, MHAHCH, Fullas Memorial College of Medicine
x Member, PPS, PMA, PHWA, MCHAP, Phil. Assn. of Govt. Dieticians and Nutritionists, Phil. Society of Microbiology & Infectious Diseases, Phil. Academy of Family Physicians

GREGORIO F. MERCADO, M.D. 41

1. I DON'T THINK SO. I FOUND OUT THEY SUCCUMB TO COMMON ILLNESSES WHICH IS STILL COMMON IN OUR COUNTRY LIKE PNEUMONIA, DIARRHEA INFECTIONS, ETC.

2. YES. THERE ARE MOTHERS WHO HAD CONGENITAL ANOMALIES OF THE NIPPLES OR CHILDREN BORN WHOSE MOTHER DOES NOT AT ALL SECRETES ITS OWN MILK.

3. IN MY PRACTICE, INFANT FORMULA WERE ALREADY INTRODUCED IN THE PHILIPPINES. BEFORE WORLD WAR II MOST CHILDREN WERE EVEN GIVEN CONDENSED MILK SO I THINK INFANT FORMULA IS MUCH BETTER THAN CONDENSED MILK.

4. I ALWAYS ADVOCATE BREAST FEEDING FOR INFANTS. BUT FOR REASONS ABOVE AND OTHER DISEASES BY THE MOTHER LIKE T.B., HEART DISEASE , ETC. INFANT FORMULA IS JUST AS GOOD THAN NOTHING AT ALL.

5. POOR FAMILIES COULD HARDLY AFFORD INFANT FORMULAS. WE ALWAYS ENCOURAGE BREAST FEEDING.

6. I DON'T THINK WE GO TO THIS IDEA. THERE WAS NO PRESSURE DONE IN OUR HOSPITAL, IN CEBU CITY TO THAT MATTER. OUR JUDGEMENT COMES FIRST ALWAYS FOR THE GOOD OF THE BABIES.

7. IF THERE IS PRESSURE BY THE COMPANIES FOR THE REASONS BY DONATION, THEN NO DOUBT THIS PRACTICE MUST BE STOPPED.

8. IT DOES NOT AFFECT ME FOR I HAVE NOT BEEN PRESSURED ON THIS MATTER.

9. NURSES HAS NO ROLE IN THE CARE OF FEEDING TO INFANTS. WE DOCTORS ALWAYS COMES FIRST. AS FAR AS OUR CONTACT TO NEW BORN BABIES IS CONCERNED.

10. A) THE COMPANY NEVER ENVOUCHED TO OUR JUDGEMENT IN THE GIVING WHAT KIND OF MILK TO NEWBORN BABIES.

B) MEAD JOHNSON PHILIPPINES HAS BEEN FUNCTICING IN ITS ETHICAL PROMOTIONS" LEAVING THE DOCTORS FREE OF HIS OWN JUDGMENT.

GREGORIO F. MERCADO, M.D.
PEDIATRICS

OFFICE:
SUITE A-210
CEBU DOCTORS HOSPITAL
OSMEÑA BLVD., CEBU CITY

TEL. 9-38-67
9-45-97

Lic. No.-----

May 5, ----, 19 78

Bio -Data

1- University of Santo Tomas Graduate, College of Medicine & Surgery 1955.

2- Pediatric Resident at St. Josephs' Hospital, Ontario Canada, 1959.

+ 3- Post Graduate in Pediatric at Harvard Medical School 1960.

+ 4- Conferred Diplomate by Specialty Board Philippine Pediatric Society.

+ 5- Presently consultant in Pediatric at Cebu Doctors' Hospital, Chong Hua Hospital and Cebu Community Hospital.

+ 6- Vice President Philippine Pediatric Society, Cebu Chapter 1978.

M.D.

Patient-----

QUESTIONNAIRE RE INFANT FORMULA BUSINESS

1. Western critics say that infant formula is a prime cause of infant mortality. Do you agree that in the Philippines the use of infant formula is a prime cause of infant mortality?
I don't think so. I feel on the they succumb to common illnesses which is still common in our country like Pneumonias, Diarrheas Infections etc

2. If you do not agree with the above statement, do you feel there is a justified need for infant formula in the Philippines? What, in your opinion, are the benefits to be derived by Filipino mothers and infants on the use of infant formula? yes, there are mothers who had congenital anomalies of the nipples or children born whose mother does not at all secretes its own milk.

3. Before the introduction of infant formula in the Philippines, what kind of supplemental food was used for Filipino infants? What were the problems, if any, in connection with the use of such supplemental foods? In my practice, Infant formula were already introduced in the Philippines. Before World War II most children were given condensed milk. So I think Infant formula is much better than condensed milk

4. Would you favor dropping the use of infant formula and returning to the use of supplemental food mentioned in the preceding number? Why? I always advocate breast feeding for infants. But for reasons above and other diseases by the mother like T.B., heart disease etc, Infant formula is just as good than nothing at all

5. Would you say there is widespread abuse of the use of infant formula among the poor families in the Philippines? - Poor families cannot handly afford Infant formulas. We always encourage breast feeding.

6. There have been criticisms in western countries that the distribution of free stock of infant formula to the hospital nurseries and that of free samples (of infant formula products) to physicians tend to influence the professional judgment of the nursery personnel and the physicians in recommending formula feeding over breastfeeding. Could you comment on this criticism?

I don't think we go to this idea. There was no pressure done in our Hospital, in Cebu City to that matter. Our judgment comes first always for the good of the babies.

7. Occasionally infant formula manufacturers, on the solicitation of the hospital administration, donate hospital equipment or hospital supplies to the nursery. Would you care to comment on whether this practice, that of infant formula manufacturers donating hospital equipment or supplies to under-equipped hospital nurseries, should continue or should be stopped? Please give the reasons in support of your view. If there is pressure by the Company for the reasons of donation, then no doubt this practice must be stopped.

8. Are donations of hospital supplies and equipment important to you or your hospital? Would such donations made by the infant formula manufacturers affect your professional judgment in recommending formula feeding over breastfeeding?

It does not affect me for, I have not been pressured on this matter.

9. Western critics say that mothercraft nurses exert improper and undue influence in discouraging breastfeeding in the Philippines. Would you comment on this statement? Nurses has no role in the case of feeding to Infants. We doctors always comes first, as far as our contact to newborn babies is concerned.

10. Would you care to make a statement relative to what the infant formula companies (such as Mead Johnson Philippines Inc.) are doing in the Philippines in connection with (a) the feeding, nutrition and care of infants, and (b) its marketing practices

a) The Company never encroached to our judgment in the giving what kind of milk to newborn babies

b) Mead Johnson Philippines has been practicing in its ethical promotions leaving the doctor free of his own judgment

[signature]
SIGNATURE OF INTERVIEWEE

Date : May 4, 1978
Place: Cebu Doctors Hospital

May 4, 1978
Cebu Doctors Hospital
DR. PURIFICACION M. ESPINOSA

1. No.

2. Yes, where breastfeeding is not possible. There is definitely a need for infant formula. Benefits of infant formula:- as a substitute for breastfeeding where this is not possible.

3. Lugaw (rice porridge) and condensed milk.
Problems: protein deficiency mainly.

4. No, because of above mentioned deficiency or problems.

5. No.

6. I don't agree that above practice is responsible for the decline of breastfeeding in our hospital born babies. The climate in the hospital itself where the mother is separate from the baby is not conducive to successful breastfeeding. It is only when the baby is put to the mothers' breast and roomed in shortly after delivery where you can have successful breastfeeding.

7. The practice of donating hospital equipment and supplies to underequipped hospitals with no coercion on the part of the donor as far as the use of their products is concerned - is indeed commendable and I thank the donors for their kin d support.

8. Some hospitals really need these supplies and equipment badly - like those maintained only by funds raised by women's clubs, sccas, donations from Charity Sweepstakes (Ex. Cebu Maternity), but has never affected my professional judgment in recommending breastfeeding over formula feeding.

9. I don't know about mothercraft nurses. But the nurses working with us in our nurseries have cooperated fully with us in our campaign for breastfeeding.

10. As far as Mead Johnson Philippines Inc., they have always cooperated with us in our nutrition campaigns, in our charity clinics of the Cebu Medical and Pediatric Society and have never known them to practice high powered advertising and marketing practices.

QUESTIONNAIRE RE INFANT FORMULA BUSINESS

1. Western critics say that infant formula is a prime cause of infant mortality. Do you agree that in the Philippines the use of infant formula is a prime cause of infant mortality?

NO

2. If you do not agree with the above statement, do you feel there is a justified need for infant formula in the Philippines? What, in your opinion, are the benefits to be derived by Filipino mothers and infants on the use of infant formula?

Yes, where breast feeding is not possible, there is definitely a need for infant formula. Benefits of infant formula :- as a substitute for breast feeding where this is not possible.

3. Before the introduction of infant formula in the Philippines, what kind of supplemental food was used for Filipino infants? What were the problems, if any, in connection with the use of such supplemental foods?

Lugaw (rice porridge) and condensed milk.

Problems : protein deficiency mainly

4. Would you favor dropping the use of infant formula and returning to the use of supplemental food mentioned in the preceding number? Why?

No because of above mentioned deficiency or problems

5. Would you say there is widespread abuse of the use of infant formula among the poor families in the Philippines?

No.

6. There have been criticisms in western countries that the distribution of free stock of infant formula to the hospital nurseries and that of free samples (of infant formula products) to physicians tend to influence the professional judgment of the nursery personnel and the physicians in recommending formula feeding over breastfeeding. Could you comment on this criticism?

I dont agree that argue practice is justifiable for the decline of breast feeding in our hospitals for babies. The climate in the hospital itself where the mother is separate from the baby and is not conducive to successful breast feeding. It is only when the baby is put to the mothers chest and roomed in after shortly after delivery where you can have successful breast feeding

7. Occasionally infant formula manufacturers, on the solicitation of the hospital administration, donate hospital equipment or hospital supplies to the nursery. Would you care to comment on whether this practice, that of infant formula manufacturers donating hospital equipment or supplies to under-equipped hospital nurseries, should continue or should be stopped? Please give the reasons in support of your view.

The practice of donating hospital equipment and supplies to under equipped hospitals with no restriction on the part of the donor as far as the use of their products is concerned - is indeed commendable and I thank the donors for their kind support.

8. Are donations of hospital supplies and equipment important to you or your hospital? Would such donations made by the infant formula manufacturers affect your professional judgment in recommending formula feeding over breastfeeding?

Some hospitals really need these supplies and equipment badly - like this maintained only by funds raised by womens clubs, occasional donations from charity sweepstakes (R. Cebu Maternity) but this has never affected my professional judgment in recommending breast feeding over formula feeding

9. Western critics say that mothercraft nurses exert improper and undue influence in discouraging breastfeeding in the Philippines. Would you comment on this statement?

I don't know about mothercraft nurses. But the nurses working with us in our nurseries have cooperated fully with us in our campaign for breastfeeding.

10. Would you care to make a statement relative to what the infant formula companies (such as Mead Johnson Philippines Inc.) are doing in the Philippines in connection with (a) the feeding, nutrition and care of infants, and (b) its marketing practices.

As far as Mead Johnson Company. They have always cooperated with us in our nutrition campaigns in our charity clinics of the Cebu Medical and Pediatric Society and have never known them to practice high powered advertising and marketing practices

P M Espeniza M.D.
SIGNATURE OF INTERVIEWEE

Date : May 4, 1978
Place: Cebu Doctors Hospital

Purificacion M. Espinosa M. D.
Pediatrics

Clinic Hours:
Cebu Doctor's Hospital
10 A.M. - 12:30 Noon
Tel. 7-70-51

Residence:
17 Don Filemon Sotto,
Capitol Site
4:00-6:00 P.M.
Tel. 7-24-48

BIO-DATA _____. 197___

Rx
= University of the Philippines, College of Medicine, 1947
= Passed National Medical Board Exam for Licensure in Medicine, 1947 5th place
X = Diplomate, American Board of Pediatrics, 1956.
after pediatric residency training in various U.S. hospitals and centers in New Jersey & New York
X = Fellow, Philippine Pediatric Society
= UNICEF - WHO fellow for senior
X teachers in child health course 1971 offered in United Kingdom (Univ. of London Institute of Child Health) in East Africa (Makerere Univ, Uganda and Kenya) in India (Bombay Univ)
= Chairman, Dept. of Pediatrics, Cebu Institute of Medicine - from
X the time school was established to 1976.

Lic. No. 9473
PTR - 0654652
S-2 0218641
TAN - 2150-H2620-A-9

_____. M.D.

Purificacion M. Espinosa M. D.
Pediatrics

Clinic Hours:
Cebu Doctor's Hospital
10 A.M. - 12:30 Noon
Tel. 7-70-51

Residence:
17 Don Filemon Sotto
Capitol Site
4:00-6:00 P.M.
Tel. 7-24-48

_____, 197__

Rx

= Chairman, Dept of Biochemistry and Nutrition, Univ. of Visayas Gullas Memorial School of Medicine, 1977 → present

= Chairman Dept. of Pediatrics, UV - Gullas Memorial School of Medicine 1978 → present

= Participant at symposium on "Child Care Delibery" chaired by Dr. David Morley at International Congress of Pediatrics in New Delhi, India, Oct. 1977

= Presented paper "Rural internship in the Philippines" at WHO - UNICEF seminar in New Delhi, India Oct '77

= Participant, International conference on Child to Child Programme of WHO and Institute of Child Health, Univ. of London for the United Nations IYC, 1979 in London. April 16 - 20, 1978.

_____, M.D.

Lic. No. 9473
PTR - 0654652
S-2 0218641
TAN - 2150-H2620-A-9

May 4, 1978
Cebu City
DR. ABDIAS VILLAMOR

1. No.

2. Yes.

   Benefits: A large number of Filipino mothers are working, so the formula comes in, between breast. The whole aim is a healthy baby.

3. Different areas in Philippines have different practices as far as supplemental feeding is concerned.

   Main obstacle is that, they are afraid to start supplemental feedings early (below 1 year old).

4. Both can go together.

   The practice of medicine is an art, you cannot make a generalized rule.

5. No.

6. As a starter formula, it helps some expenses, because some babies don't tolerate milk all the times. So if you have samples to choose from it's good. A good doctor will know what to do.

7. I don't see any bad reason if donation is done in good faith. No strings attached. Developing countries can use some help.

8. The donations are immaterial to me. I don't accept donations if it were for something that the company wants later. Medical ethics is my guide.

9. No, they help in giving nursing care procedures to ignorant mothers. I'm not aware of any one of them discouraging breastfeeding.

10. Mead Johnson has done a lot esepcially in the supply of special formula like Sobee, Nutramigen, etc., I believe that they are very ethical in their marketing practices.

QUESTIONNAIRE RE INFANT FORMULA BUSINESS

1. Western critics say that infant formula is a prime cause of infant mortality. Do you agree that in the Philippines the use of infant formula is a prime cause of infant mortality?

NO

2. If you do not agree with the above statement, do you feel there is a justified need for infant formula in the Philippines? What, in your opinion, are the benefits to be derived by Filipino mothers and infants on the use of infant formula?

Yes,
Benefits: a large number of filipino mothers are working, so the formula comes in, between breast. the whole aim is a healthy baby.

3. Before the introduction of infant formula in the Philippines, what kind of supplemental food was used for Filipino infants? What were the problems, if any, in connection with the use of such supplemental foods?

= different areas in phil. has different practices as for supplemental feeding is concerned.
• main obstacle is that they are afraid to start supplemental feeding early (below 4th mo)

4. Would you favor dropping the use of infant formula and returning to the use of supplemental food mentioned in the preceding number? Why?

+ both can go together.

+ the practice of medicine is an art, you can not make a generalized rule.

5. Would you say there is widespread abuse of the use of infant formula among the poor families in the Philippines?

NO

6. There have been criticisms in western countries that the distribution of free stock of infant formula to the hospital nurseries and that of free samples (of infant formula products) to physicians tend to influence the professional judgment of the nursery personnel and the physicians in recommending formula feeding over breastfeeding. Could you comment on this criticism?

As a starter formula, it helps some expenses, because some babies don't tolerate milk all the time. So if you have samples to choose from it's good. A good doctor will know what to do.

7. Occasionally infant formula manufacturers, on the solicitation of the hospital administration, donate hospital equipment or hospital supplies to the nursery. Would you care to comment on whether this practice, that of infant formula manufacturers donating hospital equipment or supplies to under-equipped hospital nurseries, should continue or should be stopped? Please give the reasons in support of your view.

I don't see any bad reason if donation is done in good faith. No strings attached. Developing countries can use some help.

8. Are donations of hospital supplies and equipment important to you or your hospital? Would such donations made by the infant formula manufacturers affect your professional judgment in recommending formula feeding over breastfeeding?

The donations are immaterial to me. I don't accept donations if it were for something that the Co. wants later. Medical ethics is my guide.

9. Western critics say that mothercraft nurses exert improper and undue influence in discouraging breastfeeding in the Philippines. Would you comment on this statement?

No, they help in giving nursing care procedures to ignorant mothers. I'm not aware of any one of them discouraging breast feeding.

10. Would you care to make a statement relative to what the infant formula companies (such as Mead Johnson Philippines Inc.) are doing in the Philippines in connection with (a) the feeding, nutrition and care of infants, and (b) its marketing practices

+ Mead-Johnson has done a lot especially in the supply of special formula like soluble, nutrimiger etc.

- I believe that they are very ethical in their marketing practice.

Andrea L. Pellegrino
SIGNATURE OF INTERVIEWEE
- Diplomate Consul. Bd of Peds
- Fellow, Phil. Ped. Soc.

Date : 5/4/78

Place: Sohu City

May 6, 1978
Makati Medical Center
DR. LUIS M. RIVERA

1. *Not in all cases - I would say a very small percentage only.*

2. *Certainly yes. Balanced humanized milk preparation, adequate minerals and proteins and carbohydrates.*

3. *Lugao - a good source of carbohydrates. But not of proteins, casien and fats.*

4. *No.*

5. *No.*

6. *Not true. I use a brand of milk so desired by the patients. I advise breastfeeding also.*

7. *I'm not in the Hosptial business.*

8. *No.*

9. *No comment.*

10. *They have done a good job of educating expectant mothers on infant health care/*

QUESTIONNAIRE RE INFANT FORMULA BUSINESS

1. Western critics say that infant formula is a prime cause of infant mortality. Do you agree that in the Philippines the use of infant formula is a prime cause of infant mortality?

NOT IN ALL CASES - I would say A very small percentage only.

2. If you do not agree with the above statement, do you feel there is a justified need for infant formula in the Philippines? What, in your opinion, are the benefits to be derived by Filipino mothers and infants on the use of infant formula?

CERTAINLY YES. Balanced Humanized milk preparation, Adequate minerals & proteins & Carbohydrates.

3. Before the introduction of infant formula in the Philippines, what kind of supplemental food was used for Filipino infants? What were the problems, if any, in connection with the use of such supplemental foods?

Mainly Lugao - a good source of Carbohydrates. But not of proteins, Casein & Fats.

4. Would you favor dropping the use of infant formula and returning to the use of supplemental food mentioned in the preceding number? Why?

No.

5. Would you say there is widespread abuse of the use of infant formula among the poor families in the Philippines?

NO.

6. There have been criticisms in western countries that the distribution of free stock of infant formula to the hospital nurseries and that of free samples (of infant formula products) to physicians tend to influence the professional judgment of the nursery personnel and the physicians in recommending formula feeding over breastfeeding. Could you comment on this criticism?

Not True. I use a Brand A milk + so Desired by the parents. I advise breastfeeding.

7. Occasionally infant formula manufacturers, on the solicitation of the hospital administration, donate hospital equipment or hospital supplies to the nursery. Would you care to comment on whether this practice, that of infant formula manufacturers donating hospital equipment or supplies to under-equipped hospital nurseries, should continue or should be stopped? Please give the reasons in support of your view.

Im not in the Hospital Business.

8. Are donations of hospital supplies and equipment important to you or your hospital? Would such donations made by the infant formula manufacturers affect your professional judgment in recommending formula feeding over breastfeeding?

No.

9. Western critics say that mothercraft nurses exert improper and undue influence in discouraging breastfeeding in the Philippines. Would you comment on this statement?

No Comment.

10. Would you care to make a statement relative to what the infant formula companies (such as Mead Johnson Philippines Inc.) are doing in the Philippines in connection with (a) the feeding, nutrition and care of infants, and (b) its marketing practices

They have done a good job By Educating Expectant Mothers on Infant health care.

SIGNATURE OF INTERVIEWEE

Date : 11/4/78

Place: Makati Med Ctr

Luis M. Rivera, M.D.

Telephone No. 87-00-11

PEDIATRICS—PEDIATRIC CHEST DISEASES
Suite 325, Makati Medical Center
No. 2 Amorsolo St., Makati, Rizal

CURRICULUM VITAE

Luis Marcelo Rivera, M.D.
Date of Birth, May 31, 1931
Address: 5566 Don Pedro St., Makati, Rizal
Tel. No.: 88-95-03 • 87-60-11
Status: Married
Citizenship: Filipino
Number of Dependents: 6

1948-1949	Graduated at UST with B.A. degree Pre-Medicine.
1950-1955	Graduated at UST School of Medicine and Surgery with M.D. degree.
1954-1955	One year rotating internship at the UST Hospital and its affiliated hospitals.
1955	Passed Philippine Medical Board Examination.
1956	One year rotating internship at the South Shore Hospital, Chicago, Illinois, Howard Hamlin, M.D., Chief, Interns and Residents Committee.
1957	Junior Resident in Pediatrics at the Michael Reese Hospital and Medical Center, Chicago, Illinois, Jack Metcoff, M.D., Chairman Dept. of Pediatrics.
1958	Senior Resident in Pediatrics at the Michael Reese Hospital and Medical Center, Chicago, Illinois, Jack Metcoff, M.D., Chairman Dept. of Pediatrics.
1959	Fellow of the American Trudeau Society in Pediatric Chest Research with work being done at the Chest Dept. of Michael Reese Hospital and Medical Center in collaboration with Gordon Snider, M.D. and David D. Radner, M.D., Assistant Head and Head of the Chest Dept. respectively.
X 1960	Diplomate, American Board of Pediatrics.
1960	Clinical Instructor in Pediatrics, Northwestern University School of Medicine, Chicago, Illinois.
1961	Consultant in Pediatric Chest Diseases at the Sarah Morris Hospital, Pediatric Division, Michael Reese Hospital and Medical Center, Chicago, Illinois.
1961	Research Fellow in Pediatric Pulmonary Physiology of the Illinois Chapter of the NTA. (R. B. Edwards Fellow.)

Luis M. Rivera, M.D.

PEDIATRICS—PEDIATRIC CHEST DISEASES
Suite 325, Makati Medical Center
No. 2 Amorsolo St., Makati, Rizal

Telephone No. 87-60-11

1961	Acting Assistant Head, Department of Chest, Michael Reese Hospital and Medical Center, David B. Radner, Dept. Head (June to November).
1962-1972	Consultant in Pediatrics, Veterans Memorial Hospital, Quezon City.
	Consultant in Pediatrics, V. Luna General Hospital, Quezon City.
	Attending Pediatrician, Our Lady of Lourdes Hospital, Mandaluyong, Rizal.
1964	President, Makati Medical Society.
1965-1966	Chairman, Post Graduate Assembly, Philippine Pediatric Society.
1965-1968	Member, Tribunal for Pediatric Residency and Hospital Accreditation Committee of the PMA.
1966-1967	Chairman, Philippine Pediatric Society Referral Clinic.
1966-1972	Chairman, Dept. of Pediatrics, St. Anne's Hospital, Del Pan St., Sta. Ana, Manila.
1968-1972	Pediatrician, Makati Medical Center, No. 2, Amorsolo St., Makati, Rizal.
1974	Chairman, Post Graduate Assembly, Philippine Pediatric Society

Organizational Membership:

X Member, Philippine Medical Association

X Fellow, Philippine Pediatric Society

X Member, American Academy of Pediatrics

PUBLICATIONS:

1. Ventilatory Studies in Preschool Children. I. Peak Expiratory Flow Rate in Normal and Abnormal Preschool Children.
By: L.M. Rivera, G.L. Snider, Pediatrics, July 1962, Vol. 30, No. 1., page 117 to 124.

2. Ventilatory Studies in Preschool Children. II. Uneven Alveolar Ventilation in Normal and Abnormal Preschool Children.
By: L.M. Rivera, G.L. Snider, L. Doctor, Journal Clin. Invest., 1962 pp 1012 11:10

3. Experimental Mediastinal Emphysema in Still Born Babies- L.M. Rivera, D. Radner, G.L. Snider, Unpublished.

4. Use of Fibrinolytic Enzymes (veridase) in Acute Laryngo-Tracheobronchitis. By: L.M. Rivera, R. Lewy, For Publication, AJDC.

5. Sub-Clinical Pulmonary Emphysema. By: G.L. Snider, D. Radner, L.M. Rivera, J. Brody, L. Doctor, For publication, American Review of Respiratory Diseases, 1962.

6. The Tuberculin Skin Test Among Filipino Children. A survey of 900 Children Ages 1 - 12 years. By: L.M. Rivera, H.S. Ibaviosa, L. Lutap and V. Tolafranca. In Publication.

LUCILE TORRES-ROMBLON, M.D.

1. No. In fact, I have not encountered any mortality specifically related to infant formula.

2. Definitely
   a) Mothers find time to work to substantiate family income.
   b) Better nutrition on the infants since they get adequate calories, protein and other food nutrients from the formula.

3. Starchy foods were given to the infants like AHM or Lugao. Malnutrition was prevalent' nutritional anemia also.

4. Definitely no because of the above reasons.

5. No.

6. I personally prescribed a specific milk to a particular infant for specific reasons.

7. This should be individualized. In some cases donations are warranted to enable the hospital to service the patients optimally at a lower cost.

8. Yes. I have always recommended mixed feeding hence the infant gets full benefit from a good infant formula and he benefits from mother/s milk.

9. I HAVE NOT PERSONALLY ENCOUNTERED THIS PROBLEM. SO FAR, MOTHERCRAFTING HAS RELIEVED THE PEDIATRICIAN THE EXTRA TIME NECESSARY FOR EXPLAINING TO THE MOTHERS FORMULA PREPARATION, ETC.

10. A) THE MILK COMPANIES ARE PROMOTING BETTER NUTRITION AMONG FILIPINO CHILDREN, HELP TEACH MOTHERS ON BETTER CARE OF INFANTS, ETC.

    B) I HAVE NO COMPLAIN ABOUT THE MARKETING PRACTICE. IN FACT I AM GRATEFUL FOR THE FREE SUPPLY I GET WHICH IN TURN I CAN GIVE TO A NEEDY INFANT.

BIO DATA

1) UNIVERSITY OF THE PHILIPPINES COLLEGE OF MEDICINE - 1965

2) PEDIATRIC TRAINING - 1965-1970
SINAI HOSPITAL BALTIMORE U.S.A.
JOHN HOPKINS HOSPITAL, BALTIMORE - U.S.A.

3) PROFESSIONAL AFFILIATION -
- PPS NORTHERN MINDANAO CHAPTER
  MEMBER
- PAST PRESIDENT 1977-1978
- PMA - MEMBER

4) CONSULTANT (PEDIATRIC) MADONNA & CHILD HOSPITAL
CAGAYAN DE ORO

30-982 O - 78 - 85

MADONNA & CHILD HOSPITAL
Cagayan de Oro City
Lucile Torres - Romblon, M.D.
PEDIATRICIAN

5-4-78

Lucile Torres - Romblon, M.D.
U.P. College of Med '65
. Pediatric Training
1965-70
Sinai Hosp Baltimore
USA
Johns Hopkins Hosp.
Balto. USA.

X Prof: affiliation:
PPS northern Mindanao
chapter
member
past President 1977-78
PPSA - member
X Consultant (Pediatric)
madonna & child Hosp
Cag de Oro

QUESTIONNAIRE RE INFANT FORMULA BUSINESS

1. Western critics say that infant formula is a prime cause of infant mortality. Do you agree that in the Philippines the use of infant formula is a prime cause of infant mortality?

no. In fact, I have not encountered any mortality specifically related to infant formula.

2. If you do not agree with the above statement, do you feel there is a justified need for infant formula in the Philippines? What, in your opinion, are the benefits to be derived by Filipino mothers and infants on the use of infant formula?

Definitely
1. the mom find time to work to substantial family income.
2. Better nutrition as the infants since they get adequate calories, protein and other food nutrients from the formula

3. Before the introduction of infant formula in the Philippines, what kind of supplemental food was used for Filipino infants? What were the problems, if any, in connection with the use of such supplemental foods?

Starchy foods were given to the infants like arroz a lugao.
malnutrition was prevalent; nutritional anemia also.

4. Would you favor dropping the use of infant formula and returning to the use of supplemental food mentioned in the preceding number? Why?

Definitely no because of the above reason.

5. Would you say there is widespread abuse of the use of infant formula among the poor families in the Philippines?

no

6. There have been criticisms in western countries that the distribution of free stock of infant formula to the hospital nurseries and that of free samples (of infant formula products) to physicians tend to influence the professional judgment of the nursery personnel and the physicians in recommending formula feeding over breastfeeding. Could you comment on this criticism?

I personally prescribe a specific milk to a particular infant for specific reasons

7. Occasionally infant formula manufacturers, on the solicitation of the hospital administration, donate hospital equipment or hospital supplies to the nursery. Would you care to comment on whether this practice, that of infant formula manufacturers donating hospital equipment or supplies to under-equipped hospital nurseries, should continue or should be stopped? Please give the reasons in support of your view.

This should be individualized. In some cases donations are warranted to enable the hospital to service the patients optimally at a lower cost.

8. Are donations of hospital supplies and equipment important to you or your hospital? Would such donations made by the infant formula manufacturers affect your professional judgment in recommending formula feeding over breastfeeding?

Yes. I have always recommended mixed feeding hence the infant gets full benefit from a good infant formula & the benefits from mothers milk.

9. Western critics say that mothercraft nurses exert improper and undue influence in discouraging breastfeeding in the Philippines. Would you comment on this statement?

I have not personally encountered this problem. So far mothercrafting has relieved the pediatrician the extra time necessary for explaining to the mother formula preparation, etc

10. Would you care to make a statement relative to what the infant formula companies (such as Mead Johnson Philippines Inc.) are doing in the Philippines in connection with (a) the feeding, nutrition and care of infants, and (b) its marketing practices

a) The milk companies are promoting better nutrition among Filipino children, help teach mothers on better care of infants, etc.

b) I have no complain about the marketing practices. In fact I am grateful for the free supply I get which in turn I can give to a needy infant.

SIGNATURE OF INTERVIEWFE

J. T. Emblon, M.D.

Date : 5-4-78

Place: Madonna & Child Hosp
Cag de Oro City

MA. LUISA GARCIA-DAZON, M.D.

1. OF COURSE NOT. IT IS THE MISUSE NOT THE USE MAY BE THE PRIME CAUSE OF INFANT MORTALITY.

2. - THERE IS A JUSTIFIED NEED FOR INFANT FORMULA.
   - BENEFITS -
     1) WORKING MOTHERS SHOULD NOT RELY ONLY ON BREASTFEEDING WE ARE PROMOTING NOW.
     2) WHATEVER NUTRITIONAL LACK THE MALNOURISHED MOTHER CAN NOT PROVIDE INFANT FORMULA CAN.

3. SUPPLEMENTAL FOODS - RICEWATER, CAMOTE, COCONUT WATER
   PROBLEMS - MALNUTRITION
   GASTROINTESTINAL DISTURBANCES

4. NO.
   THE ABOVE PROBLEMS - REASON.

5. 50%

6. YES. THE MOMENT A CERTAIN FORMULA IS INTRODUCED THE MOTHER MAY HAVE NO ALTERNATIVE CHANGING THIS FOR FEAR OF DEVELOPING G.I. PROBLEM AS DIARRHEA.

7. THIS IS NOT IN "GOOD TASTE". THIS MAY LEAVE NO ALTERNATIVE FOR THE DOCTOR AND OTHER NURSERY PERSONNEL TO PRESCRIBE OTHER FORMULA INFANTS MAY CERTAINLY NEED FOR DELICADEZA.

8. THESE DONATIONS ARE VERY IMPORTANT BUT WILL NOT AFFECT MY PROFESSIONAL JUDGMENT IN RECOMMENDING BREASTFEEDING OVER FORMULA FEEDING AND NOT VICE VERSA.

9. THIS IS NOT TRUE.

10. PLEASE CONTINUE ON DOING EXACTLY WHAT THE MANAGEMENT IS DOING. WE HAVE AND STILL APPRECIATE THEIR SERVICES VERY MUCH.

BIO DATA

1) SCHOOL - UNIVERSITY OF SANTO TOMAS
   PEDIATRIC TRAINING AND DIPLOMATE QUALIFIED - NEW YORK, U.S.A.

2) PPS DAVAO CITY CHAPTER
   VICE PRESIDENT AND SCIENTIFIC COMMITTEE CHAIRMAN
   PMWA - DAVAO CITY CHAPTER
   ASSIST. TREASURER SCIENTIFIC COMMITTEE CHAIRMAN

3) HOSPITALS - DAVAO DOCTORS HOSPITAL
   SAN PEDRO HOSPITAL
   MT. APO HOSPITAL

4) GOVERNMENT POSITION -
   SSS RETAINER PHYSICIAN

Ma. Luisa Garcia-Dazon **M. D.**
Pediatrician

Clinic: Anda St., Davao City
Tel. 7-68-38

Res. Gen. Luna St., Davao City
Tel. 7-55-44

(?)

1) School - U.S.T. Pediatric training & diplomate qualified - N York U.S.A.

x 2) PPS Davao city chapter

Vice pres. & scientific committee chairman.

x PMWA - D.C. chapter.

asst. Treasurer.

scientific comm. chairman.

Hospitals - Davao Doctors Hospital
San Pedro Hospital
Mt. Apo Hospital

_____ M. D.

P.T.R. _____

T.A.N. _____

govt position
SSS retainer physician

QUESTIONNAIRE RE INFANT FORMULA BUSINESS

1. Western critics say that infant formula is a prime cause of infant mortality. Do you agree that in the Philippines the use of infant formula is a prime cause of infant mortality?

Of course not. It is the misuse not the use may be the prime cause of infant mortality.

2. If you do not agree with the above statement, do you feel there is a justified need for infant formula in the Philippines? What, in your opinion, are the benefits to be derived by Filipino mothers and infants on the use of infant formula?

- there is a justified need for infant formula.
- Benefits - 1) working mothers should not rely only on breastfeeding we are promoting now. 2) whatever nutritional lack the malnourished mothers can not provide infant formula can.

3. Before the introduction of infant formula in the Philippines, what kind of supplemental food was used for Filipino infants? What were the problems, if any, in connection with the use of such supplemental foods?

supplemental food - nicerals, camote, coconut water.

Problems: malnutrition
gastrointestinal disturbances

4. Would you favor dropping the use of infant formula and returning to the use of supplemental food mentioned in the preceding number? Why?

No.
the above problems - reason.

5. Would you say there is widespread abuse of the use of infant formula among the poor families in the Philippines?

50%

6. There have been criticisms in western countries that the distribution of free stock of infant formula to the hospital nurseries and that of free samples (of infant formula products) to physicians tend to influence the professional judgment of the nursery personnel and the physicians in recommending formula feeding over breastfeeding. Could you comment on this criticism?

Yes. The moment a certain formula is introduce the mother may have no alternative changing this for fear of developing g.i. problem and diarrhea.

7. Occasionally infant formula manufacturers, on the solicitation of the hospital administration, donate hospital equipment or hospital supplies to the nursery. Would you care to comment on whether this practice, that of infant formula manufacturers donating hospital equipment or supplies to under-equipped hospital nurseries, should continue or should be stopped? Please give the reasons in support of your view.

This is not in good taste. This may leave no alternative for the doctor & other nursery personnel to prescribe other formula certain infants may need for delicacy.

8. Are donations of hospital supplies and equipment important to you or your hospital? Would such donations made by the infant formula manufacturers affect your professional judgment in recommending formula feeding over breastfeeding?

These donations are very important but will not affect my professional judgment in recommending breastfeeding over formula feeding & not vice versa.

9. Western critics say that mothercraft nurses exert improper and undue influence in discouraging breastfeeding in the Philippines. Would you comment on this statement?

This is not true.

10. Would you care to make a statement relative to what the infant formula companies (such as Mead Johnson Philippines Inc.) are doing in the Philippines in connection with (a) the feeding, nutrition and care of infants, and (b) its marketing practices

Please continue on doing exactly what the management is doing. We have & still appreciate their services very much.

SIGNATURE OF INTERVIEWFE

M.H. Dazon.

Date : 5/6/78

Place: Int. Ago Hospital
Davao City

Carmelita E. Grande, M.D.
PEDIATRICIAN

MAKATI MEDICAL CENTER
Room 310 No. 2 Amorsolo St. Makati, Rizal
Tele. 88-69-74 87-60-11 Loc. 518

Res. 27-15-12

1. No

2. Yes. Beneficial especially for working mothers although pasteurization of breast milk could be done but there is always the danger of introducing infection if not done in the right way.

3. Am (cereal juice), condensed milk- malnutrition. Filled milk - diarrhea - malnutrition.

4. N o. For reasons stated above.

5. No

6. Donations as stated above would not influence professional judgment. I always encourage breast feeding and to working mothers at least for the duration of their maternity leave.

7. Donations of such nature should be continued since such donations as stated above do not influence professional judgment.

8. No

9. Mothercraft nurses emphasize or teach parents how to feed their babies the proper way.

10. I think formula companies such as Mead-Johnson have contributed a lot to the improvement of feeding, nutrition and care of infants.

Carmelita G. Grande
Makati Medical Center
May 8, 1978

Carmelita E. Grande, M.D.
PEDIATRICIAN

MAKATI MEDICAL CENTER
Room 310 No. 2 Amorsolo St. Makati. Rizal
Tels. 88-69-74 87-60-11 Loc. 518

Res. 27-15-12

BIO DATA

NAME: CARMELITA E. GRANDE

Associate in Arts
University of Santo Tomas, 1952

Doctor of Medicine
University of Santo Tomas, 1957

Passed Board Examinations
August, 1957

Postgraduate Studies
Extern - St. Lukes Hospital, 1958-1959

Rotating Resident - St. Lukes Hospital
1959-1961

Resident in Pediatrics
St. Lukes Hospital, 1961-1964

Senior Resident in Pediatrics &
Chief Resident - St. Lukes Hospital
1964-1965

MEMBER: Philippine Medical Association
Philippine Medical Women's Association
Philippine Pediatric Society

PRESENT POSITION: Consultant in Pediatrics
Makati Medical Center

Answers to questionaires regarding formula in the Philippines

1. The prime cause of infant mortality in the Phils. is mal-nutrition and sickness because of poverty.

2. There is a great need of infant formula in our country -

   Benefits derived by Filipino mothers in giving formula are:

   a. They can land a job and help the husband to elevate standard of living and children also benefits from it too.

   b. Sickly mothers are given chance to rest and recover, but their babies are given the same nourishment that breastmilk can give by supplementing it with formula.

   c. Infant formula takes the place of breastmilk to low brith weight babies while they are in the hospital.

   d. Relieves mothers of their problem by giving formula as supplemental in case their breast milk is scanty or suppress in few days.

3. My experience during the war, when our country was not reach by milk formula from other countries, babies were weak and most of them died due to poor supplementals such as rice, water, tea, sugared water, etc. This is especially true with mothers who do not have sufficient breastmilk or when mothers were weak and sick.

4. I am strongly not in favor of returning back to the above mentioned supplements because most of our mothers are educated and know that milk formula is the life giving needs of infants in their absence.

5. It is not an abuse of the use of infant formula. Most of our families are poor and if possible would like to give breastmilk to their babies, but due to some unavoidable problems, they go to the extent of giving milk formula supplements.

   Problems again are:

   a. Mothers are out whole day working as vendors, housemaids, holding offices, etc.

b. sickly mothers

c. mothers with insufficient breastmilk

6. Our doctors and nurses are not influenzing mothers to give milk formula. On the other hand, we recommended breastfeeding citing all its advantages compared with other milk. Only, we need more time to educate our mothers regarding breastfeeding.

7. Hospital administrators are not soliciting donations from milk manufacturers but they are very grateful on whatever donations are handed to them. I feel that if the donations be the prime cause of patronizing their product, and not for the needs of patients, the manufacturers must stop the practice.

8. Of course, donations are important to me and the hospital especially if the donations is to improve the life span of the infants but not to ask me to recommend formula feeding over breastfeeding.

9. Mother craft in the Phils. is a form of social service work. They visits mothers in their homes in order to continue teaching the mothers how ti give bath, clean navel, burp baby and lastly how to feed their babies. I know that discouraging breastfeeding is not a part of mother craft job.

10. Mead Johnson of the Philippines helps us a lot in shouldering part of the formula given to our poor and needy brethren. Their mother craft nurses shouldered the pain of visiting homes for socia l services work. The marketing practice is humanitarian. They help our countrymen in time of calamities.

Rosario R. Fumar

Mrs. Rosario R. Fumar, R.N., B.S.N.
x Member, Phil. Nurses' Assn.
St. Luke's Alumni Assn.
MMC Nurses' Assn.
x MMC, Pediatric Nursing Consultant
x MMC, Nursery Supervisor

May 5, 1978
St. Luke's Medical Center

Date _____, 19___

Patient's Name: _____

Address: _____

℞ ① M.D - U.S.T., 1949
② Hosp. Gastroenterology
DDH
③ P.P.S - Internal +
Davao Chapter
④ Pres. Reg. XI phil
Hosp. Gas. ent —
⑤ Past Pres Davao Medical
⑥ Past Pres President
P.M.A.

Honorio S. Hilario, M.D.
TAX ACCT # 1278-521-0
PRC LIC # 8002

_____ M.D.
License No. _____
PTR No. _____

⑦ Past Dist. Gastroenterology P.M.A.

Pondocillin 250 mg.
Miravit Tablets
Plexovit Tablets
Normotens Tablets

Calcipen Forte Suspension
Calcipen 500 Tablets
Calcipen Mega Tablets
Burinex Tabs/Ampoules

LEO LEO PHARMACEUTICAL PRODUCTS - DENMARK

QUESTIONNAIRE RE INFANT FORMULA BUSINESS

1. Western critics say that infant formula is a prime cause of infant mortality. Do you agree that in the Philippines the use of infant formula is a prime cause of infant mortality?

   No.

2. If you do not agree with the above statement, do you feel there is a justified need for infant formula in the Philippines? What, in your opinion, are the benefits to be derived by Filipino mothers and infants on the use of infant formula?

   Because of th inadequate supply offresh milk in this country, definitely there is justified need for infant formula here.
   The philippines, being stilla developing country where malnutrition is a problem faced by a significant percentage of the population, infant milk formula as presently presen ted in its sanitary well balnced formula can provide and make available to the mothers handy source of the milk requireme nt of thier infants.

3. Before the introduction of infant formula in the Philippines, what kind of supplemental food was used for Filipino infants? What were the problems, if any, in connection with the use of such supplemental foods?

   Supplemental foods usually used by Filipino mothers prior to introduction of infant formulas were cereals and root crips which required cooking and ot her time consuming proceedures and also present problems of safe storage.

4. Would you favor dropping the use of infant formula and returning to the use of supplemental food mentioned in the preceding number? Why?

   No.

5. Would you say there is widespread abuse of the use of infant formula among the poor families in the Philippines?

   No.

6. There have been criticisms in western countries that the distribution of free stock of infant formula to the hospital nurseries and that of free samples (of infant formula products) to physicians tend to influence the professional judgment of the nursery personnel and the physicians in recommending formula feeding over breastfeeding. Could you comment on this criticism?

I personally do not agree with the above observation. As professionals, our judgement is very slightly influenced by detailing activites.

7. Occasionally infant formula manufacturers, on the solicitation of the hospital administration, donate hospital equipment or hospital supplies to the nursery. Would you care to comment on whether this practice, that of infant formula manufacturers donating hospital equipment or supplies to under-equipped hospital nurseries, should continue or should be stopped? Please give the reasons in support of your view.

The appraisal of the product in the market for hospital use/ by procurring officers of hospitals must not be influenced by gift giving or other gimmicks.

The practise of donations should temper down and must be used to facilitate the acceptance of a product irregadless of quality and price.

8. Are donations of hospital supplies and equipment important to you or your hospital? Would such donations made by the infant formula manufacturers affect your professional judgment in recommending formula feeding over breastfeeding?

No. Gift to hopstial means ver y little to us and would and cannot influence our choice of a product.

9. Western critics say that mothercraft nurses exert improper and undue influence in discouraging breastfeeding in the Philippines. Would you comment on this statement?

his not true.

10. Would you care to make a statement relative to what the infant formula companies (such as Mead Johnson Philippines Inc.) are doing in the Philippines in connection with (a) the feeding, nutrition and care of infants, and (b) its marketing practices

I think they are perfoming a wonder ful job. The benifit derived form form their activities can considered more in the information and its educational aspect . Facilites and programs of information and education of mothers in the po untry today has not been adeguate for past several years.

Honorio S. Hilario M.D.
SIGNATURE OF INTERVIEWEE

Date : May 6, 2978

Place: Iinic Office, Davao Doctors Hosp., Davao City

BISHOP JOSE T. SANCHEZ D.D.

Bishop of Lucena City

QUESTIONNAIRE RE INFANT FORMULA BUSINESS

1. Western critics say that infant formula is a prime cause of infant mortality. Do you agree that in the Philippines the use of infant formula is a prime cause of infant mortality?

   I sincerely believe this is not a matter of opinion. Statistics could speak more authoritatively on this. Generally, infant mortality in this country has been reduced significantly despite the wide use of infant formula.

2. If you do not agree with the above statement, do you feel there is a justified need for infant formula in the Philippines? What, in your opinion, are the benefits to be derived by Filipino mothers and infants on the use of infant formula?

3. Before the introduction of infant formula in the Philippines, what kind of supplemental food was used for Filipino infants? What were the problems, if any, in connection with the use of such supplemental foods?

4. Would you favor dropping the use of infant formula and returning to the use of supplemental food mentioned in the preceding number? Why?

5. Would you say there is widespread abuse of the use of infant formula among the poor families in the Philippines?

6. There have been criticisms in western countries that the distribution of free stock of infant formula to the hospital nurseries and that of free samples (of infant formula products) to physicians tend to influence the professional judgment of the nursery personnel and the physicians in recommending formula feeding over breastfeeding. Could you comment on this criticism?

7. Occasionally infant formula manufacturers, on the solicitation of the hospital administration, donate hospital equipment or hospital supplies to the nursery. Would you care to comment on whether this practice, that of infant formula manufacturers donating hospital equipment or supplies to under-equipped hospital nurseries, should continue or should be stopped? Please give the reasons in support of your view.

I believe the reason why infant formula manufactuerws or dealers donate to hospitals is more because they want greater patronage for their product. There is no intention to unduly influence the choice of mothers who on the other hand are fully aware of the effects of using infant formula. Hence, I don't find any impropriety in this. They believe their product is good and they want to cover bigger patronage.

8. Are donations of hospital supplies and equipment important to you or your hospital? Would such donations made by the infant formula manufacturers affect your professional judgment in recommending formula feeding over breastfeeding?

9. Western critics say that mothercraft nurses exert improper and undue influence in discouraging breastfeeding in the Philippines. Would you comment on this statement?

10. Would you care to make a statement relative to what the infant formula companies (such as Mead Johnson Philippines Inc.) are doing in the Philippines in connection with (a) the feeding, nutrition and care of infants, and (b) its marketing practices

Lately, sufficient publicity has been given to the breastfeeding as the best nutrition for children; that the mother's milk is still the best nutrition for children. Considering that most mothers using infant formula read this publicity, should they still continue with infant formula milk would show that this is their decision in full awareness of the consequences. They continue to do so not because of undue pressure or influence of the dealers of infant formula products.

+ Jose T. Sanchez
SIGNATURE OF INTERVIEWEE
BISHOP JOSE T. SANCHEZ D.D.

Date : May 4, 1978
Place: Iligan City

Dr. Cecilia Portug 'eza / Dumaguete

1. No

2. Yes - The need for infant formula is justified among working mothers belonging to the middle & upper income group. The benefits would be; first - the babies would be receiving the best substitute for mother's milk while she's away,

   second - it would be convenient for the one left behind to take care of the infant.

3. Rice water, condensed milk, evaporated milk.
   The problems of malnutrition and diarrhea were the most commonly encountered.

4. No - for the same reasons

5. No - they can not afford to buy these infant formula.

6. No - I dont think a physician would consider the free samples over and above the well being of an infant.

7. I think this defends on a case to case basis, equipments are generally given without strings attached. I for one, as a pediatrician can not be dictated to by the hospital administration or by the company donating the equipment.

8. Yes, our hospital can hardly survive without donations but as stated above, the need of the infant & the economic condition of the family will supersede all other considerations.

9. Some companies do mother crafting which I think should be stopped, nurses should see the doctors instead of the mothers. This practice we do not allow in our hospital, although we have no control over this outside the hospital.

10. Mead Johnson I think leaves it to the doctor to decide whether to use infant formula or advice breastfeeding, samples are given but no undue influence is exerted on the physician recepient. It's marketing practice is fair & ethical.

CECILIA M. PORTUGALEZA, M.D.
Interviewee

Date: May 5, 1978

Place: Dumaguete City

QUESTIONNAIRE RE INFANT FORMULA BUSINESS

1. Western critics say that infant formula is a prime cause of infant mortality. Do you agree that in the Philippines the use of infant formula is a prime cause of infant mortality?

NO

2. If you do not agree with the above statement, do you feel there is a justified need for infant formula in the Philippines? What, in your opinion, are the benefits to be derived by Filipino mothers and infants on the use of infant formula?

Yes - The need for infant formula is justified among working mothers belonging to the middle & upper income group. The benefits would be first of the babies would be receiving the best substitute for mother's milk while she's away, 2nd it would be convenient for the one left behind to take care of the infant

3. Before the introduction of infant formula in the Philippines, what kind of supplemental food was used for Filipino infants? What were the problems, if any, in connection with the use of such supplemental foods?

Rice water, condensed milk, evaporated milk
The problems of malnutrition & diarrhea were the most commonly encountered

4. Would you favor dropping the use of infant formula and returning to the use of supplemental food mentioned in the preceding number? Why?

NO - for the same reasons

5. Would you say there is widespread abuse of the use of infant formula among the poor families in the Philippines?

NO - they can not afford to buy these infant formula

6. There have been criticisms in western countries that the distribution of free stock of infant formula to the hospital nurseries and that of free samples (of infant formula products) to physicians tend to influence the professional judgment of the nursery personnel and the physicians in recommending formula feeding over breastfeeding. Could you comment on this criticism?

NO - I don't think a physician would consider the free samples over + above the well being of an infant

7. Occasionally infant formula manufacturers, on the solicitation of the hospital administration, donate hospital equipment or hospital supplies to the nursery. Would you care to comment on whether this practice, that of infant formula manufacturers donating hospital equipment or supplies to under-equipped hospital nurseries, should continue or should be stopped? Please give the reasons in support of your view. I think this depends on a case to case basis, equipments are generally given without strings attached, I for one, as a pediatrician cannot be dictated to by the hospital administration or by the company donating the equipments

8. Are donations of hospital supplies and equipment important to you or your hospital? Would such donations made by the infant formula manufacturers affect your professional judgment in recommending formula feeding over breastfeeding?

yes, our hospital can hardly survive without donations but as stated above, the need of the infant + the economic condition of the family will supersede all other considerations.

9. Western critics say that mothercraft nurses exert improper and undue influence in discouraging breastfeeding in the Philippines. Would you comment on this statement? -

Some companies do mothercrafting which I think should be stopped, nurses should see the doctors instead of the mothers. This practice we do not allow in our hospital, although we have no control over this outside the hospital

10. Would you care to make a statement relative to what the infant formula companies (such as Mead Johnson Philippines Inc.) are doing in the Philippines in connection with (a) the feeding, nutrition and care of infants, and (b) its marketing practices

Mead Johnson I think leaves it to the doctor to decide whether to use infant formula or advice breastfeeding, samples are given but no undue influence is exerted on the physician recipient. Its marketing practice is fair + ethical -

Cecilia M. Portugalya, M.D.
SIGNATURE OF INTERVIEWEE

Doctor of Medicine - U.S.T.
PPS, PMA, Neg. Or. Med. Soc. PMWA
Pediatrician - State Univ. of New York - Downstate - Kings County Medical Center, N.Y.
President PMWA 1978, Sec. NOMS 1974
Hale Child Hosp. [illegible]

Date : 5-5-78
Place: Dumaguete City
Philippines

Dr. Anabella C. Luz

1. Definitely not.

2. Yes. For the mothers - the availability of a safe product for her infant when the need for milk feeding arises.
For the infant - a safe product for infant feeding when the mother's milk is deficient.

3. Mostly high - carbohydrate products . Malnutrition.

4. No. As was already been mentioned these available supplemental foods before the advent of the availability of infant formula are of the high carbohydrates- sugar preparation and exposes the infant to malnutrition.

5. No

6. I do not agree (on this premise) .
I am sure physicians think primarily of the health of their patients. I dont think the ethical morality amongh physicians have gone down to such a level as to be mercenarians at the expense of their infant patients.

7. No. In the first place, this will depend on the manufacturers margin of profits in their over-all business enterprises. Donations are deductible from their tax and this can also be obligated to their advertisement appropriation which is a must in an enterprise.

8. 1st question - yes

2nd question - no

9. This is the opinion of Western cities. They are not the expert in the Philippine setting (culture & custom) and so they are entitled to their opinion but should not pass as the gospel truth.

10. a) Hand in hand with their promotion of their product, they too engage in the upliftment thru training/instructions on proper feeding, etc. and care of infants.

b) Marketing practices are highly on the professional and ethical manner.

ANABELLA C. LUZ, M.D.

Date: May 5, 1978

Place: Tondo Health Center
Manila

Name: Anabella C. Luz, M.D.

Present Position: Acting District Health Officer
Health District I
Manila Health Dept., Manila, Phil.

Educational attainment: Doctor of Medicine UST '57

Post-Graduate Training/Educ: CPH – 1965. U.P
Family Planning Training – New Delhi, India as Colombo Scholar 1966
Demography: UP – Population Institute 1973
Drug Abuse for Medical Officers Training – DDB, 1975

Membership: PMA
PMWA
FPOP
School of Public Health UP alumni Asso.
Public Health association of the Phil.
MCH association of the Phil.
Manila Nutrition Coordinating Council.

QUESTIONNAIRE RE INFANT FORMULA BUSINESS

1. Western critics say that infant formula is a prime cause of infant mortality. Do you agree that in the Philippines the use of infant formula is a prime cause of infant mortality?

Definitely not.

2. If you do not agree with the above statement, do you feel there is a justified need for infant formula in the Philippines? What, in your opinion, are the benefits to be derived by Filipino mothers and infants on the use of infant formula?

Yes.
For the mothers — the availability of a safe product for her infant when the need for mix feeding arises.
For the infant — a safe product for infant feeding when the mother's milk is deficient.

3. Before the introduction of infant formula in the Philippines, what kind of supplemental food was~~xxx~~ used for Filipino infants? What were the problems, if any, in connection with the use of such supplemental foods?

Mostly rice - carbohydrate products. Malnutrition.

4. Would you favor dropping the use of infant formula and returning to the use of supplemental food mentioned in the preceding number? Why?

No. As has already been mentioned the available supplemental foods before the advent of the availability of infant formula are of the high carbohydrate — protein prop. & expose the infant to malnutrition.

5. Would you say there is widespread abuse of the use of infant formula among the poor families in the Philippines?

No

6. There have been criticisms in western countries that the distribution of free stock of infant formula to the hospital nurseries and that of free samples (of infant formula products) to physicians tend to influence the professional judgment of the nursery personnel and the physicians in recommending formula feeding over breastfeeding. Could you comment on this criticism? I donot agree (on this premise).

I am sure physicians think primarily of the health of their patients. I don't think the ethical morality among physicians have gone down to such a level as to be mercenarians at the expense of their infant patients.

7. Occasionally infant formula manufacturers, on the solicitation of the hospital administration, donate hospital equipment or hospital supplies to the nursery. Would you care to comment on whether this practice, that of infant formula-manufacturers donating hospital equipment or supplies to under-equipped hospital nurseries, should continue or should be stopped? Please give the reasons in support of your view.

No. In the 1st place, this will depend on the manufacturers margin of profit in their overall business enterprise. Donations are deductible for their tax + this also be obligated to their advertisement appropriation which is a must in an enterprise.

8. Are donations of hospital supplies and equipment important to you or your hospital? Would such donations made by the infant formula manufacturers affect your professional judgment in recommending formula feeding over breastfeeding?

Yes. No.

9. Western critics say that mothercraft nurses exert improper and undue influence in discouraging breastfeeding in the Philippines. Would you comment on this statement?

This is the opinion of Western Critics. They are not the expert in the Phil. Setting (culture + custom) + so they are entitled to their opinion but should not pass as the gospel truth.

10. Would you care to make a statement relative to what the infant formula companies (such as Mead Johnson Philippines Inc.) are doing in the Philippines in connection with (a) the feeding, nutrition and care of infants, and (b) its marketing practices.

a) Hand in hand w/ their promotion of their product, they too engage in the upliftment thru training/instructions on proper feeding etc + care of infants.

SIGNATURE OF INTERVIEWER

b) Marketing practices are highly on the professional + ethical manner.

Date :
Place :

May 5/78
Tondo Health Center
Tondo, Manil.

ANAbella C. LUZ, M.D.
Health Dist. I

NILDA E. SUNICO-CASTRO, M.D.

1. No.

2. Since more and more mothers go to work outside the homes, the need for a good substitute for breast-milk has to be met. This is one of the benefits derived on the use of infant formula. Other benefits are its ease of preparation, longer storage.

3. Supplemental food used then was high carbohydrate low protein foods, which is not ideal as this would lead to protein malnutrition.

4. No.

5. In a sense yes. Instead of starting breast-feeding after birth, the baby is started on infant formula. After several weeks or a month, the mother cannot afford to continue the use of infant formula. By this time, she has no breast milk anymore and results to supplementary low cost foods not ideal for infant feeding.

6. All physicians, nurses, and midwives are aware that breast-feeding has many advantages over artificial feeding. This topic is well discussed and taught in their respective schools. However, the doctors and medical personnel in the nursery, most often, do not take the time to talk and convince the mothers on advantages of breast-feeding. The usual practice of most nurseries is to give the dilution of the formula that the baby was started on, without proper advice to the mother regarding

6. (CONT)

BREAST-FEEDING. A PHYSICIAN WHO HAS AMPLE KNOWLEDGE OF GOOD INFANT FEEDING WILL NOT BE INFLUENCED IN RECOMMENDING INFANT FORMULA OVER BREAT-FEEDING.

7. MANY LIVES ARE LOST IN THE NURSERIES WHERE FACILITIES ARE INADEQUATE. I WOULD RATHER SEE DONATIONS OF INCUBATORS AND OTHER HOSPITAL EQUIPMENTS THAN SPONSORING LUNCHEONS AND INDUCTION BALLS BY MANUFACTURERS WHO SPEND THOUSANDS OF PESOS IN EACH AFFAIR.

8. A) YES.
   B) NO.

9. I AM SURE THAT MOTHERCRAFT NURSES OF THE DEPARTMENT OF HEALTH DO NOT DO SO. AS FOR THE NURSES OF INFANT FORMULA MANUFACTURERS, I DO NOT KNOW THEIR OBJECTIVES.

10. MOST INFANT FORMULA COMPANIES IN THE PHILIPPINES, INCLUDING MEAD JOHNSON PHIL. INC. ARE HELPING US PEDIATRICIANS IN THE EDUCATION OF THE MASSES AND STUDENTS IN MEDICINE, NURSING, AND MIDWIFERY ON PROPER FEEDING OF INFANTS AND CHILDREN THRU PAMPHLETS, MOVIES, AND EXHIBITS. I FIND THEIR MARKETING PRACTICES ETHICAL.

NILDA E. SUNICO-CASTRO, M.D.
PEDIATRICIAN

MCU HOSPITAL
E. DE LOS SANTOS AVENUE
TEL. 35-35-61

98 ASUNCION
MORNING BREEZE
CALOOCAN CITY
TEL. 35-48-07

CURRICULUM VITAE

- NILDA SUNICO-CASTRO, M.D., F.P.P.S.

- Graduate of U.S.T. Faculty of Medicine and Surgery, 1952

X - Fellow, Philippine Pediatric Society, Inc.

X - Professor, Department of Pediatrics, MCU-FDT Medical Foundation

X - Consultant in Pediatrics at:
1. MCU Hospital
2. Mary Johnston Hospital
3. Emmanuel Community Hospital
4. Our Lady of Grace Hospital

X - Member, Editorial Board, Journal of Philippine Pediatric Society, Inc.

X - Chairman, Committee on Nutrition, MCU-FDTMF

X - Most Outstanding Physician, Caloocan City Medical Society, Inc. in the year 1977

QUESTIONNAIRE RE INFANT FORMULA BUSINESS

1. Western critics say that infant formula is a prime cause of infant mortality. Do you agree that in the Philippines the use of infant formula is a prime cause of infant mortality?

No.

2. If you do not agree with the above statement, do you feel there is a justified need for infant formula in the Philippines? What, in your opinion, are the benefits to be derived by Filipino mothers and infants on the use of infant formula?

Since more and more mothers go to work outside the homes, the need for a good substitute for breast-milk has to be met. This is one of the benefits derived on the use of infant formula. Other benefits are in case of pregnation, longer storage.

3. Before the introduction of infant formula in the Philippines, what kind of supplemental food was used for Filipino infants? What were the problems, if any, in connection with the use of such supplemental foods?

Supplemental food used then was high carbohydrate low protein foods, which is not ideal as this would lead to protein malnutrition

4. Would you favor dropping the use of infant formula and returning to the use of supplemental food mentioned in the preceding number? Why?

No.

5. Would you say there is widespread abuse of the use of infant formula among the poor families in the Philippines?

In a sense yes. Instead of starting breast-feeding after birth, the baby is started on infant formula. After several weeks or a month, the mother cannot afford to continue the use of infant formula. By this time, she has no breast-milk anymore and resorts to supplementary low cost food, not ideal for infant feeding.

6. There have been criticisms in western countries that the distribution of free stock of infant formula to the hospital nurseries and that of free samples (of infant formula products) to physicians tend to influence the professional judgment of the nursery personnel and the physicians in recommending formula feeding over breastfeeding. Could you comment on this criticism?

All physicians, nurses, + midwives are aware that breastfeeding has many advantages over artificial feeding. This topic is well discussed + taught in para their respective schools. However, the doctors + medical personnel in the nursery, most often, do not take the time to talk and convince the mothers on advantages of → our

7. Occasionally infant formula manufacturers, on the solicitation of the hospital administration, donate hospital equipment or hospital supplies to the nursery. Would you care to comment on whether this practice, that of infant formula manufacturers donating hospital equipment or supplies to under-equipped hospital nurseries, should continue or should be stopped? Please give the reasons in support of your view.

Many lives are lost in the nurseries where facilities are inadequate. I would rather see donations of incubators and other hospital equipments than sponsoring luncheons and induction balls by manufacturers who spend thousands of pesos in each affair.

8. Are donations of hospital supplies and equipment important to you or your hospital? Would such donations made by the infant formula manufacturers affect your professional judgment in recommending formula feeding over breastfeeding?

a) Yes.
b) No

9. Western critics say that mothercraft nurses exert improper and undue influence in discouraging breastfeeding in the Philippines. Would you comment on this statement?

I am sure that mothercraft nurses of the Department of Health do not do so. As for the nurses of infant formula manufacturers, I do not know their objectives.

10. Would you care to make a statement relative to what the infant formula companies (such as Mead Johnson Philippines Inc.) are doing in the Philippines in connection with (a) the feeding, nutrition and care of infants, and (b) its marketing practices

Most Infant Formula Companies in the Philippines, including Mead Johnson Phil., Inc. are helping us Pediatricians in the education of the masses + students in Medicine, Nursing, + Midwifery on proper feeding of infants + children thru pamphlets, movies, and exhibits. I find their marketing practices ethical.

SIGNATURE OF INTERVIEWFE

Date : 5-6-78

Place: Mare Hospital

[signature] - Castro, M.D.

Continuation of #6

breast-feeding. The usual practice of most nurseries is to give the dilution of the formula that the baby was started on, without proper advice to the mother regarding breast feeding. A physician who has ample knowledge of good infant feeding will not be influenced in recommending infant formula over breast feeding.

Dr. Maria S. Galv

1. No

54

2. There is a justified need for the use of infant formula for those who can afford and especially for working mothers. Formula must be adequate, properly prepared and at correct intervals. Supportive medications must be given - say iron preparations.

3. Broth with vegetables
Broth (meat), with eggs
Preparation is tedious and rather cumbersome.

4. No. There should be a segment that should use infant formula; a segment that should use breast feeding plus supplement food that a portion that would use breast feeding only especially if the mother has sufficient breast milk.

5. Yes. They follow what is instructed to them from the LyingIn clinics or hospitals but due to the high cost of infant formula which they cannot affort, they over dilute their formula causing malnutrition.

6. The statement is partly true. Sometimes, physicians dont exert enough efforts to find out if the mother could afford infant formula before selecting it in favor of breast feeding. I feel that with the high cost of infant formula, all means of encouraging breast feeding should be done before choosing it over & above breast feeding.

7. This must be stopped.

Sometimes, inducements like the above somehow influence the personnel concerned that they are induced to recommend the use of infant formula indiscriminately without exerting all efforts to choose only those who can afford formula feeding. Over and above, breast feeding must be encouraged. There really is no substitute for breast milk.

8. Yes, they are important.

They would not affect totally my professional judgement but they also somehow influence us at times and the truth about it is, we are prompted to please the formula manufacturers and hence dont exert all our efforts to encourage to the greatest extent breast feeding.

9. I do not think they discourage breastfeeding. The trust about it is that because infant formula is easier to prescribe better appreciated by some, not enough effort is done to fully encourage breast feeding.

10. no answer given

MARIA S. GALVEZ, M.D.
Interviewee

Date: May 5, 1978
Place: City Hall, Manila

QUESTIONNAIRE RE INFANT FORMULA BUSINESS

1. Western critics say that infant formula is a prime cause of infant mortality. Do you agree that in the Philippines the use of infant formula is a prime cause of infant mortality?

No.

2. If you do not agree with the above statement, do you feel there is a justified need for infant formula in the Philippines? What, in your opinion, are the benefits to be derived by Filipino mothers and infants on the use of infant formula?

There is a justified need for the use of infant formula for those who can afford and especially for working mothers. Formula must be adequate, properly prepared + at correct intervals. Supportive medications must be given - say iron preparations.

3. Before the introduction of infant formula in the Philippines, What kind of supplemental food was used for Filipino infants? What were the problems, if any, in connection with the use of such supplemental foods?

Broth with vegetables
Broth (meat) with eggs
Preparation ~~was~~ is tedious + rather cumbersome.

4. Would you favor dropping the use of infant formula and returning to the use of supplemental food mentioned in the preceding number? Why?

No. There should be a segment that should use infant formula; a segment that should use breast feeding plus supplemental food and a portion that would use breast feeding only especially if the mother has sufficient breast milk

5. Would you say there is widespread abuse of the use of infant formula among the poor families in the Philippines?

Yes. They follow what is instructed to them from the Lying In Clinics or Hospitals but due to the high cost of infant formula which they cannot afford, they over dilute their formula causing malnutrition.

6. There have been criticisms in western countries that the distribution of free stock of infant formula to the hospital nurseries and that of free samples (of infant formula products) to physicians tend to influence the professional judgment of the nursery personnel and the physicians in recommending formula feeding over breastfeeding. Could you comment on this criticism?

The statement is partly true. Sometimes, physicians don't exert enough effort to find out if the mother could afford infant formula before selecting it in favor of breast feeding. I feel that with the high cost of infant formula, all means of encouraging breast feeding should be taken before choosing the other, above breast feeding.

7. Occasionally infant formula manufacturers, on the solicitation of the hospital administration, donate hospital equipment or hospital supplies to the nursery. Would you care to comment on whether this practice, that of infant formula manufacturers donating hospital equipment or supplies to under-equipped hospital nurseries, should continue or should be stopped? Please give the reasons in support of your view. This must be stopped. Sometimes, inducements like the above somehow influence the personnel concerned that they are induced to recommend these of infant formula indiscriminately without exerting all efforts to choose only those who can afford formula feeding. Breast feeding must be encouraged. There really is no substitute to breast milk.

8. Are donations of hospital supplies and equipment important to you or your hospital? Would such donations made by the infant formula manufacturers affect your professional judgment in recommending formula feeding over breastfeeding?

Yes, they are important

They would not affect totally my professional judgement but they also somehow influence us at times + the truth about it is we are prompted to please the formula manufacturers hence don't exert all our efforts to encourage to be greater interest feeding.

9. Western critics say that sometimes nurses exert improper and undue influence in discouraging breastfeeding in the Philippines. Would you comment on this statement?

I do not think they discourage breastfeeding. The truth about it is that because infant formula is easier to prepare better appreciated by some not enough effort is done to fully encourage breast feeding.

10. Would you care to make a statement relative to what the infant formula companies (such as Mead Johnson Philippines Inc.) are doing in the Philippines in connection with (a) the feeding, nutrition and care of infants, and (b) its marketing practices

M.D. Galvez M.D.
MARIA S GALVEZ
SIGNATURE OF INTERVIEWEE
Dist. Health Officer HD I
Manila Health Dept
Class '39 Med. U.P. ; DPH in Public Health, major in Mat. + Child Health Sydney, Australia

Date : May 5 1978
Place : City Hall, Manila
M C H

May 5, 1978
H.D. IV
DR. LEONISA F. VILORIA

1. NO.

2. Depends. Those who can't afford should not be forced to put their infants on formula. But for working mothers, and those who are ill and unable to nourish their infants, it is a boon.

3. They used to give "Am", Lugao, bananas (mashed) mashed potatoes, and soup of ulam or viands like sinigang and nilaga.

4. No. Because most of our babies will be malnourished if ever that will be. Our times have changed and progress can't be stopped. It's only through proper nutrition that we can have healthy babies.

5. Yes. They usually use condensed milk which will not give the right amount needed for the nutrition of the baby. They just put enough milk, (condensed) to color the water.

6. This is true esp. if the discipline they approach are non-knowledgeable about the quality of the milk. These people in turn high pressure the mothers who in turn are also not aware of the difference bet. the diff. kinds of milk preparations.

7. No. If other companies can donate, why not the others. It should be a give and take proposition, puera high pressuring medical people to recommend such milk preparation.

8. Yes. No; because for me I've made comparisons of the different milk formulas & I'd recommend that which is suited for the infant, the pocket of the parents , & the availability, & quality of the prep.

9. Yes. Some doctors have even stopped breast feeding & have prescribed milk formulas of their liking.

10. As far as I know & as far as I am concerned Mead Johnson Phil, Inc, esp. has done a great deal in serving the medical segment by giving equipments & other material aid to help facilitate an efficient and effective health care delivery, like our lying-in, DOS, & nurseries. They've done so much to promote proper nutrition and health care for infants and mothers, & mothers to be, as well. Their starter doses are a great help because it's during deliveries that we have much to pay for and to be given starter doses is a big help.

Leonisa Fambre - Vilsein, MD

x Present Position: Acting District Health Officer
Health District IV
MCH, MHD, Manila, Phil.

Educational attainment:
Doctor of Medicine, U.S.T. '52
Master in Public Health U.P. 1976
Post grad. in Chest X-Ray + PTB 1956
Family Planning Sem. Singapore 1968
Prop. Statistics U.P. 1968-69
Public Administration 1968-1966
Human Resources Development Program etc

Pamantasan Ng Maynilas 1972
Residency Training NGH Ped. Dept 2½ yrs
Resident Pedia Dept NGH 1958-1961

Membership: x PMA ; Manila Medical Society, District IV
x PMWA ; Phil. Pediatric Society
FPOP Los Banos Cursillistas
Girl Scouts of The Phil Mayondon Narsitarians
U.P. Alumni in Public Health
MCH Assoc. of the Phil
MCHD Assoc. of Manila physicians
Manila Nutrition Council
Rioness, Board member, Los Banos, Sng.

QUESTIONNAIRE RE INFANT FORMULA BUSINESS

1. Western critics say that infant formula is a prime cause of infant mortality. Do you agree that in the Philippines the use of infant formula is a prime cause of infant mortality? No.

2. If you do not agree with the above statement, do you feel there is a justified need for infant formula in the Philippines? What, in your opinion, are the benefits to be derived by Filipino mothers and infants on the use of infant formula? Depends. Those who can't afford should not be forced to put their infants on formula. But for working mothers, & those who are ill and unable to nourish their infants, it is a boon.

3. Before the introduction of infant formula in the Philippines, what kind of supplemental food was used for Filipino infants? What were the problems, if any, in connection with the use of such supplemental foods?
They used to give "Am", Sugao, Sanamu (mashed) mashed potatoes, and soup of ulam or viands like sinigang and nilaga.

4. Would you favor dropping the use of infant formula and returning to the use of supplemental food mentioned in the preceding number? Why? No. Because most of our babies will be malnourished if ever that will be. Our times have changed and progress can't be stopped. It's only through proper nutrition that we can have healthy babies.

5. Would you say there is widespread abuse of the use of infant formula among the poor families in the Philippines? yes.
They usually use condensed milk which will not give the right amount needed for the nutrition of the baby. They just put enough milk (condensed) to color the water.

6. There have been criticisms in western countries that the distribution of free stock of infant formula to the hospital nurseries and that of free samples (of infant formula products) to physicians tend to influence the professional judgment of the nursery personnel and the physicians in recommending formula feeding over breastfeeding. Could you comment on this criticism? This is true esp. if the discipline they approach are non-knowledgeable about the quality of the milk. These people in turn high pressure the mothers who in turn are also not aware of the difference bet. the diff. kinds of milk preparations

7. Occasionally infant formula manufacturers, on the solicitation of the hospital administration, donate hospital equipment or hospital supplies to the nursery. Would you care to comment on whether this practice, that of infant formula manufacturers donating hospital equipment or supplies to under-equipped hospital nurseries, should continue or should be stopped? Please give the reasons in support of your view. No. If other companies can donate, why not the others. It should be a give & take proposition, pressure high pressuring medical people to recommend such milk preparation

8. Are donations of hospital supplies and equipment important to you or your hospital? Would such donations made by the infant formula manufacturers affect your professional judgment in recommending formula feeding over breastfeeding? yes. No, because for me I've made comparisons of the different milk formulas & I'd recommend that which is suited for the infant, the pocket of the parents, & the availability, & quality of the prep.

9. Western critics say that mothercraft nurses exert improper and undue influence in discouraging breastfeeding in the Philippines. Would you comment on this statement? yes some doctors have even stopped breastfeeding & have prescribed milk formulas of their liking.

10. Would you care to make a statement relative to what the infant formula companies (such as Mead Johnson Philippines Inc.) are doing in the Philippines in connection with (a) the feeding, nutrition and care of infants, and (b) its marketing practices. As far as I know & as far as I am concerned Mead Johnson Phil. Inc. esp. has done a great deal in serving the medical segment by giving equipments & other material aids to help facilitate an efficient & effective health care delivery, like our lying-in, DOS, & nurseries. They've done so much to promote proper nutrition & health care for infants and mothers, & mothers to be, as well. Their starter doses are a great help bec. it's during deliveries that we have mu'. to pay for and to be given starter doses is a big help.

SIGNATURE OF INTERVIEWER

Date : 5/5/78
Place : H.D.IV

Vilaria, M.A.
Dog DHO H.D.IV

May 5, 1978
Davao City
DR. AGAPITO CONCHU

1. Definitely not.

2. Although it is true that breastfeeding is best for the newborn infant, many mothers have to work to supplement the family income and thus have to resort to mixed feeding or pure artificial feeding after 4-6 weeks from birth.

3. The commonly used supplemental food at that time was condensed milk which is too rich in sugar (carbohydrates) and deficient in protein.

4. No. For the reason stated above.

5. I do not think so. The poor probably cannot even afford the use of infant formulas. Other supplements like condensed milk are cheaper.

6. I do not see how this can happen. If a mother desires to breastfeed, the availability of free samples would not influence me, nor in my belief, the mother.

7. As long as the donations are made without onerous conditions, I don't think any harm is done to anybody.

8. No.

9. I do not see how they could exert such "undue influence".

10. The infant formula companies I am acquainted with (Mead Johnson Phil. Inc., Wyeth, Nestle) are ethical in their marketing practices. They help, and are always willing to support free clinics, charity affairs, etc.

Agapito Conchu, M.D.
OBSTETRICIAN – GYNECOLOGIST

Clinic:
Cor. Magallanes Legaspi Sts.
Davao City
Tel. 7-38-88

Residence:
234 McArthur Highway
Davao City
Tel. 7-37-98

Date .....

℞
= University of the Philippines
= Associate, POGS
X = Fellow, PCS
X = Sr. Consultant
· Brokenshire Mem. Hospital
= PMA, FPCS, POGS
Y = Private practitioner

License No. 16189
TAN 1151-200-1

BMH ..... Sr. Consultant
..... M.D.

QUESTIONNAIRE RE INFANT FORMULA BUSINESS

1. Western critics say that infant formula is a prime cause of infant mortality. Do you agree that in the Philippines the use of infant formula is a prime cause of infant mortality?

Definitely not.

2. If you do not agree with the above statement, do you feel there is a justified need for infant formula in the Philippines? What, in your opinion, are the benefits to be derived by Filipino mothers and infants on the use of infant formula?

Although it is true that breast feeding is best for the newborn infant, many mothers have to work to supplement the family income and thus have to resort to mixed feeding or pure artificial feeding after 4 – 6 wks from birth.

3. Before the introduction of infant formula in the Philippines, what kind of supplemental food was used for Filipino infants? What were the problems, if any, in connection with the use of such supplemental foods?

The commonly used supplemental food at that time was condensed milk which is too rich in sugar (carbohydrates) & deficient in protein.

4. Would you favor dropping the use of infant formula and returning to the use of supplemental food mentioned in the preceding number? Why?

No. For the reason stated above.

5. Would you say there is widespread abuse of the use of infant formula among the poor families in the Philippines?

I do not think so. The poor probably can not even afford the use of infant formulas. Other supplements like condensed milk are cheaper.

6. There have been criticisms in western countries that the distribution of free stock of infant formula to the hospital nurseries and that of free samples (of infant formula products) to physicians tend to influence the professional judgment of the nursery personnel and the physicians in recommending formula feeding over breastfeeding. Could you comment on this criticism?

I do not see how this can happen. If a mother desires to breastfeed, the availability of free samples would not influence me, nor in my belief, the mother.

7. Occasionally infant formula manufacturers, on the solicitation of the hospital administration, donate hospital equipment or hospital supplies to the nursery. Would you care to comment on whether this practice, that of infant formula manufacturers donating hospital equipment or supplies to under-equipped hospital nurseries, should continue or should be stopped? Please give the reasons in support of your view.

As long as the donations are made without onerous conditions, I don't think any harm is done to anybody.

8. Are donations of hospital supplies and equipment important to you or your hospital? Would such donations made by the infant formula manufacturers affect your professional judgment in recommending formula feeding over breastfeeding?

No.

9. Western critics say that mothercraft nurses exert improper and undue influence in discouraging breastfeeding in the Philippines. Would you comment on this statement?

I do not see how they could exert such undue influence.

10. Would you care to make a statement relative to what the infant formula companies (such as Mead Johnson Philippines Inc.) are doing in the Philippines in connection with (a) the feeding, nutrition and care of infants, and (b) its marketing practices

The infant formula companies I am acquainted with (Mead-Johnson, Wyeth, Nestle) are ethical in their marketing practices. They help, and are always willing to support free clinics, charity affairs, etc. Agapito Canchan

SIGNATURE OF INTERVIEWEE

Date : 5-5-78

Place: Davao City

Dr. HONORIO E. DELA CRUZ
UP Class 1955
x Fellow, Philippine Ped. Society
x Fellow, International College of Pediatrics
x Medical Director & Chief of Pediatrics
Brokenshire Mem. Hospital.
Davao City.

May 5, 1978
Davao City
DR. HONORIO E. DELA CRUZ

1. No. However, the use of unsatisfactory formula instead of breastfeeding may have some contribution to infant mortality.

2. The use of infant formula certainly is a great help to working mothers. Likewise, there are accepted contraindications to breastfeeding and, therefore in such cases, the best alternative is infant formula. The adequate infant formula are vitamin fortified and, therefore, in this regard, maybe better than breast milk.

3. Fresh milk and rice cereals. The problem were of course, proper pasteurization and control of contamination. The rice cereals were found wanting in nutritional values.

4. No.

5. No. However, there is the possibility of "Brain Washing Effect" on the poor families, to the effect that they have abandoned breastfeeding in favor to even inferior or inadequate type of formula available in the market.

6. I don't think that such practice has in anyway influences my judgement in recommending formula feeding over breastfeeding.

7. The practice need not be stopped. This practice can help a lot charitable institutions which do not have enough income. Afterall the physicians running the nursery do not get any personal benefit and, therefore, will not be influenced on the donation.

8. The donations are important. No, they don't affect our professional judgement.

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9. No.

10. The program on feeding, nutrition and care of infant is good. Their marketing practices are highly ethical.

QUESTIONNAIRE RE INFANT FORMULA BUSINESS

1. Western critics say that infant formula is a prime cause of infant mortality. Do you agree that in the Philippines the use of infant formula is a prime cause of infant mortality?
No. However, the use of unsatisfactory formula instead of breast feeding may have some contribution to infant mortality

2. If you do not agree with the above statement, do you feel there is a justified need for infant formula in the Philippines? What, in your opinion, are the benefits to be derived by Filipino mothers and infants on the use of infant formula? The use of infant formula certainly is a great help to working mothers. Likewise there are accepted contraindication to breastfeeding and therefore in such cases, the best alternative is infant formula. The adequate infant formula are vitamin fortified & therefore in this regard, maybe better than breastmilk.

3. Before the introduction of infant formula in the Philippines, what kind of supplemental food was used for Filipino infants? What were the problems, if any, in connection with the use of such supplemental foods? Freshmilk and rice cereals. The problems were of course proper pasteurization & control of contamination. The rice cereals were found wasting in nutritional values.

4. Would you favor dropping the use of infant formula and returning to the use of supplemental food mentioned in the preceding number? Why?
NO

5. Would you say there is widespread abuse of the use of infant formula among the poor families in the Philippines? No. However there is the possibility of "brain washing effect" on the poor families to the effect that they have abandoned breastfeeding in favor to even inferior or inadequate type of formula available in the market.

6. There have been criticisms in western countries that the distribution of free stock of infant formula to the hospital nurseries and that of free samples (of infant formula products) to physicians tend to influence the professional judgment of the nursery personnel and the physicians in recommending formula feeding over breastfeeding. Could you comment on this criticism?
I don't think that such practice has in anyway influenced my judgement in recommending formula feeding over breastfeeding.

7. Occasionally infant formula manufacturers, on the solicitation of the hospital administration, donate hospital equipment or hospital supplies to the nursery. Would you care to comment on whether this practice, that of infant formula manufacturers donating hospital equipment or supplies to under-equipped hospital nurseries, should continue or should be stopped? Please give the reasons in support of your view. The practice need not be stopped. This practice can help a lot charitable institutions which do not have enough income. After all the physicians running the nursery do not get any personal benefit and therefore will not be influenced by the donation.

8. Are donations of hospital supplies and equipment important to you or your hospital? Would such donations made by the infant formula manufacturers affect your professional judgment in recommending formula feeding over breastfeeding? The donations are important. No, they don't affect our professional judgment.

9. Western critics say that mothercraft nurses exert improper and undue influence in discouraging breastfeeding in the Philippines. Would you comment on this statement? No

10. Would you care to make a statement relative to what the infant formula companies (such as Mead Johnson Philippines Inc.) are doing in the Philippines in connection with (a) the feeding, nutrition and care of infants, and (b) its marketing practices
The program on feeding, nutrition & care of infant is good. Their marketing practices are highly ethical.

HONORIO E. ARCA CRUZ, MD.
SIGNATURE OF INTERVIEWEE

Date : 5/5/78
Place: Davao City.

Dept

Duplicate ?
988-987

Lutheran Well Baby Clinic
1751 JOSE ABAD SANTOS AVENUE, TONDO
MANILA, PHILIPPINES

NANCY T. LAO, M.D.
PEDIATRICIAN

TEL. 21-07-87

Academic Attainment :

1948 - Graduated from the Philippine Chinese High School.
1950 - Graduated from University of Santo Tomas, Associate in Arts.
1955 - Graduated from University of Santo Tomas, College of Medicine, Doctor of Medicine.

Medical Practice and organizations :

1955 - 1956 Postgraduate training at Samaritan Hospital, Troy, New York as rotating intern.

1956 - 1957 Junior resident, Dept. of Pediatrics, Lincoln Hospital, Bronx, New York.

1957 - 1958 Senior resident, Dept. of Pediatrics, Lincoln Hospital, Bronx, New York.

1958 - 1959 Chief resident, Dept. of Pediatrics, Lincoln Hospital, Fellow, Dept. of Pediatrics, Bronx Municipal Medical Center, New York.

1959 - Present Private Practice in Pediatrics.

1963 - Present Director, Lutheran Well Baby Clinic, Manila.

1959 - 1974 Member of Filipino-Chinese Medical Society.
1959 up -- Member of Philippine Medical Society.
Member of Manila Medical Society.
Member of Philippine Pediatric Society.
Consultant, Dept. of Pediatrics, Mary Johnston Hospital.
1974 - 1976 Treasurer, Filipino-Chinese Medical Society
Consultant, Dept. of Pediatrics, Metropolitan Hospital.
1976 - 1977 Director of Board, Filipino-Chinese Medical Society.

1977 - 1978 Vice President, Filipino-Chinese Medical Society .

Fellow, Philippine Pediatrics Society.

1978 - 1979 President, Filipino - Chinese Medical Society.

May 5, 1978
Manila
DR. NANCY LAO

1. No.

2. Yes, the Philippines needs the infant formula because quite a number of average income family, the mothers themselves are having vitamin deficiency.

3. Rice water, breastfeeding and condensed milk were used, a lot of kids are underweight and undernourished.

4. No, not until they reach a certain age level, where they can tolerate well the supplemental food.

5. No, in fact it helps the low income average families to maintain the developmental & nourishing stage of their children.

6. It helps to distribute to some poor infants when their parents cannot afford the milk. It also helps the nurseries to maintain the constant supply for the nourishing babies.

7. It should be continued, because it helps to bring up the standard of the hospitals and nurseries to equip what they cannot afford and to the underprivileged community.

8. Yes, in one way or another it helps indirectly the low-income group to have the same privileges as the above average group. Professionally speaking, it does not affect us in our practice.

9. We do not discourage breastfeeding in the Philippines if we think the human milk can well supply the infants need and requirements, both physically and emotionally.

10. *As far as our fifteen years experience, the Company is trying their very best to bring up the nutritional and developmental standard of the Filipino infants in one way or another, and to perform their very best services to ehlp the nurseries & hospitals.*

QUESTIONNAIRE RE INFANT FORMULA BUSINESS

1. Western critics say that infant formula is a prime cause of infant mortality. Do you agree that in the Philippines the use of infant formula is a prime cause of infant mortality?

NO

2. If you do not agree with the above statement, do you feel there is a justified need for infant formula in the Philippines? What, in your opinion, are the benefits to be derived by Filipino mothers and infants on the use of infant formula?

Yes, the Philippine needs the infant formula because quite a number of average income family, the mothers themselves are having vitamin deficiency.

3. Before the introduction of infant formula in the Philippines, what kind of supplemental food was used for Filipino infants? What were the problems, if any, in connection with the use of such supplemental foods?

Rice water, breast feeding and condensed milk were used, a lot of babies are underweight & undernourished.

4. Would you favor dropping the use of infant formula and returning to the use of supplemental food mentioned in the preceding number? Why?

NO, not until they reach a certain age level, where they can tolerate well the supplemental foods.

5. Would you say there is widespread abuse of the use of infant formula among the poor families in the Philippines?

NO, ~~it~~ in fact it helps the low income average families to maintain the development & growing stage of their children.

6. There have been criticisms in western countries that the distribution of free stock of infant formula to the hospital nurseries and that of free samples (of infant formula products) to physicians tend to influence the professional judgment of the nursery personnel and the physicians in recommending formula feeding over breastfeeding. Could you comment on this criticism?

It helps to distribute to some poor infants when their families cannot afford the milk. It also helps the nurseries to maintain the constant supply for the remaining babies.

7. Occasionally infant formula manufacturers, on the solicitation of the hospital administration, donate hospital equipment or hospital supplies to the nursery. Would you care to comment on whether this practice, that of infant formula manufacturers donating hospital equipment or supplies to under-equipped hospital nurseries, should continue or should be stopped? Please give the reasons in support of your view.

It should be continued, because it helps to bring up the standard of the hospitals and nurseries to equip which they can not afford and to the underprivileged community.

8. Are donations of hospital supplies and equipment important to you or your hospital? Would such donations made by the infant formula manufacturers affect your professional judgment in recommending formula feeding over breastfeeding?

Yes, in one way or another it helps indirectly the low-income group to have the same privilege as the above average group. Professionally speaking, it does not affect us in our practice.

9. Western critics say that mothercraft nurses exert improper and undue influence in discouraging breastfeeding in the Philippines. Would you comment on this statement?

We do not discourage breastfeeding in the Philippines if we think the human milk can really supply the infant's need and requirement both physically & emotionally.

10. Would you care to make a statement relative to what the infant formula companies (such as Mead Johnson Philippines Inc.) are doing in the Philippines in connection with (a) the feeding, nutrition and care of infants, and (b) its marketing practices

As far as our fifteen years experience, the Company is trying their very best to bring up the nutritional & Developmental standard of the Filipino infants in one way or another, and to perform their very best services to help the nurseries & hospitals.

SIGNATURE OF INTERVIEWEE

Date : 5/5/78

Place: Manila

Dr. Joven Lee/Cebu

1. No

2. Definitely yes

3. no answer given

4. No

5. No

6. Baseless and no studies developed. Physicians in the Philippines are independently minded.

7. It is a laudable gesture and I hope it continues. It definitely helps the population which is the direct benefactor.

8. It is important to the physician to be able to treat his infant pateints effectively in the use of such equipments.

9. There has been no such action noted in our locality, to my knowledge.

10. Mead Johnson milk formula has been with me since I started my residency and practice and find it safe and very conventent for my patients.

QUESTIONNAIRE RE INFANT FORMULA BUSINESS

1. Western critics say that infant formula is a prime cause of infant mortality. Do you agree that in the Philippines the use of infant formula is a prime cause of infant mortality?

NO

2. If you do not agree with the above statement, do you feel there is a justified need for infant formula in the Philippines? What, in your opinion, are the benefits to be derived by Filipino mothers and infants on the use of infant formula?

Definitely yes

3. Before the introduction of infant formula in the Philippines, what kind of supplemental food was used for Filipino infants? What were the problems, if any, in connection with the use of such supplemental foods?

4. Would you favor dropping the use of infant formula and returning to the use of supplemental food mentioned in the preceding number? Why?

no

5. Would you say there is widespread abuse of the use of infant formula among the poor families in the Philippines?

no

6. There have been criticisms in western countries that the distribution of free stock of infant formula to the hospital nurseries and that of free samples (of infant formula products) to physicians tend to influence the professional judgment of the nursery personnel and the physicians in recommending formula feeding over breastfeeding. Could you comment on this criticism?

Baseless and no studies done. Physicians in the Philippines are independently minded.

7. Occasionally infant formula manufacturers, on the solicitation of the hospital administration, donate hospital equipment or hospital supplies to the nursery. Would you care to comment on whether this practice, that of infant formula manufacturers donating hospital equipment or supplies to under-equipped hospital nurseries, should continue or should be stopped? Please give the reasons in support of your view.

It is a laudable gesture and I hope it continues. It definitely helps the population which is the direct benefactor.

8. Are donations of hospital supplies and equipment important to you or your hospital? Would such donations made by the infant formula manufacturers affect your professional judgment in recommending formula feeding over breastfeeding?

It is important to the physician to be able to treat his infant patients effectively if the use of such equipment

9. Western critics say that mothercraft nurses exert improper and undue influence in discouraging breastfeeding in the Philippines. Would you comment on this statement?

There has been no such action noted in our locality, to my knowledge

10. Would you care to make a statement relative to what the infant formula companies (such as Mead Johnson Philippines Inc.) are doing in the Philippines in connection with (a) the feeding, nutrition and care of infants, and (b) its marketing practices

Mead Johnson milk formula has been with me since I started my residency & practice and I find it safe & very convenient for my patients.

Jaime C. Lee, M.D.
SIGNATURE OF INTERVIEWEE

Date : 5/6/78
Place: Cebu City

Bio data:

UST 1955

Married to Edith Lee

4 children

Residencies in New York

Hosp.

Diplomate of American

Board of

Pedia 1963

Dr. Mario Alix

1. Certainly not.

2. All mothers are told of the benefits of breastfeeding and how long it should be continued, but for working mothers mix feeding becomes a necessity after the second or third month when she starts reporting for work.

3. Rice gruel, scrapped banana. The time lost in preparing rice gruel 3 or 4 times a day.

4. No. Infant formula and the other supplemental food will provide a wider variety, in the infants diet. Besides the infant formula will provide a more balanced diet.

5. No.

6. This is false. You see, only accredited pediatricians are allowed to handle newborns and a pediatrician knows that there is no substitute to breast milk. or human milk.

7. No Comment

8. Certainly not . I have stated above, a pediatrician knows no better substitute to breastfeeding.

9. That's a lot of nonsense. It just proves that those western critics have no business being critics on things they do not know anything about.

10. The infant formula companies such as Mead Johnson Philippines Inc., sponsors :

1. Film showing in infant feeding, nutrition and care of infant.
2. Seminars on infant nutrition and other allied subjects.

But absolutely no commercials on their product lines except on their interest in promoting continuing medical education for the bulk of the medical practitioners.

Dr. Mario C. Alix
Interviewee

Date : May 6, 1978

Place: Cebu City

QUESTIONNAIRE RE INFANT FORMULA BUSINESS

1. Western critics say that infant formula is a prime cause of infant mortality. Do you agree that in the Philippines the use of infant formula is a prime cause of infant mortality?

CERTAINLY NOT.

2. If you do not agree with the above statement, do you feel there is a justified need for infant formula in the Philippines? What, in your opinion, are the benefits to be derived by Filipino mothers and infants on the use of infant formula? ALL MOTHERS ARE TOLD OF THE BENEFIT OF BREAST FEEDING AND HOW LONG IT SHOULD BE CONTINUED. BUT FOR WORKING MOTHERS MIX FEEDING BECOMES A NECESSITY AFTER THE SECOND OR THIRD MONTH WHEN SHE STARTS REPORTING FOR WORK.

3. Before the introduction of infant formula in the Philippines, what kind of supplemental food was used for Filipino infants? What were the problems, if any, in connection with the use of such supplemental foods? RICE GRUEL, SCRAPPED BANANA. THE TIME LOST IN PREPARING RICE GRUEL 3 OR 4 TIMES A DAY.

4. Would you favor dropping the use of infant formula and returning to the use of supplemental food mentioned in the preceding number? Why? NO. INFANT FORMULA AND THE OTHER SUPPLEMENTAL FOOD WILL PROVIDE A WIDER VARIETY IN THE INFANTS DIET. BESIDES THE INFANT FORMULA WILL PROVIDE A MORE BALANCED DIET.

5. Would you say there is widespread abuse of the use of infant formula among the poor families in the Philippines?

NO.

6. There have been criticisms in western countries that the distribution of free stock of infant formula to the hospital nurseries and that of free samples (of infant formula products) to physicians tend to influence the professional judgment of the nursery personnel and the physicians in recommending formula feeding over breastfeeding. Could you comment on this criticism?

THIS IS FALSE. YOU SEE, ONLY ACCREDITED PEDIATRICIANS ARE ALLOWED TO HANDLE NEWBORNS AND A PEDIATRICIAN KNOWS THAT THERE IS NO SUBSTITUTE TO BREAST MILK. IS HUMAN MILK.

7. Occasionally infant formula manufacturers, on the solicitation of the hospital administration, donate hospital equipment or hospital supplies to the nursery. Would you care to comment on whether this practice, that of infant formula manufacturers donating hospital equipment or supplies to under-equipped hospital nurseries, should continue or should be stopped? Please give the reasons in support of your view..

NO COMMENT.

8. Are donations of hospital supplies and equipment important to you or your hospital? Would such donations made by the infant formula manufacturers affect your professional judgment in recommending formula feeding over breastfeeding?

DEFINITELY NOT. I HAVE STATED ABOVE, A PEDIATRICIAN KNOWS DO BETTER SUBSTITUTE TO BREAST FEEDING

9. Western critics say that mothercraft nurses exert improper and undue influence in discouraging breastfeeding in the Philippines. Would you comment on this statement?

THERE A LOT OF NONSENSE. IT JUST PROVES THAT THOSE WESTERN CRITICS HAVE NO BUSINESS BEING CRITICS ON THINGS THEY DO NOT KNOW ANYTHING ABOUT.

10. Would you care to make a statement relative to what the infant formula companies (such as Mead Johnson Philippines Inc.) are doing in the Philippines in connection with (a) the feeding, nutrition and care of infants, and (b) its marketing practices.

MARIO A. ILAW M.D. FPPS
SIGNATURE OF INTERVIEWEE

Date : 5/6/78
Place: OCEAN CITY

MARIO C. ALIX, M.D., FPPS
Pediatrics

56 Zulueta Street
Metro Cebu, Phils.
Tel. No. 7-45-49

Answer to question No. IO

The infant formula companies such as Mead Johnson Philippines Incorporated sponsors:

I. Film showing in infant feeding , nutrition, and care of infant .

2. Seminars on infant nutrition and other allied subjects.

But absolutely no commercials on their product lines except on their interest in promoting continuing medical education for the bulk of the medical practitioners.

Minda Luz Quesada

1. The use of infant formula has contributed greatly to the rate of infant mortality in the Philippines. In a way therefore, I agree withthis position.

2. no answer given

3. Lugaw, local fruits, fish, vegetables and root crops.

4. Breast milkshould be givenall infants and this can be reinforced with the early institution of supplemental foods.

5. Yes. And the favorite formula is condensed milk.

6. This is definitely true. Theres the culture that of "hiya" and "utang na loob" which can influence the recepients of donated samples.

7. Yes. Donation of such things put a moral obligation on the recepients and the tendency of endorsing the product of the benefactor.

8. Yes. Donations would be welcome to any institution . But before accepting, it should be understood that this should not in any way compel me to recommend the product of the donating agency.

9. I have not personally heard of a study showing this finding, so I cannot comment.

10. The advertising and public relations work of milk companies have the main objective of influencing the target group's attitude and behavior. A) The helalth information aspect on nutrition and care of infants have a positve role except that it has a subliminal effect on the psyche, B) The marketing practice is on the level unlike any other industry.

MINDA LUZ M. QUESADA
Interviewee

Date: May 5, 1978

Place: PNA

Philippine Nurses Association
MEMBER OF THE INTERNATIONAL COUNCIL OF NURSES
HEADQUARTERS: 1663 KANSAS
MANILA, PHILIPPINES
D-2801
Cable Address: "PHILNURSES"
TEL. - 58-30-92 — PLDT

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Chairman, Ways and Means Committee

MRS. PERLA B. SANCHEZ
Chairman, Internal Auditing Committee

MRS. SINAMAR L. PURA
Executive Director

Bio-data

Minda Luz M. Quesada
B.S. N, UP 1958
M.A. in Teaching, UP, 1970
M.P.H. (Community Health Education), Loma Linda University, 1973

Public Relations Officer, PNA
Chairman, Publication and Publicity Committee, PNA
Board of Directors, PNA
Member, Health Education Association of the Philippines,
Organization of Public Health Educators
Philippine Public Health Association

Presently employed at the UP Institute of Public Health

QUESTIONNAIRE RE INFANT FORMULA BUSINESS

1. Western critics say that infant formula is a prime cause of infant mortality. Do you agree that in the Philippines the use of infant formula is a prime cause of infant mortality?
The use of infant formula is not contributed directly to the rate of infant mortality in the Philippines. In a way therefore I agree with this position.

2. If you do not agree with the above statement, do you feel there is a justified need for infant formula in the Philippines? What, in your opinion, are the benefits to be derived by Filipino mothers and infants on the use of infant formula?

3. Before the introduction of infant formula in the Philippines, what kind of supplemental food was used for Filipino infants? What were the problems, if any, in connection with the use of such supplemental foods?
Lugaw, local fruits, fish, vegetables and root crops.

4. Would you favor dropping the use of infant formula and returning to the use of supplemental food mentioned in the preceding number? Why? Breast milk should be given all infants - this can be reinforced with the early institution of supplemental foods.

5. Would you say there is widespread abuse of the use of infant formula among the poor families in the Philippines?
Yes. And the favorite formula is condensed milk.

6. There have been criticisms in western countries that the distribution of free stock of infant formula to the hospital nurseries and that of free samples (of infant formula products) to physicians tend to influence the professional judgment of the nursery personnel and the physicians in recommending formula feeding over breastfeeding. Could you comment on this criticism?

This is definitely true. There's the culture that of "to you" and "along me look" which can influence the recipients of donated "samples."

7. Occasionally infant formula manufacturers, on the solicitation of the hospital administration, donate hospital equipment or hospital supplies to the nursery. Would you care to comment on whether this practice, that of infant formula manufacturers donating hospital equipment or supplies to under-equipped hospital nurseries, should continue or should be stopped? Please give the reasons in support of your view.

Yes. Donation of such things put a moral obligation on the recipients and the tendency of endorsing the product of the benefactor.

8. Are donations of hospital supplies and equipment important to you or your hospital? Would such donations made by the infant formula manufacturers affect your professional judgment in recommending formula feeding over breastfeeding?

Yes, donations would be welcome to any institution. But before accepting it should be understood that this should not in any way compel me to recommend the product of the donating agency.

9. Western critics say that mothercraft nurses exert improper and undue influence in discouraging breastfeeding in the Philippines. Would you comment on this statement?

I have not personally heard of a study showing this finding, so I cannot comment.

10. Would you care to make a statement relative to what the infant formula companies (such as Mead Johnson Philippines Inc.) are doing in the Philippines in connection with (a) the feeding, nutrition and care of infants, and (b) its marketing practices

The advertising and public relations work of Mead Johnson companies have the main objective of influencing the target group's attitudes and behavior. a) The health information aspect on nutrition & care of infants have a positive role except that it has a subliminal effect on the psyche. b) the marketing practice - ie on the level - like any other ~~marketing~~ industry

[signature]
SIGNATURE OF INTERVIEWFE

Date : 5/5/78
Place: PNA

PELAGIO IRIARTE

1) It is not a prime cause of infant mortality.

2) There is a justified need for infant formula as supplemental food.

3) -

4) Not in favor of dropping.

5) There is no widespread abuse.

6) Not over breastfeeding.

7) - I disagree on the working or the solicitation of the hospital administration
- If infant formula manufacturers want to donate HOSPITAL ~~XXXXXXXX~~ equipment - they are free to do so.

8) - Donation of hospital supplies and equipments are always important to the hospital.
- It does not affect professional judgment.

9) No comment.

10) No comment.

BIO DATA

1) UNIVERSITY OF SANTO TOMAS - 1958

2) DIPLOMATE PEDIATRICS & FELLOW - PPS

3) PMA, PPS

4) SAN PEDRO HOSPITAL -
CHIEF DEPARTMENT OF PEDIATRICS
ASST. MEDICAL DIRECTOR

SAN PEDRO HOSPITAL
Davao City

RX ~~Prof~~ Pediatrician

— UST — 58
— Diplomate Pediatrics
— 5 Fellow PPS
— PMA, PPS
— San Pedro Hosp. —
Chief Dept of Pediatrics
Asst. Medical Director

PHYSICIAN
9119 RCV
LTC

NAME OF PATIENT

ADDRESS

QUESTIONNAIRE RE INFANT FORMULA BUSINESS

1. Western critics say that infant formula is a prime cause of infant mortality. Do you agree that in the Philippines the use of infant formula is a prime cause of infant mortality?

It is not a prime cause of infant mortality

2. If you do not agree with the above statement, do you feel there is a justified need for infant formula in the Philippines? What, in your opinion, are the benefits to be derived by Filipino mothers and infants on the use of infant formula?

There is a justified need for infant formula — as supplemental food

3. Before the introduction of infant formula in the Philippines, what kind of supplemental food was used for Filipino infants? What were the problems, if any, in connection with the use of such supplemental foods?

—

4. Would you favor dropping the use of infant formula and returning to the use of supplemental food mentioned in the preceding number? Why?

Not in favor of dropping

5. Would you say there is widespread abuse of the use of infant formula among the poor families in the Philippines?

There is no widespread abuse

6. There have been criticisms in western countries that the distribution of free stock of infant formula to the hospital nurseries and that of free samples (of infant formula products) to physicians tend to influence the professional judgment of the nursery personnel and the physicians in recommending formula feeding over breastfeeding. Could you comment on this criticism?

— Not over breastfeeding...

7. Occasionally infant formula manufacturers, on the solicitation of the hospital administration, donate hospital equipment or hospital supplies to the nursery. Would you care to comment on whether this practice, that of infant formula manufacturers donating hospital equipment or supplies to under-equipped hospital nurseries, should continue or should be stopped? Please give the reasons in support of your view.

— I disagree on the wording "on the solicitation of the hospital administration"

— If infant formula manufacturing want to donate hospital equipment — they are free to do so

8. Are donations of hospital supplies and equipment important to you or your hospital? Would such donations made by the infant formula manufacturers affect your professional judgment in recommending formula feeding over breastfeeding?

— Donation of hospital supplies & equipments are always important to the hospital

— It does not affect professional judgment.....

9. Western critics say that mothercraft nurses exert improper and undue influence in discouraging breastfeeding in the Philippines. Would you comment on this statement?

No comment

10. Would you care to make a statement relative to what the infant formula companies (such as Mead Johnson Philippines Inc.) are doing in the Philippines in connection with (a) the feeding, nutrition and care of infants, and (b) its marketing practices

No comment

SIGNATURE OF INTERVIEWEE

Date : 5-5-78

Place: Davao

Questions Asked of Doctors in Thailand, Malaysia and Jamaica

1. Western critics say that infant formula is a prime cause of infant mortality. Would you comment on this statement as it relates to your country and also on the need for and benefits of infant formula in your country?

(What kinds of supplemental food were used before infant formula became available. What were the problems with those foods. Is there widespread abuse of our product among the poor of your country?)

2. There has also been criticism in the West that our distribution of free goods and samples influences your professional judgment in recommending formula feeding over breastfeeding. Could you comment on this criticism?

3. Western critics say Mothercraft nurses are an improper or undue influence in discouraging breastfeeding in your country. Could you comment?

RCA Global Telegram

233743 MYTL UR *
233743 MYTL UR
2146 BRISMYER TH
MAY 4, 1978

DREBUS FOLLOWINGS ARE DIRECT REPLY TO YOUR QUESTION FROM DR. KRAISIT TANTISIRIN M.D. HEAD OF INFANT FOOD RESEARCH CENTER RAMATHIBODHI HOSPITAL WHICH IS THE LEADING AUTHORITY IN INFANT NUTRITION IN THAILAND AND HIMSELF A MEMBER OF THE GOVERNMENT INFANT FOOD STANDARD COMMITTEE BANGKOK STOP GRADUATED FROM MAHIDOL UNIVERSITY, CERTIFICATE HOLDER OF INCAP AND CHILDREN HOSPITAL IN BOSTON AND VANDERBILT HOSPITAL ALSO PRACTICES IN PRIVATE CLINIC

1) NOT TRUE, NOT A PRIME CAUSE, THOUGH SOME CASES MAY BE ASSOCIATED WITH THE EARLY DISCONTINUATION OF BREAST FEEDING AND IMPROPER USES OF INFANT FORMULA I.E. IMPROPER DILUTION, UNHYGIENIC PREPARATION OF INFANT FORMULA, AND THE USES OF OTHERS MILK PRODUCTS SUCH AS SWEETENED CONDENSED MILK FOR INFANT FEEDINGS STOP THESE INCIDENCES ARE NOTED AMONG POPULATION GROUPS LIVING IN SLUM AREAS OF BIG CITIES (BANNANA, RICE, EGG-YOLK WERE AND HAVE BEEN USED AS SUPPLEMENTAL FOOD TO BREAST MILK PROBLEM 1. LOW PROTEIN AND ENERGY 2. UNHYGIENIC PREPARATION WHICH MAY LEAD TO DIARRHOEA).

2) YES, TO SOME EXTENT BUT JUDGEMENT WILL BE VARIED DUE TO THE BACKGROUND OF THE PHYSICIANS STOP HOWEVER FREE SAMPLE DISTRIBUTION COULD BE BENEFICIAL IF IT IS PROPERLY USED

3) NOT TRUE, BUT THE MOTHERCRAFT NURSES ALWAYS INFLUENCED THE SELECTION AND USE OF THE SPECIFIC INFANT FORMULA AND OTHER MILK PRODUCTS

SURAMONGKOL FOR MCLEAN

RECEIVED
MAY 4 1978
R. W. DREBUS

Reply via RCA: call 212-363-4141

Name : DR RAMAN SUNDARAM
(Paediatrician).

Degree : M.B.B.S. (Madras) M.R.C.P. (U.K.)

Practice/Address : KELINIK SENTOSA
316, Jalan Tuanku Abdul Rahman,
KUALA LUMPUR

Position : PAEDIATRICIAN.

1 a) **Western critics say that infant formula is a prime cause of infant mortality. Would you comment on this statement as it relates to Malaysia?**

Infection superceding on malnutrition is certainly a major cause of infant mortality in this country and I would agree that infant formula play a major role in its evolution when used incorrectly by ill-adviced or ignorant mothers.

b) **Comments on the need for and benefits of infant formula in Malaysia.**

Infant formula are here to stay whether we like it or not. Urbanisation and rapid industrialisation has already taken its toll on potential breast-feeding mothers, who are totally dependent on infant formula for their young.

c) **What kinds of supplemental food were used before infant formula became available?**

Tapioca, rice, starch and maize flour are still in vogue among the illiterate and poor communities. Sweetened condensed milk can be added to this list.

d) **What were the problems with those foods?**

The above foods were and are still the major cause of protein-calorie malnutrition in its entire spectrum.

e) **Is there widespread abuse of Enfamil among the poor in Malaysia?**

I am afraid I am not qualified to give ~~away~~ any statistical answer here but the general opinion with which I will agree is that the poor communities tend to give dilute feeds to their offspring in the hope of "saving" on their monthly budget.

2. **There has also been criticism in the west that our distribution of of free goods and samples influences your professional judgement in recommending formula feeding over breastfeeding. Could you comment on this criticism?**

On the whole, I feel this is rather the exception than the rule.

3. **Western critics say mothercraft nurses are an improper or undue influence in discouraging breastfeeding in Malaysia. Could you comment?**

Mothercraft nurses, I feel are ~~f~~ vital contributors in providing overall supervision of the mother and child at home, but they must be conscientious, unselfish and conform to an ethical code in line with current thinking on infant nutritional needs.

Name : DR. OON HONG GEOK

Degree : M.B. CH.B. D.C.H

Practice/Address : KLINIK OON & TAN
5A, JALAN 21/11B
SEA PARK
PETALING JAYA

Position : PAEDIATRICIAN

30-982 O - 78 - 90

1 a) Western critics say that infant formula is a prime cause of infant mortality. Would you comment on this statement as it relates to Malaysia?

Breast feeding would be the best type of feeding for infants but failing that infant formula would be the next best substitute. Infant formula is not the prime cause of infant mortality in Malaysia.

b) Comments on the need for and benefits of infant formula in Malaysia.

Infant formula would benefit most the illiterate and working mothers.

c) What kinds of supplemental food were used before infant formula became available?

Rice porridge, cadensed milk and full cream milk

d) What were the problems with those foods?

Not suitable to babies below 4 months old.

e) Is there widespread abuse of Enfamil among the poor in Malaysia?

No, because the people cannot afford it.

2. There has also been criticism in the west that our distribution of of free goods and samples influences your professional judgement in recommending formula feeding over breastfeeding. Could you comment on this criticism?

There has been reports of this going on but steps are being taken to prevent this.

3. Western critics say mothercraft nurses are an improper or undue influence in discouraging breastfeeding in Malaysia. Could you comment?

We cannot blame mothercraft nurses completely Society plays a part in the discouragement of breastfeeding.

Name : CHAN LAY KIOW

Degree : M. B B. S, Singapore

Practice/Address : Maternal + Child Health Clinic, Jln Tun Ismail, Kuala Lumpur.

Position : Dr - in - charge.

1 a) Western critics say that infant formula is a prime cause of infant mortality. Would you comment on this statement as it relates to Malaysia?

I do not agree that infant formula is a prime cause of infant mortality. In all my years of service in the MCH clinic I have yet to come across a case of mortality due to that.

b) Comments on the need for and benefits of infant formula in Malaysia.

Infant formula is ideal for working mothers who cannot breast feed their babies.

c) What kinds of supplemental food were used before infant formula became available?

Condensed milk
Corn flour porridge
Rice water (boiled)

d) What were the problems with those foods?

Indigestion + diarrhea
Symptoms of undernourishment.

e) Is there widespread abuse of Enfamil among the poor in Malaysia?

No.

2. There has also been criticism in the west that our distribution of of free goods and samples influences your professional judgement in recommending formula feeding over breastfeeding. Could you comment on this criticism? I have always advocated breast-feeding. Only in cases where mothers have to work do I recommend formula feeding.

3. Western critics say mothercraft nurses are an improper or undue influence in discouraging breastfeeding in Malaysia. Could you comment?

Mothercraft nurses play an important part in educating mothers in infant feeding, especially in the diverse community in Malaysia where the illiteracy rate is very high. But it is important that they should advertise their products over breast feeding. In my association with these nurses I have not come across any who discourage B/F.

RESPONDENT

DR. RAMAN SUNDARAM
M.B.B.S. M.R.C.P.
PAEDIATRICIAN
SENTOSA (PRIVATE) HOSPITAL

STATEMENT:

1) A. INFECTION SUPERSEDING ON MALNUTRITION IS CERTAINLY A MAJOR CAUSE OF INFANT MORTALITY IN THIS COUNTRY AND I WOULD AGREE THAT INFANT FORMULA PLAY A MAJOR ROLE IN ITS EVOLUTION WHEN USED INCORRECTLY BY ILL-ADVICED OR IGNORANT MOTHERS STOP

B. INFANT FORMULA ARE HERE TO STAY WHETHER WE LIKE IT OR NOT STOP URBANISATION AND RAPID INDUSTRIALISATION HAS ALREADY TAKEN ITS TOLL ON POTENTIAL BREAST-FEEDING MOTHERS, WHO ARE TOTALLY DEPENDENT ON INFANT FORMULA FOR THEIR YOUNG STOP

C. TAPIOCA, RICE, STARCH AND MAIZE FLOUR ARE STILL IN VOGUE AMONG THE ILLITERATE AND POOR COMMUNITIES STOP SWEETENED CONDENSED MILK CAN BE ADDED TO THIS LIST STOP

D. THE ABOVE FOODS WERE AND ARE STILL THE MAJOR CAUSE OF PROTEIN CALORIE MALNUTRITION IN ITS ENTIRE SPECTRUM STOP

E. I AM AFRAID I AM NOT QUALIFIED TO GIVE ANY STATISTICAL ANSWER HERE BUT THE GENERAL OPINION WITH WHICH I WILL AGREE IS THAT THE POOR COMMUNITIES TEND TO GIVE DILUTE FEEDS TO THEIR OFFSPRING IN THE HOPE OF "SAVING" ON THEIR MONTHLY BUDGET STOP.

2. ON THE WHOLE I FEEL THIS IS RATHER THE EXCEPTION THAN THE RULE STOP.

..... 2/=

3. MOTHERCRAFT NURSES I FEEL ARE VITAL CONTRIBUTORS IN PROVIDING OVERALL SUPERVISION OF THE MOTHER AND CHILD AT HOME BUT THEY MUST BE CONSCIENTIOUS UNSELFISH AND CONFORM TO AN ETHICAL CODE IN LINE WITH CURRENT THINKING ON INFANT NUTRITIONAL NEEDS STOP

RESPONDENT

DR. OON HONG GEOK
M.B. CH. B. D.C.H.
PAEDIATRICIAN
PRIVATE CLINIC

1) A. BREAST-FEEDING WOULD BE THE BEST TYPE OF FEEDING FOR INFANTS BUT FAILING THAT INFANT FORMULA WOULD BE THE NEXT BEST SUBSTITUTE STOP INFANT FORMULA IS NOT THE PRIME CAUSE OF INFANT MORTALITY IN MALAYSIA STOP.

B. INFANT FORMULA WOULD BENEFIT MOST THE LITERATE AND WORKING MOTHERS STOP

C. RICE PORRIDGE CONDENSED MILK AND FULL CREAM MILK STOP

D. NOT SUITABLE TO BABIES BELOW FOUR MONTHS OLD STOP

E. NO BECAUSE THE PEOPLE CANNOT AFFORD IT STOP

2. THERE HAS BEEN REPORTS OF THIS GOING ON BUT STEPS ARE BEING TAKEN TO PREVENT THIS STOP

3. WE CANNOT BLAME MOTHERCRAFT NURSES COMPLETELY STOP SOCIETY PLAYS A PART IN DISCOURAGING BREAST-FEEDING STOP.

RESPONDENT

DR. CHAN LAY KIOW
M.B.B.S.
DOCTOR-IN-CHARGE
MATERNAL & CHILD CLINIC

..... 3/-

1) A. I DO NOT AGREE THAT INFANT FORMULA IS A PRIME CAUSE OF INFANT MORTALITY STOP I HAVE IN ALL MY YEARS OF SERVICE IN THE MATERNAL AND CHILD CLINIC HAVE YET TO COME ACROSS A CASE OF MORTALITY DUE TO THAT STOP

B. INFANT FORMULA IS IDEAL FOR WORKING MOTHERS WHO CANNOT BREAST-FEED THEIR BABIES STOP

C. CONDENSED MILK CORN FLOUR PORRIDGE AND RICE WATER (BOILED) STOP

D. INDIGESTION DIARRHOEA SYMPTOMS OF UNDERNOURISHMENT STOP

E. NO

2) I HAVE ALWAYS ADVOCATED BREAST-FEEDING STOP ONLY IN CASES WHERE MOTHERS HAVE TO WORK DO I RECOMMEND FORMULA FEEDING STOP

3) MOTHERCRAFT NURSES PLAY AN IMPORTANT PART IN EDUCATING MOTHERS IN INFANT FEEDING ESPECIALLY IN THE DIVERSE COMMUNITY IN MALAYSIA WHERE THE ILLITERACY RATE IS VERY HIGH STOP BUT IT IS IMPORTANT THAT THEY SHOULD ADVERTISE THEIR PRODUCTS OVER BREAST-FEEDING STOP IN MY ASSOCIATION WITH THESE NURSES I HAVE NOT COME ACROSS ANY WHO DISCOURAGE BREAST-FEEDING STOP

REGARDS

LAI

Mead Johnson JAMAICA LTD. / 16 HALF WAY TREE ROAD / KINGSTON 5, JAMAICA, W.I.
Incorporated in Delaware, U.S.A.

Cable Address: MEADJOHN, KINGSTON, JAMAICA
Telex: 2287 MEADJOHN JA.

General Office: 926-3680
Distribution Centre, Kgn: 933-7173
Distribution Centre, Mo. Bay: 952-2233
Distribution Centre, Mandeville: 962-2039
Manufacturing Division: 926-6634

May 1, 1978

During 1977 affidavits from some Jamaican physicians highly critical of Bristol Myers'/Mead Johnson's provision and promotion of formulae in Jamaica, were collected by the Interfaith Centre on Corporate Responsibility. Consequently we decided to undertake a survey in this regard and are requesting your response to these three questions :-

1. Western Critics say that Infant Formula is a prime cause of infant mortality. Would you comment on this statement as it relates to Jamaica and also on the need for and benefits of infant formula in Jamaica? (What kinds of supplemental food were used before infant formula became available? Is there widespread abuse of our product among the poor of your country?)

Infant formula is not the prime cause of infant mortality in J'ca. Because of ignorance, formulae are abused and this can lead to malnutrition which is one of our prime causes of ~~maternal~~ infant mortality.
Most of our Mothers have to work so formula feeding is needed and is very adequate when used correctly.
As far as I know - in 'pre-formula' days babies were fed on Breast then weaned onto starchy gruel (corn, arrowroot etc) + cows or goats milk.

2. There has been criticism in the West that our distribution of free goods and samples influences your professional judgment in recommending formula feeding over breastfeeding. Could you comment on this criticism?

The presence of samples and other 'hand-outs' does not influence my professional judgements in recommending Breast-feeding.
I was brought up in the 'Breast is Best' school and firmly adhere to this principle.

Board of Directors: Richard W. Drebus, John T. Sullivan, David A. Liguori, R. Karl James, Rodolphe Hamel.

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3. Western Critics say Mothercraft Nurses are an improper or undue influence in discouraging breastfeeding in Jamaica. Could you comment?

This may have been true in the past but recently the nurses have established liason with us paediatricians & have been helping educate Mothers re Breast feeding.

DR. PAULINE MILBOURN
CONSULTANT PAEDIATRICIAN
NAME: 11 SHORTWOOD ROAD
KINGSTON 8

SPECIALITY:

TYPE OF PRACTICE:

Signature Pauline Milbourn

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I am by no means familiar with the exact statistics re percentage of cases who die in this country as a result of the abuse of Infant Formuale. I am of the opinion that gastro enteritis rates high on the list in infant mortality. This seems to be seasonal and viral and dehydration is the culprit. One witholds milk and milk products while gastroenteritis is being treated. For my part among the poor the question of proper sterilization of utensils and feeding bottles is a more urgent one than the condemnation of the infant formula. Prior to the advent of the infant formula the ordinary milk feeds and porridge were perhaps the order of the day. In depressed areas there is no doubt that overdilution of the formula contributes to malnutrition but here again the statistician would have to be consulted.

2. There has been criticism in the West that our distribution of free goods and samples influences your professional judgment in recommending formula feeding over breastfeeding. Could you comment on this criticism?

Infant Formula promotion is a field which is wide open and there has been like in any other facet of medicine when one has a choice, much influence on the physicians to chose a particular formula. In my many years of practice I have never allowed myself to forget the fact that breast feeding is by far superior to formula feeding. I can't recall any mother questioning the advantages of breast feeding. Some mothers for numerous reasons have to supplement breast feeding with formula feedings.

Board of Directors: Richard W. Orebus, John T. Sullivan, David A. Liguori, R. Karl James, Rodolphe Hamel.

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3. Western Critics say Mothercraft Nurses are an improper or undue influence in discouraging breastfeeding in Jamaica. Could you comment?

In many of the low income areas mothers and especially young unwed mothers would know very little about noting the week to week progress of the infant had it not been for Mothercraft Nurses. The nurses in my opinion usually play a nurses role and refer to physicians for the latter's opinion. They are reminded about immunizations etc. The question of discouraging breastfeeding may exist but is certainly not one of which I am aware.

NAME : Carol C. Jones

SPECIALITY : General Practitioner

TYPE OF PRACTICE : General

Signature Carol Jones

Board of Directors: Richard W. Drebus, John T. Sullivan, David A. Liguori, R. Karl James, Rodolphe Hamel.

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(What kinds of supplemental food were used before infant formula became available? Is there widespread abuse of our product among the poor of your country?)

A prime cause of infant mortality is malnutrition and recurrent gastroenteritis. This may relate to the decline in breast feeding, but I could not blame the infant formulae for this. Feeding of infants with artificial formulae became more popular when more mothers found it necessary to work outside the home. I stress breast feeding as ideal but I fully realise that not all mothers can breast feed and prior to the availability of dried formulae infants were fed fresh cows milk or goats milk, cornmeal porridge etc. There is wide spread abuse of all types of infant formulae among the poor who dilute the formula in an effort to make one tin last a long time.

2. There has been cirticism in the West that our distribution of free goods and samples influences your professional judgment in recommending formula feeding over breastfeeding. Could you comment on this criticism?

No free samples have ever influenced my professional judgement. My advice to mothers is given purely on the needs of the mother or the baby.

3. Western Critics say Mothercraft Nurses are an improper or undue influence in discouraging breastfeeding in Jamaica. Could you comment?

To my knowlegde the mother craft nurses have served a useful purpose in giving advice to new mothers. I have no evidence that theyhave ever discouraged breast feeding.

Board of Directors: Richard W. Drebus, John T. Sullivan, David A. Liguori, R. Karl James, Rodolphe Hamel.

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On the contrary, I have seen them actually encourage it.

NAME DR EVE Palomino Sue
SPECIALITY: Paediatrics
TYPE OF PRACTICE: General Paediatrics

Signature: DR Sue

Board of Directors: Richard W. Drebus, John T. Sullivan, David A. Liguori, R. Karl James, Rodolphe Hamel.

BRISTOL-MYERS COMPANY INTERNATIONAL DIVISION

POLICIES & PRACTICES

PRODUCTION, LABELING AND MARKETING OF INFANT FORMULA PRODUCTS IN COUNTRIES OUTSIDE THE U.S.A. (INCLUDING ITS POSSESSIONS) AND CANADA

Product Integrity

1. Infant formula products will be marketed only after their formulations and nutritional adequacy to promote growth and development of infants have received scientific and medical approval.

2. Nutrient content and overall composition of our infant formula products will comply with the highest scientific standards and with all applicable regulatory requirements.

3. Good manufacturing practices will be followed in the production and packaging of our infant formula products.

4. Products will be packed in containers which safeguard their nutritional and hygienic qualities.

5. Quality control procedures and audits will be used to assure consistent adherence to established standards.

Product Labeling

1. Infant formula product labels will indicate that breast feeding is best for most infants and should be encouraged, whenever possible, and that infant formulas provide a sound substitute or supplement for human milk in meeting the nutritional requirements of infants when breast feeding is inappropriate, unsuccessful, or discontinued early.

2. Infant formula products will bear appropriate listing of nutrients and ingredients and comply with all applicable regulatory requirements.

3. Infant formula product labels will state, "Your physician or medical adviser is the best source of counsel and guidance in the care and feeding of your child."

4. Infant formula products will have a mixing table on the label and clear instructions for proper preparation and safe use of the formula and carry a warning that improper dilution may not provide proper nutrition for the infant.

5. Labels for special medical formulas will refer the user to a physician and will clearly show the special requirements for which the formula is to be used and the dietary property or properties on which this is based.

Product Marketing

1. Detailed information on infant formula product claims and indications for use will be directed only to physicians and professional medical personnel. Product claims will contain only statements that are supported by sound medical and scientific data.

2. Infant formula products will not be promoted or their use encouraged where the private purchase would impose financial hardship on the family or where inadequate facilities for their preparation or storage constitute a hazard to the infant's health. Every effort will be made to inform mothers on the importance of hygienic methods for the preparation of our infant formulas. Costs connected with use of our formula products will be accurately stated so that professional medical personnel can properly advise mothers of the expense involved, based on their economic circumstances.

3. Supplementary information on infant formula products directed to the mother will include:

   a. advice that infant formulas should be used only on the recommendation of physicians or professional medical personnel.

b. literature relating to the merits of breast feeding, based on currently recognized scientific data; and instructions for breast feeding, stressing that breast feeding is the preferred form of nutrition under normal circumstances.

c. statements that when breast feeding is inappropriate, unsuccessful, or discontinued early, infant formulas provide a sound substitute or supplement for human milk in meeting the nutritional requirements of infants.

d. literature relating to the proper preparation and safe handling and use of infant formulas. (Illustrations and the appropriate language will be used to assure clarity of instructions.)

4. The use of consumer media, either directly or through cooperative arrangements, is prohibited. This shall include all mass-marketing techniques, such as newspapers, radio, television, consumer magazines, outdoor (billboard), theater or consumer direct mail. There will be continued reliance on recommendations by professional medical personnel as the avenue for acquainting mothers with our formula products.

5. Communication will be maintained with national and local health agencies to assure that the marketing of infant nutritional products is in concert with government efforts to promote infant health and well-being and with government regulations with respect to such marketing. It is our practice to fully cooperate with local health authorities or governments in preventing misuse of infant formulas due either to ignorance or lack of proper hygienic conditions.

6. Communication will be maintained with the medical profession, university professors and local public health authorities concerned with infant nutrition within each country for the purpose of exchanging scientific data and working toward improving the nutritional status of infants.

7. Mothercraft Nursing Services will be sponsored where needed and feasible. Mothercraft Nurses will perform in a manner comparable to government-sponsored public health nurses, with their primary concern the assistance of mothers in the proper care and feeding of their infants, whether breast or formula fed, as instructed by their physicians. Such services will be rendered only with the approval of, or in conjunction with, local government health agencies, practicing physicians and hospital staffs.

8. Mothercraft Nurses must be professionally trained and certified (the equivalent of a Registered or Certified Nurse). They will wear the uniform and badge of their profession when engaged in Mothercraft activities.

9. Mothercraft Nurses will contact mothers only upon their request or upon referral by professional medical or nursing personnel. If upon referral, the services must be acceptable to the mother.

10. If the physician or medical adviser has recommended that the mother use an infant formula, the Mothercraft Nurses may recommend the Company's product. They may not encourage a switch of infant formula brands unless feeding problems are being experienced and a change is recommended by the mother's professional medical adviser.

11. Mothercraft Nurses will be compensated on a salaried basis. Such compensation will not be related to sales.

12. Employees engaged in infant formula advisory services will cooperate with hospital personnel and respect their institution's regulations and practices. Complimentary supplies of infant formula products in hospitals will be provided only in consultation with or at the discretion of the hospital professional staff.

The foregoing statements constitute the guidelines which must be followed by all Bristol-Myers Company International Division employees in the sale and marketing of infant formula products.

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BRISTOL-MYERS COMPANY INTERNATIONAL DIVISION
POLICIES & PRACTICES

PRODUCTION, LABELING AND MARKETING OF INFANT FORMULAS

Product Integrity

1. Infant formula products will be marketed only after their formulations and nutritional adequacy to promote growth and development of infants have received scientific and medical approval.

2. Nutrient content and overall composition of our infant formula products will comply with the highest scientific standards and with all applicable regulatory requirements.

3. Good manufacturing practices will be followed in the production and packaging of our infant formula products.

4. Products will be packed in containers which safeguard their nutritional and hygienic qualities.

5. Quality control procedures and audits will be used to assure consistent adherence to established standards.

Product Labeling

1. Product labels for well-baby formulas will state, "Breast milk is best for your infant and is the preferred feeding whenever possible. (Product name) is a sound nutritious substitute or supplement for breast milk, to be used when breast feeding is unsuccessful, inappropriate, or stopped early."

2. Infant formula products will bear appropriate listing of nutrients and ingredients and comply with all applicable regulatory requirements.

3. Infant formula product labels will state, "Your physician or medical adviser is the best source of counsel and guidance in the care and feeding of your child."

4. Infant formula products will have a mixing table on the label and clear instructions for proper preparation and safe use of the formula and carry the statements, "Warning: Do not use fewer scoops than directed, since overly dilute feedings will not provide the nutrition your infant needs, potentially leading to malnutrition with poor growth and development. Do not use more scoops than directed, since overly concentrated feedings will not provide the water your infant needs, potentially leading to dehydration and other serious medical consequences.

Failure to follow boiling instructions could be harmful to the health of your baby." It will be followed by "Feeding table: The quantities listed below are general guidelines to be used in the absence of specific medical advice. It is important that these diluting and mixing instructions be followed unless alternate instructions are provided by your physician or health care professional."

5. Labels for special medical formulas will refer the user to a physician and will clearly show the special requirements for which the formula is to be used and the dietary property or properties on which this is based.

Product Marketing

1. Detailed information on infant formula product claims and indications for use will be directed only to physicians and professional medical personnel. Product claims will contain only statements that are supported by sound medical and scientific data.

2. Supplementary information on infant formula products directed to the mother will include:

   a. advice that infant formulas should be used only on the recommendation of physicians or professional medical personnel.

   b. literature relating to the merits of breast feeding, based on currently recognized scientific data; and instructions for breast feeding, stressing that breast feeding is the preferred form of nutrition under normal circumstances.

   c. statements that when breast feeding is inappropriate, unsuccessful, or discontinued early, infant formulas provide a sound substitute or supplement for human milk in meeting the nutritional requirement of infants.

   d. literature relating to the proper preparation and safe handling and use of infant formulas. (Illustrations and the appropriate language will be used to assure clarity of instructions.)

3. The use of consumer media, either directly or through cooperative arrangements, is prohibited in developing countries. Consumer media encompasses all mass-marketing techniques, such as newspapers, radio, television, consumer magazines, outdoor (billboard), theater advertising, and other media, such as consumer direct mail and posters designed to reach the consumer, whether in the home, the doctor's office or otherwise.

4. Communication will be maintained with the national and local health agencies to assure that the marketing of infant nutritional products is in concert with government efforts to promote infant health and well-being and with government regulations with respect to such marketing. It is our practice to fully cooperate with local health authorities or governments in preventing misuse of infant formulas due either to ignorance or lack of proper hygienic conditions.

5. Communication will be maintained with the medical profession, university professors and local public health authorities concerned with infant nutrition within each country for the purpose of exchanging scientific data and working toward improving the nutritional status of infants.

6. Employees engaged in infant formula advisory services will cooperate with hospital personnel and respect their institution's regulations and practices. Complimentary supplies of infant formula products to hospitals will be provided only at the discretion of the hospital professional staff. Samples of infant formula products will be supplied only to members of the medical profession for their discretionary distribution to mothers.

The foregoing statements constitute the guidelines which all Bristol-Myers Company International Divison employees and contract distributors must follow in the sale and marketing of infant formula products. The only exceptions are those dictated by overriding government regulations.

Nestlé

The Nestlé Company, Inc., 100 Bloomingdale Road, White Plains, New York 10605 (914) 682 6666

David E. Guerrant
President

May 5, 1978

Mr. Douglas Johnson
Third World Institute of the
Newman Center
1701 University Avenue S.E.
Minneapolis, Minnesota 55414

Dear Mr. Johnson:

Since it is my understanding that you are responsible for coordinating the activities of the Infant Formula Action Coalition (INFACT), I am addressing this letter to you.

When INFACT commenced its boycott action againt The Nestlé Company, Inc. last year, it made no effort to find out the Nestlé S.A. position with respect to its infant food policy in the developing countries.

When the first meeting between representatives of INFACT and Nestlé S.A. took place in October last year, at our initiative, Nestlé S.A. pointed out the misleading and dishonest nature of the propaganda which your group uses to persuade concerned citizens to join the boycott movement. In spite of the positive atmosphere which prevailed at that meeting, and the open offer made by Nestlé S.A. to continue a dialogue with your group, the campaign of half-truths and distortions continued unabated. For example, in November 1977 at least four of the INFACT supporters, who had attended the October meeting and had agreed that hostile confrontation was counter-productive, took part in an anti-Nestlé demonstration outside our offices in Los Angeles.

Again at our initiative, a further meeting took place in February 1978, this time between Nestlé representatives and the INFACT "Midwest Policy Council". We again protested the biased and emotional tone of your campaign, and the complete disregard for serious scientific evidence on the issues about which you claim to be concerned.

In particular, we advised you that the Peter Krieg film, "Bottle Babies", the "cornerstone" of the boycott campaign, has been strongly criticized by the Kenyan Pediatric Association. As a result, you decided to verify the facts in Kenya. By now, you must have seen the letter addressed to your representative by the Chairman and Professor of the Department of Pediatrics, University of Nairobi (a copy is enclosed).

Not only does this letter demonstrate that Peter Krieg deliberately misled the Kenyan authorities, but that his objective is also to mislead groups like yours, and through you, the general public.

In light of this evidence it is appropriate that you inform the organizations which you have persuaded to join your campaign of the true nature of the film. Perhaps you might suggest that the religious and other groups which have purchased the film return their copies to Mr. Krieg with a request for their money back.

It also seems an appropriate time to reflect on similar half-truths and distortions published by INFACT. You claim that Nestlé attempts to focus the discussion on "narrow technical and medical grounds", yet you choose to ignore the extensive anthropological research covering 11 countries published by the Human Lactation Center, under a US-AID grant study, which gives a clear picture of the reasons for which exclusive breast-feeding is often an impossibility in the Developing Countries.

If your group is truly sincere about wishing to help the Developing Countries, you can concentrate on constructive work designed to find answers to the real problems of world hunger and poverty.

A boycott is a tactic of last resort which has been used when discussion is impossible and where there is no reasonable support for one side of a controversy. We have demonstrated our willingness to discuss the issues and have produced respected independent evidence which refutes your theories. Can you, in good faith, promote a boycott under these circumstances?

I look forward to your reply and your advice as to what you will do about the distribution of the "Bottle Babies" film.

Very truly yours,

THE NESTLÉ COMPANY, INC.

David E. Guerrant

DEG:rg
Encl.

cc: Sen Edward Kennedy

Sen. Frank Church

Rep. Michael Harrington

Mr. D. Cox - Ross Abbott

Mr. W. Greif - Bristol-Myers

Mr. A. Marusi - Borden

Mr. E. S. Bauer - Wyeth

Dr. J. Egli - ICIFI

CBS - Janet Roach

Father Theodore Hesburgh, C.S.C.
President, Notre Dame University

Dr. Frank Harrington
Peachtree Presbyterian Church

Hon. Charles G. Maine,
Ambassador to Kenya

Dr. Dana Raphael
The Lactation Review

Gov. Rudy Perpich of Minnesota

Mr. Silvio Arioli
Embassy of Switzerland
Washington, D. C.

Clergy & Laity Concerned (Atlanta CALC)

Ms. Alice Murray, Region Editor
THE ATLANTA CONSTITUTION

Nestlé

The Nestlé Company, Inc., 100 Bloomingdale Road, White Plains, New York 10605 (914) 682-6666

David E Guertont
President

May 5, 1978

Mr. Tim Smith, Director
Interfaith Center for Corporate Responsibility
475 Riverside Drive
Room 566
New York, New York 10027

Dear Mr. Smith:

For the past two years or more, your center has been conducting a campaign against the infant formula industry in the United States. More recently, it has lent its support to the current boycott campaign directed against my company in an effort to put pressure on the Holding Company, Nestlé S.A., to stop the promotion of infant formula in the developing countries.

I should like to make it quite clear that I have no quarrel with the overall objectives of the ICCR as expressed by the Rev. Howard Schomer in his presentation at the meeting of UNIAPAC in Mexico, in October 1977. On the other hand I feel quite sure you would agree that investigations carried out by, or on behalf of, Christian organizations, and the resulting publications, should comply with the highest possible standards of honesty and objectivity. This, unfortunately, is not the case as far as the current campaign against Nestlé is concerned.

Among the materials disseminated by your center is a film, described as the "corner stone" of your effort, entitled "Bottle Babies". It was filmed in Kenya by a certain Peter Krieg. In fact, the "The Leader's Guide for Using" this film published by ICCR wrongly claims responsibility for its production.

This film is nothing more or less than blatant propaganda against Nestlé and is a complete distortion of the facts. In spite of the protests made by the Kenyan Pediatric Association at the way in which they had been misled into cooperating in the filming, Peter Krieg not only failed to acknowledge their letter, but continued to promote his film throughout the world through organizations such as yours.

Following complaints made to INFACT and ICCR representatives about the use of the film at a recent meeting with a Nestlé spokesperson from Switzerland, a representative of one of the

activist groups contacted Dr. N.O. Bwibo, Professor and Chairman, Department of Pediatrics, University of Nairobi, to verify the facts. These have now been confirmed by Professor Bwibo in the attached letter of 14th April 1978, copy of which was forwarded to me by the local Nestlé management.

Professor Bwibo's letter exposes the true motives of the filmmaker, which were and are to mislead the public on these important issues. In light of this evidence, I hope that you will take immediate action to have your copies of the film withdrawn from circulation, and advise other church groups to whom you have addressed your "Leader's Guide" of your action.

A long-term answer to the problems of infant nutrition in the developing countries will only be achieved by close cooperation between the international health agencies, governments, health professionals, well-informed and concerned individuals and the Infant Formula Industry. The activities of ICCR, INFACT and related groups do nothing to foster that cooperation. The negativism of their infant formula campaign and the use of questionable tactics which are intended to arouse emotional responses actually discredit those organizations.

A more honest and objective approach would be of greater benefit to the infants in the developing countries. The talents and expertise which are at your disposal could be used to study the real causes of infant malnutrition -- poverty and hunger.

Nestlé S.A. and other members of the International Council of Infant Food Industries (ICIFI) are very willing to discuss those problems and assist in developing solutions to them. As you know, ICIFI is working to establish socially responsible guidelines for the industry on a worldwide basis. Efforts will be made to continually reevaluate those guidelines and constructive criticism is invited.

The ICCR and INFACT groups have gained support for the boycott against Nestlé by an unjust and reckless oversimplification of the world hunger problem. The boycott is a tactic which has no place where opposing sides of a controversy are dealing in good faith and can rely upon respected and independent evidence for their positions.

I look forward to your advice as to whether you will withdraw the "Bottle Babies" film from circulation and whether you will continue to support the boycott against Nestlé.

Very truly yours,

THE NESTLÉ COMPANY, INC.

DEG:rg
Encl.

David E. Guerrant
President

cc: Sen Edward Kennedy

Sen. Frank Church

Rep. Michael Harrington

Mr. D. Cox - Ross Abbott

Mr. W. Greif - Bristol-Myers

Mr. A. Marusi - Borden

Mr. E. S. Bauer - Wyeth

Dr. J. Egli - ICIFI

CBS - Janet Roach

Father Theodore Hesburgh, C.S.C.
President, Notre Dame University

Dr. Frank Harrington
Peachtree Presbyterian Church

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Washington, D. C.

Clergy & Laity Concerned (Atlanta CALC)

Ms. Alice Murray, Region Editor
THE ATLANTA CONSTITUTION

UNIVERSITY OF NAIROBI
FACULTY OF MEDICINE
DEPARTMENT OF PAEDIATRICS

File :
Telegrams: "Medken" Nairobi
Telephone: Nairobi 26859

Kenyatta National Hospital
P. O. Box 30588
NAIROBI
KENYA

14th April, 1978

Miss June Noranka,
644 Summit Avenue
St. Paul
Minnesota 55105

Dear Miss Noronah,

Following your visit to Kenya and my office I write to inform you, your group, your colleagues and any other person interested that the film Peter Krieg filmed in this department and the associated teaching areas, did not represent the right aspects of what we participated in during the filming.

The film which was intended to be a Scientific and educational film turned out to be an emotional, biased and exaggerated film - and failed to be a teaching film. It arouses emotions in people who have little chance to check these facts. No wonder it has heated the emotions of the Activists groups in America and I understand now spreading to Europe. I wish I was in an opportunity to be with your groups and we view the film together and I comment.

Peter Krieg came here and we discussed the useful scenes to be included, the doctors and nurses to participate in the programme. He also promised to give us a copy of the film.

The film was done and we never heard from him up to now. We wrote requesting for the promised copy, it never came. Being in the dilemma we requested the organisers the World Conference of Churches that took place in Nairobi to get us a copy through the Faculty of Medicine. We were surprised by its contents and the exclusion of our comments, and in particular lack of education on hygiene of the bottle, cup and spoon feeding and lack of inclusion of reconstruction of milk formular. The comments are narrated by somebody else our voices and our words do not appear much.

...../2..

The Secretary of Kenya Paediatric Association then, Dr. Elizabeth Hillman wrote to Peter Krieg expressing our disatisfaction in the generalisations, the politics of bottle feeding and the bad social connotations of bottles on the Children's graves in Lusaka, Zambia but Peter Krieg chose not to acknowledge her letter.

I am sorry we have changed offices and filing system so much and also Secretarial staff that I am unable to get the letters we wrote to Peter Krieg which I would have liked to photocopy and include in this letter.

We saw the film once and have no copy. It is difficult to recollect clearly where it was right.

One is bewildered where to begin and make corrections. I will start somewhere. If your group have specific questions, since you see the film frequently, you could ask me to comment on specific points.

Kenya, as you know, is an Agricultural country. We have dairy industry and plenty of fresh milk, especially in urban areas. Our mothers therefore use not only commercialised milk but our fresh milk. It would be against our own Agricultural industry if we say "Do not drink milk" or "Do not give milk to children" So the best thing is to educate the mothers in the best hygienic way of feeding the child, if breast milk fails, and we know at times it fails or a mother choses not to breast feed.

As a Paediatrician, I would like to put on record that I have not seen the Commercial baby Food Companies pressurise anybody to use their brands of milk. As for Nestle, we have discussed with their Managing Directors, starting much earlier than the time of the film in 1971, as to the best way of approaching baby feeding and discussed extensively advertisement especially the material to be included. The directors have followed our advice and we are happy with their working conditions.

We are interested in the well being of our children and we are Medical Scientists. So anything of Scientific value we will promote but we will avoid imagined exaggerated and distorted views.

I am taking the liberty to copy this letter to Mr. Jones Managing Director of Food Speciality in Nairobi who produce and makes Nestles' products here for his information.

Yours sincerely,

NIMROD O. BWIBO
Professor & Chairman
DEPARTMENT OF PAEDIATRICS.

Guatemala

infant mortality highest in latam

Guatemala ranks among the six nations having the highest infant mortality rate in the world — along with parts of sub-Saharan Africa and Bangladesh. In rural Guatemala an estimated 200 per 1,000 live births die before they reach the age of one.

This devastating item from a recent United Nations report is juxtaposed with generally favorable economic indicators — a good growth rate, the highest collective GNP in Central America, and growing foreign investment, including the possibility of commercial petroleum exploitation.

However, as more relevant data indicates, much of what can be construed as progress appears to involve a relatively small segment of the population. From the populous Indian highlands, where there is one doctor per every 25,000 inhabitants at best, and the teeming lowlands fincas of the Pacific slope, another picture emerges.

Official statistics report only *registered* infant deaths. In the rural areas of Guatemala, many, if not most, of these deaths go largely unreported because of remoteness from communication facilities or, perhaps, cultural-communal reasons.

Unreported Deaths

Thus, the figures representing *reported* deaths are frequently only the tip of the iceberg. For example, in 1975 Guatemala's *registered* infant mortality rate was approximately 80 per 1,000 live births. Yet medical field workers report a rural rate in some areas exceeding 200.

An analysis of the causes of infant deaths recently carried out by outside agencies indicates that well over half of the mortality can be attributed to infectious and respiratory diseases, susceptible to medical treatment, or preventable through improved environmental sanitation and immunization. Of all deaths, 22o/o were caused by diarrhea and intestinal parasites, 21o/o by acute respiratory ailments, and 12o/o by whooping cough, measles and tuberculosis — diseases which are amenable to control through immunization programs.

Nutritional Deficiency

A key health problem in Guatemala, and one related to the high infant mortality, is nutritional deficiency. Studies by the Nutrition Institute of Central America and Panama (INCAP) indicate that 81o/o of the total child population is suffering from this deficiency, due mainly to a diet poor in protein. It is estimated that the caloric deficit of the poorest half of the population is about 40o/o of the minimum daily requirement.

In a recent and, as yet, unpublished study, INCAP scientists Aaron Lechtig and Robert E. Klein point out that among the poorer families in both the rural and urban sector barely one-third of a mother's children survive during her reproductive life. Among the upper-middle and upper income groups, the report pointed out, infant mortality is almost nil.*

Low Birthweight

A factor in the survival potential of the undernourished sectors is low birthweight, diminishing the infant's resistance to disease. The incidence of low weight at birth in Guatemala has probably been increasing rather than diminishing, the report indicates.

Under such conditions, infants have little resistance to respiratory or gastric diseases. They quickly become dehydrated and later succumb to lung congestion.

Concern for the situation is not lacking at the governmental level. Conditions are steadily improving in the capital and larger cities where social security and other state medical facilities offer services to an increasing number of patients. In addition, to be sure, the larger communities — especially Guatemala City — are favored by the heavy concentration of private medical establishments and clinics in the capital.

Rural Areas Most Needy

The rural departments, especially those with a large indigenous population, are the critical areas for which the government planning board is attempting to formulate a policy through the assessment of data gathered by international and local agencies. However, the barriers to improvement are formidable, even if adequate funds, sufficient technical personnel, and organization were available.

Extreme poverty, ignorance and lack of sanitation facilities, cultural dietary patterns which deprive sick children of protein, illiteracy,

remoteness from medical attention — all these factors are part of the problem.

Costa Rica Provides Example

Yet, dificult as the problem appears, it is not insurmountable. Costa Rica, through a program of heavy investment in rural child health care, has reduced its infant mortality rate to the lowest in Latin America — only 38 per 1,000 live births in 1977, down from 58.3 in 1972.

It has been argued that Costa Rica with its almost nonexistent indigenous population, high literacy rate, relatively larger middle income sector, long tradition of civilian rule, and health-oriented priorities at a national level presents a far different case from that of Guatemala. Such contrasts are obvious. Yet, the investigators point out that much of the improvement in Costa Rica's health picture occurred in the past five years as the result of heavy national investment in child care and preventive programs in the countryside.

The solution boils down to a matter of priorities in the final analysis. With much of the public investment in Guatemala going into economic infrastructure and urban construction, there is relatively little left for rural health services. Hydroelectric projects, highways to open remote areas to farming, civic centers, internal security, and arms purchases may all be valid national priorities.

But until child care and health services are considered with the same degree of urgency, Guatemala is likely to continue in the top six in infant mortality, say investigators.

* "Biological Status of the Guatemalan Population: Definition, Causes, and Strategies of Action to Improve It" by Drs. Aaron Lechtig and Robert E. Klein.

Digest of Article Published in the "Central America Report" April 10, Volume V, No. 14, Published in Guatemala.

UN Report Shows Excessive Use of Pesticides

Central America is considered one of the heaviest users of pesticides in the world. In recent years, some pesticides have been applied to the same crop up to 28 times in a single season. Statistics were provided by Dr. Vicente Sanchez of the UN Environmental Program during the VIII International conference of preventive and social medicine, held in Mexico City last week. Abusive use of pesticides is having serious effects on the population's health, as pesticide levels found in human beings have risen up to 200 times the level considered tolerable by health experts.

The problem has a particularly serious effect on breast feeding women and their children, especially in a region where it is customary to nurse children up to the age of two or three. The problem of contamination of maternal milk created an uproar in the region two years ago when a study carried out in Guatemala cotton growing areas showed almost universal contamination of mother's milk. In fact, only one of the samples taken was found to contain acceptable levels of pesticide contamination.

Guatemala and Salvador Major Consumers

Data contained in the UN Report show that Guatemala and El Salvador are the area's main consumers of pesticides, both in absolute terms and in application per area, especially in cotton crop dusting. Guatemala for example showed a 57.5 increase in consumption of insecticides during the 1972-1974 period, whereas surface area planted with cotton increased only 12% over the same period of time. These enormous quantities of indiscrimanately applied pesticides have affected wild life. Water resources, soil, and man himself. Central America may soon be considered a prime example of environmental crisis unless current trends are reversed.

Br. J. Nutr. (1971), 26, 423

The effect of the type of feeding on weight gain and illnesses in infants

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(*Received* 20 *October* 1970 – *Revised* 25 *May* 1971)

1. The effects of breast-feeding and artificial feeding have been analysed for a group of 250 infants from lower socio-economic, urban families in Kuala Lumpur, Malaysia.

2. The factors considered were the ethnic group, the sex of the infant, the size and income of the family and the type of milk fed. No infant in the study was given 'non-milk' feeds before the age of 40 weeks.

3. The effects of these factors on the weight gains and the number of reported illnesses up to the age of 40 weeks have been analysed.

4. At no time in the first 40 weeks did breast-fed infants gain weight significantly more rapidly than artificially fed infants. After the age of 20 weeks, artificially fed infants gained significantly more weight than breast-fed infants.

5. The type of feeding had no statistically significant effect on the frequency of minor respiratory or alimentary illnesses.

6. In this community, the welfare of the family often depends on the earnings of the mother, who has to make the choice between breast-feeding and paid employment. In the group studied, breast-feeding appears to offer no advantages over artificial feeding. The principle guiding the Maternal and Child Health staff when advising the mother should be the welfare of the whole family.

For many years, paediatricians and nutrition scientists have stressed the dangers of artificial feeding of infants. The differing compositions of human and cow's milk is reflected in biochemical differences between breast-fed and bottle-fed infants (Oppé & Redstone, 1968), but the long-term effects of these differences have not been established. In rural areas of developing countries, contamination and overdilution of artificial feeds may lead to increases in disease and death of infants (Scrimshaw, Taylor & Gordon, 1968), but in most parts of the world, the health of infants is improving in spite of a reduction in breast-feeding. It would therefore be difficult to demonstrate that artificial feeding is wholly bad.

In low-class, urban dwellers in developing countries, the situation is intermediate between the ignorance of the undeveloped rural areas and the sophistication of Western society. Economic deprivation is a major problem with this group. If artificial feeding can reasonably be substituted for breast-feeding, mothers can be released from home for gainful employment. In this paper, I have examined the effects on the infant of various social and nutritional factors in an attempt to assess their importance.

MATERIAL AND METHODS

The information used in this study was obtained retrospectively from the records of the MCH clinics in Kuala Lumpur, Malaysia. When an infant was first brought

to the clinic, the basic family information was recorded. At each visit, the type of feeds, any illness reported by the mother or noted by the nurse and also any treatment or immunizations were recorded by the nurse, together with the weight of the infant. The record cards for each year had been put in serial order and stacked on shelves in bundles of 100. Bundles of cards were taken for the years 1960, 1963 and 1965 until a sufficient number had been obtained. Although this method of sampling is not strictly random, bias seems unlikely. The data were coded, transferred to 80-column punched cards and analysed by computer. For this study, infants were selected from the main sample of 2000 if they met the following criteria: (1) the first visit to the clinic was before 6 weeks of age, the last visit was after the age of 40 weeks, and the total number of visits was at least twelve; (2) the birth weight was 2·5 kg or more; (3) there was no record of 'non-milk' supplementary feeds before the age of 40 weeks, and (4) the information was complete. These conditions were met by 119 Malay infants and 131 Chinese infants.

The criteria used in the analysis were as follows: (1) Ethnic group. (2) Size of the family: those families with one or two living children were classed as 'small', the remainder were classed as 'large'. (3) Family income: families whose total income was less than $M 120 per month were classed as 'low income', the remainder were classed as 'high income'. An unskilled labourer in Kuala Lumpur at that time earned about $M 80–100 per month ($M 1 = 12 p). (4) Duration of breast-feeding: combined feeding with breast and bottle was uncommon; when it did occur, it was included in the breast-feeding. (5) Weight of the infant at each visit to the clinic. (6) The illnesses reported at each visit: the illnesses were classified as respiratory, alimentary and other. The respiratory illnesses were mostly mild upper respiratory infections, the alimentary illnesses were usually minor disturbances of bowel function, commonly mild diarrhoea. In the clinics, it was seldom possible to decide whether the alimentary disturbances were due to infection, dietary disturbance or some other cause.

The weight curves of the infants were smoothed by using the least-squares criterion to fit logistic equations. Weights at 10, 20, 30 and 40 weeks were taken from the computed curve. The frequency of each type of illness was calculated as the number of episodes per year of observation. Multifactorial analysis of variance was used to analyse the significance and to determine the magnitude of effect of the various factors.

RESULTS

The population attending the MCH clinics was wholly urban and mainly labouring and lower middle class. Analysis of the weight gains of the 2000 infants showed that they grew rapidly during the first few months but later in the 1st year their growth was slow (Fig. 1).

The distribution of family size, income, ethnic group and sex of the infants for the 250 infants in this study are shown in Table 1. Of the 250 infants, 30% received no breast milk and 76% had been weaned by the age of 40 weeks.

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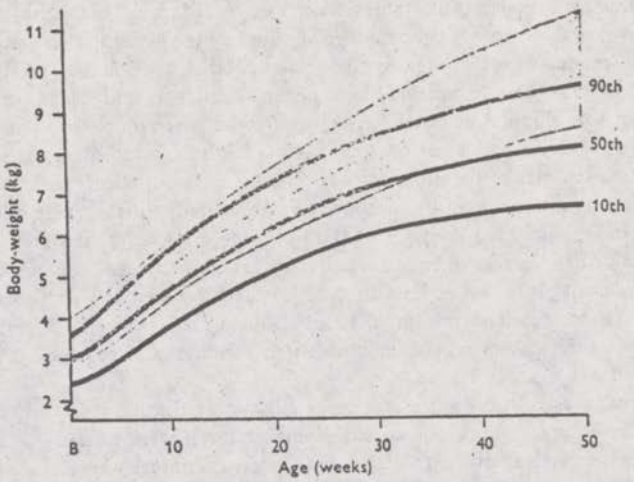

Fig. 1. Weight gains of infants who attended the MCH clinics in Kuala Lumpur, Malaysia, during their 1st year of life. The shaded area shows the Stuart–Stevenson Boston Standards.

Table 1. *Distribution of infants in the sample by race, family size, family income and duration of breast-feeding*

Race	Family size	Income	At birth	Age at weaning (weeks) < 10	10–19	20–29	30–39	⩾ 40	Total
Malay	Small	Low	4	5	3	2	3	7	24
		High	8	2	6	3	0	3	22
	Large	Low	7	5	6	3	3	13	37
		High	5	10	7	2	1	11	36
Chinese	Small	Low	2	5	5	3	2	4	21
		High	21	8	3	2	0	7	41
	Large	Low	8	2	4	2	0	8	24
		High	19	8	5	5	1	7	45
Total			74	45	39	22	10	60	250

Analysis of factors affecting the weight gains of infants

The weight gains of infants were determined from the computed curve for the age groups: birth, 10 weeks, 10–20 weeks, 20–30 weeks and 30–40 weeks. Multifactorial analysis of variance was performed on the weight gains during these intervals to determine which factors had a significant effect. If the type of feeding of the infant changed during the 10-week period, the infant was excluded from that particular analysis. The results are shown in Table 2. Each line in this table gives the results of a five-factor analysis of variance.

From Table 2, it can be seen that the ethnic group of the infant had a statistically significant effect on the weight gain only in the first 10 weeks, when Chinese infants gained weight more rapidly than Malay infants. The sex of the infant affected the

Table 2. *Effect of various factors, considered independently, on the weight gain of infants in the first 40 weeks, and the statistical significance of the results*

Period of weight gain		Factor: Ethnic group (Malay / Chinese)	Sex of infant (Male / Female)	Family income (Low / High)	Type of feeding (Breast / Bottle)	Family size (Small / Large)
1st 10 weeks	Difference due to factor	Malay < Chinese 0·17 kg	Male > female 0·07 kg	Low > high 0·08 kg	Breast > bottle 0·14 kg	Small > large 0·08 kg
	Statistical significance	$P < 0·05$	$P > 0·10$	$P > 0·10$	$> 0·05$	$P > 0·10$
10–20 weeks	Difference due to factor	Malay < Chinese 0·04 kg	Male > female 0·11 kg	Low < high 0·09 kg	Breast < bottle 0·02 kg	Small > large 0·10 kg
	Statistical significance	$P > 0·10$	$P < 0·05$	$P > 0·10$	$P > 0·10$	$P < 0·05$
20–30 weeks	Difference due to factor	Malay > Chinese 0·04 kg	Male > female 0·05 kg	Low < high 0·10 kg	Breast < bottle 0·17 kg	Small > large 0·09 kg
	Statistical significance	$P > 0·10$	$P > 0·10$	$P < 0·01$	$P < 0·01$	$P < 0·05$
30–40 weeks	Difference due to factor	Malay > Chinese 0·06 kg	Male < female 0·01 kg	Low < high 0·06 kg	Breast < bottle 0·15 kg	Small > large 0·06 kg
	Statistical significance	$P > 0·05$	$P > 0·10$	$P > 0·05$	$P < 0·01$	$P > 0·05$

weight gain significantly only in the second 10-week period. Infants in large families tended to grow more slowly than infants in small families. During the 10 to 20-week period the difference due to family size was 0·10 kg, which was about 6% of the average weight gain during this period; during the 20 to 30-week period the difference was 0·09 kg, or about 8% of the average weight gain. Both these differences were statistically significant ($P < 0·05$).

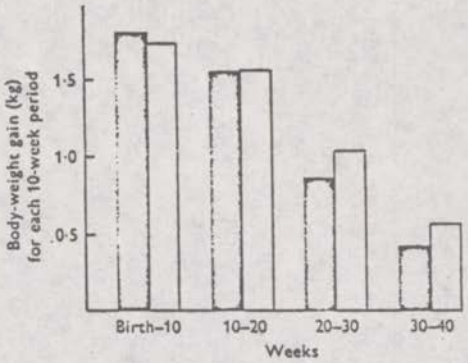

Fig. 2. Weight gains of Malay infants during the first 40 weeks of life, showing the differences due to the type of feeding given. Other children showed a similar pattern. ■, breast-fed; □, bottle-fed.

The effect of the type of feeding is shown in Fig. 2. From birth to 10 weeks of age, breast-fed infants gained more weight than did bottle-fed infants (difference = 0·14 kg, about 7% of weight gain) but the difference was not significant at the 0·05 level of probability. From 10–20 weeks, the type of feeding made almost no difference to the weight gain (difference = 0·01 kg, about 1% of the average weight gain). During the period from 20 to 30 weeks, artificially fed infants gained considerably more weight (difference = 0·17 kg, about 17% of the average weight gain; statistical significance $P < 0·01$) and in the period 30–40 weeks, artificially fed infants again gained more weight than breast-fed infants (difference = 0·15 kg, about 29% of the average weight gain; statistical significance $P < 0·01$).

To confirm the results of these cross-sectional analyses, individual records were examined to determine the effect on the rate of weight gain of the change from breast-feeding to artificial feeding. The pattern varied, but in some infants there was unequivocal evidence for an increase in the rate of weight gain following the change from breast-feeding to bottle-feeding (Fig. 3).

Effect of the factors on the frequency of respiratory and alimentary illnesses

Multifactorial analyses of variance were done to test the effects of factors on the illness rate. Respiratory illnesses were reported significantly more frequently among Malay infants (difference 1·09 episodes per year, about 12% of the average total), and in low-income families (difference 1·48 episodes per year, about 16% of the average

number). The sex of the child and the number of children in the family had no significant effect on the number of respiratory illnesses. The type of feeding had no significant effect (Fig. 4).

The frequency of alimentary illnesses was significantly affected by the size of the families (large families had more illnesses (difference 0·40 episodes per year, about 30% of the average number; $P < 0{\cdot}05$), but none of the other factors had any significant effect. The relationship between the number of episodes and the duration of breast-feeding is shown in Table 3 and in Fig. 4.

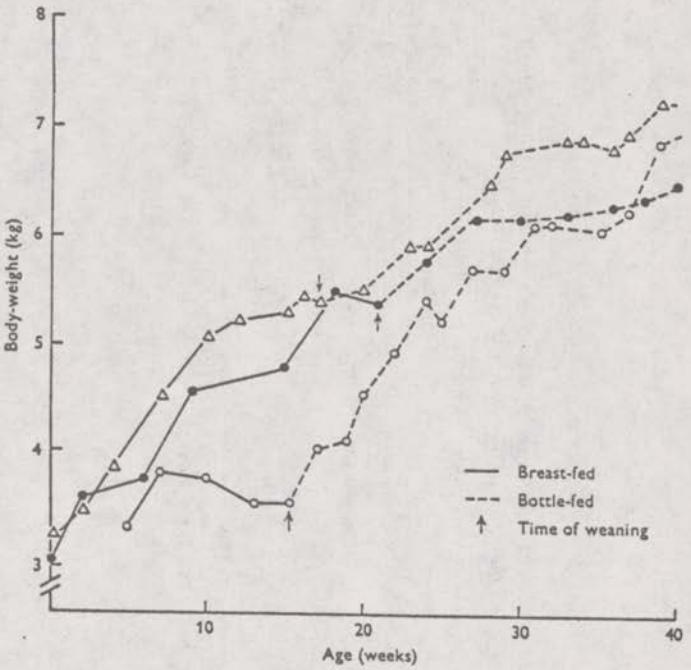

Fig. 3. Examples of growth curves of Malay infants showing the changes in growth rates which occurred following weaning.

DISCUSSION

Biologically, infant feeding involves only the mother and her infant. In paediatric and nutritional circles, it has been conventional to consider the mother–child unit in isolation. This is convenient nutritionally, but ignores the environment of the mother and child. The mother must consider the rest of her family as well as the newest infant. In many communities, both rural and urban, the earning capacity of the mother is essential to the well-being and even the survival of the family. There are, in Malaysia and probably other countries also, situations where the mother can either breast-feed her infant, or she can work, but she cannot do both. In rural areas of

Table 3. *Effect of various factors, considered independently, on the number of episodes of illness of infants in the first 40 weeks, and the statistical significance of the results*

(The numbers are given as episodes per full year)

		Factor				
		Ethnic group	Sex of infant	Family income	Family size	Duration of breast-feeding (weeks)
		Malay Chinese	Male Female	Low High	Small Large	Under 10 10–19 20–29 30+
Respiratory illnesses	Difference due to factor	Malay > Chinese 1·09	Male < female 0·09	Low > high 1·48	Small > large 0·16	Under 10 > 10–19 > 20–29 < 30+ 0·99 0·52 0·68
	Statistical significance	$P < 0·05$	$P > 0·10$	$P < 0·10$	$P > 0·10$	$P > 0·10$
Alimentary illnesses	Difference due to factor	Malay < Chinese 0·002	Male > female 0·32	Low > high 0·08	Small < large 0·40	Under 10 > 10–20 < 20–29 > 30+ 0·13 0·29 0·46
	Statistical significance	$P > 0·10$	$P > 0·05$	$P > 0·10$	$P < 0·05$	$P > 0·10$

Malaysia, for example, rubber tapping demands constant movement which would be severely hampered by the presence of an infant; in urban areas, babies are not welcome in factories. The mothers must therefore often choose between breast-feeding and work and they must make their decision in the best interests of the whole family (McArthur, 1962). We must recognize the necessity for this decision, and help the mother to take the course which results in the greatest total benefit, or perhaps in the least total harm.

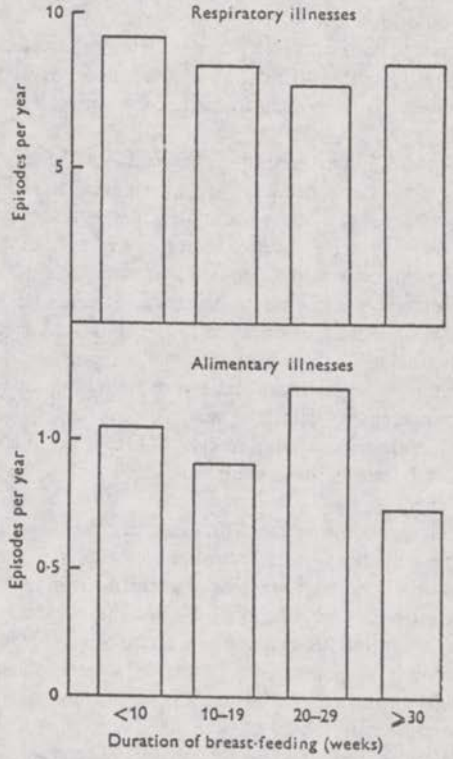

Fig. 4. Frequency of reported illnesses in Malay children during the first 40 weeks of life, computed as episodes per year, showing the effect of the duration of breast-feeding. Other children showed a similar pattern.

To make a rational decision, we should have some method of measuring the total welfare of the family. Such methods are very subjective and necessarily complex. I have therefore taken the other approach. The justification for breast-feeding is the increased welfare of the infant. Unless this increased welfare can be demonstrated, we cannot justify the advocation of breast-feeding if it may harm indirectly the rest of the family. The criteria for well-being of the infant have been taken as the weight gain and the rate of reported illnesses.

The evidence from the 230 children studied shows that breast-feeding may produce slightly greater weight gains up to the age of 10 weeks, from 10–20 weeks there is no detectable difference, but after that, artificially fed infants gain considerably more weight than breast-fed infants. The method of analysis eliminates effects of the other factors on the effect of feeds, the differences are due to the type of feeds or to some other unknown and unconsidered factor. The demonstration of an increase in the rate of growth of some infants, when they were weaned, suggests that the type of feeding is the factor responsible.

The change in the growth pattern is likely to be due to underfeeding on breast milk, rather than overfeeding on artificial feeds. Underfeeding on breast milk is probably due to inadequate milk supply, which in turn may reflect inadequate maternal nutrition (Bailey, 1965).

The frequency of reported illnesses among these infants was affected by the race, family size and family income. Although not all differences reached the level of statistical significance ($P \leqslant 0{\cdot}05$), Malays had more illnesses than Chinese, and infants from low-income families had more illnesses than those from higher-income families. The sex of the infant and the size of the family had a variable effect. The effect of the type of feeding did not reach statistical significance, neither did it show any consistent trend. The epidemiological, as opposed to the statistical, significance of these findings, is difficult to assess. The illnesses were those reported to, or noted by, the clinic nurse, and therefore depend on the anxiety of the mother or the observation of the nurse. No direct assessment could be made of the hospital illnesses of these children because of difficulty in obtaining the hospital records. The record of illnesses is therefore subject to error and in the present study is probably not as reliable a guide as the growth achievement.

The group of infants whose growth and illnesses have been studied are obviously highly selected. They are infants from a particular environment who were brought to the MCH clinics frequently and whose mothers did not follow the MCH nurses' instructions about the introduction of solid foods. Can these findings be extrapolated?

There appears to be a continuous gradation of sophistication from the most primitive rural dwellers in undeveloped regions to the most sophisticated and educated persons who live mainly in the cities. For the infants of poor and ignorant families, a failure of the breast milk supply may be a virtual death sentence; in educated and wealthy families, the type of feeding is largely a matter of convenience for the mother rather than welfare of the infant. Somewhere between these extremes lies a zone where the family has some knowledge of infant hygiene, but suffers from economic deprivation. It is here that we must exercise judgement. The findings in this particular group suggest that breast-feeding confers little or no benefit on the infant, so the economic well-being of the whole family is more important. This conclusion can probably be applied to the local community, but cannot be extrapolated to other communities until their characteristics have been studied. If MCH staff and nutrition workers are to work rationally, they should know the situation in their own community and be prepared to advise the mother so as to maximize the total benefit to the family.

I thank Dr L. S. Sodhy, Chief Medical Officer, Municipality of Kuala Lumpur, for allowing me to use the records of the MCH clinics; Dr J. Jeacock, formerly of the Department of Mathematics, University of Malaya, for assistance in the mathematical analysis; the Department of Medical Illustration, University of Malaya, and Mrs Ng Mo Tsing, for help with the illustrations and preparation of the manuscript.

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PROTEIN ADVISORY GROUP OF THE UNITED NATIONS SYSTEM

18 July 1972
Revised 28 November 1973

PAG Statement No. 23
Promotion of Special Foods

PROMOTION OF SPECIAL FOODS (INFANT FORMULA AND PROCESSED PROTEIN FOODS) FOR VULNERABLE GROUPS

SUMMARY

The statement emphasizes the critical importance of breast feeding under the sociocultural and economic conditions that prevail in many developing countries. Infants of more affluent socioeconomic groups in industrialized and developing countries, in the absence of breast feeding, suffer no nutritional disadvantage when fed properly-constituted and hygienically-prepared processed commercial formulas. These infants usually receive sufficient formula and the diet is also supplemented with baby foods. However, the early abandonment of breast feeding by mothers among lower socioeconomic groups can be disastrous to infants, particularly when this occurs without adequate financial resources to purchase sufficient formula and without knowledge of and facilities to follow hygienic practices necessary to feed infants adequately and safely with breast milk replacements. Under such circumstances, and where animal milk and other supplementary protein resources are expensive or in short supply, an important function of the food industry, in close cooperation with governments and physicians, should be the development and marketing of relatively low-cost, nutritionally-equivalent protein foods that can be used to supplement breast feeding.

To assist the various interests concerned with these problems in dealing with them objectively and effectively, the PAG proposes three sets of coherent recommendations: one for governments and United Nations agencies, a second for nutritionists and physicians caring for children, and a third for the food and infant formula industries.

PAG Statements and Guidelines may be used and quoted freely. Copies may be obtained without charge from the Protein Advisory Group of the United Nations System, United Nations, N.Y. 10017, U.S.A.

Annual Report, UK
from Scientific Secretary to
PAG for 1973

Background

To aid in developing this statement the PAG convened a meeting of leading pediatricians and representatives of the food industry in Paris, France, 16 and 17 June, 1972. In its deliberations this group took note of a preliminary meeting of pediatricians and the food industry which was convened in Bogota, Colombia, in November 1970 by the Pan American Health Organization/World Health Organization and UNICEF at the suggestion of the PAG. Note was also taken of the recommendations of a workshop on nutrition for "new urban families" held by the International Paediatrics Association in Vienna, 28 August 1971. Among the topics discussed at the June 1972 meeting were: purchasing power of African and Asian consumers in relation to meeting the nutritional needs of the child through commercial channels; problems facing governments in stimulating the supply of nutritious foods and supplements for infants and young children; role of industry in providing low-cost, nutritious foods for infants and young children and problems related to marketing and promotion practices of foods for infants and young children.

A further meeting between pediatricians and top executives of the infant food industry was sponsored by the PAG in New York on 11 June 1973. The participants had the opportunity to study the statement and this revision is the result of their suggestions.

1. Introduction

The widespread occurrence of protein-calorie malnutrition among infants and preschool children of developing countries has been extensively documented (1) and its consequences of increased morbidity and mortality, impaired physical growth and effects on learning and behavior emphasized. The high incidence of inadequate nutrition during pregnancy and lactation in these countries also contributes to malnutrition of the infant and debilitation of the mother.

Breast milk is the preferred food for infants and, if available in sufficient quantities, it is adequate as the sole source of food during the first four to six months of age. After this time foods from the family diet should be gradually introduced. In underpriviledged groups, poor health and adverse social circumstances may decrease the output of milk by the mother even during the early weeks after delivery, while frequent infections increase the needs of the small infant for protein and other nutrients. In such circumstances supplementation of breast milk with nutritionally-adequate foods must start earlier than four to six months if growth failure is to be avoided.

The inherent availability of breast milk and its nutritional, biological and sanitary quality makes breast feeding eminently desirable, and it is of critical importance under the sociocultural and economic conditions of many populations in developing countries. Every effort to prevent a decline in breast feeding should be made through education of the population, by emphasis in the training of professional, paraprofessional and volunteer health personnel and in the planning of a national food and nutrition policy.

Among more affluent socioeconomic groups in both developing and industrialized countries nutritionally-complete processed infant formulas are widely available and infants who are fed, instead of breast milk, a properly-constituted infant formula under hygienic conditions suffer no apparent disadvantage. However, it should be emphasized that overfeeding of formulas in early infancy is an important cause of obesity with its attendant complications in later life.

Among lower socioeconomic groups, however, the abandonment of breast feeding can be disastrous because of lack of resources for purchasing and using commercial formulas and because alternative traditional practices tend to be unhygienic and nutritionally inadequate. Under such circumstances breast feeding should be maintained if it is at all possible to do so. Unfortunately, women migrating from rural to urban areas tend to abandon breast feeding in order to work or in imitation of higher-income mothers, without having either the knowledge or the resources to feed their infants adequately without the use of breast milk.

It is this situation which poses a dilemma for these countries as well as for the food industry. It is clearly important to avoid any action that would accelerate the trend away from breast feeding; at the same time, it is essential to make formulas*, foods** and instructions for good nutrition of their infants available to those mothers who do not breast feed for various reasons.

The problem of meeting the special needs of children from birth to five years of age and of pregnant and lactating women is complicated by the fact that animal milk, which is a major supplementary protein source for these groups in industrialized countries, is generally in short supply, of poor quality or costly for most of the population of the developing countries. For them there is an urgent need for the development and marketing of relatively low-cost nutritious protein foods that fulfill the major role which milk plays in more affluent populations.

The production and marketing of appropriate and nutritious foods of various types to satisfy the specific needs of young infants, older infants, young children and pregnant and nursing women is an important function of the food industry. However, special problems of poor education, low economic levels and adverse environmental conditions are faced in the developing countries. Overcoming them requires close liaison and cooperative efforts among industry, government and physicians concerned with the care of mothers and children as well as nutritionists and public health workers. Most food industry leaders welcome opportunities for such collaboration.

It is clear from the foregoing that in any country lacking breast milk substitutes, it is urgent that infant formulas be developed and introduced to satisfy the special needs of infants who are not breast-fed. It is equally important that older infants, children being weaned and pregnant and nursing women have protein-rich food supplements available at low cost. However, the effective marketing, distribution, acceptance and proper use of these products in harmony with national needs and traditions require the coordinated efforts of governments, international organizations, industries, health, educational and social agencies, medical personnel and nutritionists.

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*Formulas are processed complete infant foods, based either on animal milk or nonmilk food sources, containing all the necessary nutrients in satisfactory balance for use as breast milk substitutes for young infants under six months of age.

**Foods in this context mean processed protein-rich foods to serve as supplementary foods for breast-fed infants after six months of age, as weaning foods and also as supplements for pregnant and nursing women. As a rule these products should not be recommended for infants below six months of age.

2. Recommendations to governments and United Nations agencies

2.1 Governments should recognize infant and child nutrition as an urgent problem and should be encouraged to give support to needed studies and surveys, in cooperation with nutritionists, pediatricians and concerned industries, in order to define the magnitude and nature of this problem within their countries.

2.2 Governments should give high priority to food and nutrition in development planning, and should seek the collaboration of industry in planning for nutritional improvement. Special attention should be given to developing the potential of local food industries which can utilize local supplies and to stimulating the establishment of new local ventures for the production of nutritious formulas and foods for the nutritionally-vulnerable segments of the population.

2.3 Governments should accept the fact that fostering food innovations for nutritional improvement will demand urgent action to provide fiscal and financial incentives that will encourage industrial investment.

2.4 Governments should be encouraged, with the advice of pediatricians and nutritionists, to adopt nutritionally-sound criteria in facilitating the provision of processed formulas and foods for infants and young children in the commercial market. This can be done by establishing rational legislation and by simplifying administrative procedures that affect the infant formula and the weaning food trade.

2.5 Governments should take the following steps to assist the introduction of nutritious foods for infants and young children at the lowest feasible cost:

a) initiate specific legislative action to reduce direct and indirect fiscal burdenson processed infant formulas and weaning foods;

b) consider subsidy programs to provide nutritious infant formulas and weaning foods to the most vulnerable and the lowest income groups. In some situations, governments should provide also for free distribution of these foods to the vulnerable groups in the lowest income families;

c) provide strong support in organizing and financing educational programs for promoting good nutrition among infants and young children; these may include practical training in correct product usage for all mothers, including those to whom

the products are provided free or at low cost. Such programs should be carried out in close collaboration with physicians caring for mothers and children and with the industry involved. Maternal and child health centers and mother-craft and nutrition rehabilitation centers are useful channels for this educational work;

d) stimulate use of mass media channels for both educational and ethical product promotion communication;

e) encourage recognition of promotion as an essential component of any marketing program to establish widespread consumer use of nutritious foods for children. For approved products, the promotion of which is considered desirable in specific locations from a public health standpoint, governments should give active support to promotion programs, including, where appropriate, financial assistance as well as provision of trained personnel and communications facilities through health services.

2.6 The organizations of the United Nations system should continue to encourage the developing contacts between government officials, medical and other health personnel and industry, and to support, through appropriate channels such as the FAO-Industry Cooperative Programme and the PAG, more extensive examination of outstanding problems of concern to both sectors.

2.7 The United Nations agencies should continue to pursue their initiatives to conduct seminars, workshops and other training opportunities for personnel of developing countries on technical approaches to development, testing, marketing and promotion of processed infant formulas and weaning foods and other nutritionally-desirable foods.

3. Recommendations to pediatricians and other physicans caring for children

3.1 Nutritionists and pediatricians caring for children should foster educational programs for all health personnel, stressing the importance of breast feeding, especially for infants under six months of age.

3.2 Physicians caring for children, as well as nutritionists, should support ventures to launch protein-rich foods of plant origin to be used where traditional high-quality food resources such as milk are unavailable or beyond economic means. In preparing educational material, properly-formulated, protein-rich foods of plant origin should be recommended along with those of animal origin for meeting protein needs.

3.3 Physicians caring for children, as well as nutritionists, should recognize the pressing need to introduce nutritious formulas and/or foods for infants and young children at the lowest feasible cost and the need to cooperate with industry to achieve improved nutritional standards and foods.

3.4 Pediatricians should be encouraged to conduct roundtables and seminars to inform themselves and to keep up with developments in infant and child feeding, including the promotion of breast feeding and use of home-prepared weaning foods. The availability of various new and existing processed foods, including foods to meet special pediatric needs, should also be discussed.

3.5 Pediatricians and representatives from the food industry should hold meetings to discuss their respective interests, needs and progress in the field of infant and child feeding, keeping in focus the special needs of the low-income populations which form a large segment of the society.

4. Recommendations to industry

4.1 Food industry leaders should be involved constructively in the solution of the special nutritional problems of vulnerable groups, particularly in developing countries.

4.2 The importance of breast feeding should be stressed in employee training and personnel should be instructed to avoid sales and promotional methods that could discourage appropriate breast feeding in any way.

4.3 Industry should train its personnel adequately in matters concerning local public health norms, needs and regulations in the implementation of national food and nutrition policies.

4.4 Industry should recognize and emphasize that the immediate postpartum period and the hospital nursery are not appropriate for any promotion of infant foods directed at other than professional personnel.

4.5 To minimize misuse, industry should give special attention to the importance of unambiguous and standard directions for reconstituting formulas from dry or liquid preparations for feeding young infants. The needs of illiterate as well as literate persons should be considered in designing labels. Labels and product literature should foster hygienically-oriented practices such as the use of boiled water and the proper cleaning of utensils.

4.6 Industry should give active consideration to the development and production of supplementary foods and infant formulas that do not require reconstitution or can be rendered palatable by boiling only.

5.. Reference

1. Bengoa, J.M. 1970. Recent trends in the public health aspects of protein-calorie malnutrition. WHO Chronicle 24, No. 12: 552-561.

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REPUBLIC OF HAITI
CITY OF PORT-AU-PRINCE
EMBASSY OF THE UNITED STATES OF AMERICA

AFFIDAVIT

HAITI)
PORT-AU-PRINCE) ss.:

KATHLEEN LUCAS ROBERTS, being duly sworn, deposes and says:

1. I am presently working as a volunteer with Church World Service/Service Chrétien d'Haiti in the country of Haiti. Having worked in Haiti for a year and a half, I have a command of the spoken language, Creole, and with this tool have worked with the CWS/SCH nutritionist and supported her activities in helping her to organize training seminars and "under-five" clinics (a preventative nutrition education approach aimed at parents and children under five years of age), and produce educational materials. I have worked closely with members of the Bureau of Nutrition and have a fair understanding of the nutritional status and problems that the Haitian family faces. I received a B.A. degree in elementary education in 1974 from Lewis and Clark College in Portland, Oregon.

At the request of the Interfaith Center on Corporate Responsibility, I am submitting this affidavit in connection with a legal proceeding entitled Sisters of the Precious Blood, Inc. v. Bristol-Myers Company, pending in the United States District Court for the Southern District of New York, 76 Civ. 1734.

2. While working with Service Chrétien d'Haiti in Port-au-Prince, Haiti, the capital city of 600,000 people, I had the occasion to observe the sale and distribution of infant formula products produced by Bristol-Myers (Meade Johnson). I visited seven grocery stores and four pharmacies where the products were being sold. No doctor's prescription was needed. Products sold for the following prices:

size	name	prices
1 lb.	Enfamil Powder	$2.65, $2.50, $2.20, $2.30agent
1 qt.	Enfamil (premixed)	$1.40
1 lb.	Enfamil with Iron	$3.15
13 oz.	Enfamil Concentrate	$1.05, $0.68(expired Nov '75)

size	name	prices
1 lb.	Olac	$2.75, $2.60, $2.40, $2.42agent
1 lb.	Alacta	$2.50, $2.15, $1.90
1 lb.	Acidolac	$3.60, $3.50
13 oz.	Prosobee Concentrate	$1.20, $0.70(expired Oct '75)
1 lb.	Sobee	$2.50
1 lb.	Probana	$3.48

Due to time constraints and the unavailability of qualified sources of information, the extent of sales of these products was not obtained.

3. The instructions for use on the packages of Enfamil and Olac state that the formula when mixed should be refrigerated, that sterile water should be used in mixing and that bottles and nipples should be sterilized. I was told by a doctor that for those persons that go to a pediatrician, he usually explains to them how to prepare the infant formulas. Refrigeration can be a problem however. One particular home I visited in downtown Port-au-Prince was without refrigeration and quite hot. The milk formula was kept premixed near the baby's bed. The mother explained she prepared the day's milk in advance as she had to work, leaving the bottle in the hands of the maid.

In my opinion the instructions on the label would not be generally understandable or easily followed by the average mother who purchases these products in Port-au-Prince. The instructions are in English, and would not be understood by the middle-class Haitian whose language is French and Creole. When asked how to prepare Olac in one market in a poorer section of town the clerk, a man, said: "Take a bottle of water, add a teaspoon of milk (Olac) and add some sugar." The instructions on the Olac label state the correct mixing proportions at 2 oz. of water for each scoop of milk formula. Whereas, the clerk was suggesting one scoop of infant formula to every 8 oz. of water. At a hospital where Olac, Alacta, Mamex, and S-26 are for sale, it was explained by a nurse that <u>all</u> formulas (previously mentioned) were to be prepared as such: 1 scoop of milk formula for 3 oz. of water.

Without the council of a well-informed doctor, mothers buying products directly through the stores, or pharmacies, could encounter problems because of 1) the language problem and 2) a lack of professional knowledge on the part of the distributor. I conclude that although the product may be beneficial, marketing by non-professionals may lead to misuse of the product. Thus, it might be in the interests of the company to take part in the distribution of their product as well as the production by sending a qualified person to introduce the product and its use to appropriate distributors, and to periodically evaluate its distribution.

4. In seven grocery stores I did a random sampling of Meade Johnson infant formula products to check for expiration dates. I looked at 3-5 cans of each product in each store. I observed that only cans of Prosobee and Enfamil Concentrate were among those dated. In one grocery store, outdated cans of Prosobee (Oct '75) and Enfanil Concentrate (Nov '75) were available for sale at lower prices. Dates on the other products may have been erased, because one can of Enfamil we received from a mission barrel, that had come directly from the states, had the expiration date stamped on the bottom of the can. This is easily rubbed off, and as I noticed no other cans of Enfamil with a stamped expiration date, either it was never printed on, or it was erased sometime before it got to the shelves.

5. On the basis of interviews with approximately 20 parents and radio listeners and one radio station manager, there appears to be little or no public advertising on radio or television of the Meade Johnson infant formula products in Port-au-Prince. Neither these persons nor I have observed any visual forms of advertising (magazines, newspapers, billboards, truck panels etc.) for any Meade Johnson product in Haiti. Salesmen distribute pamphlets and samples to doctors, but I do not know if doctors distribute pamphlets to mothers for who they prescribe the formulas.

6. As confirmed by authorized personnel in the Bureau of Nutrition, there is no information dissemination or product distribution of any Meade Johnson infant formula products in mothercraft centers in Haiti. On the contrary, nutrition clinics and rural dispensaries encourage breast feeding, and discourage bottle-feeding. Dry Skim Milk is an integral part of the mothercraft program in Haiti and is given as a supplement for very malnourished children. It is properly prepared in the centers with explicit instructions to the mothers that it is to be given as a supplement to breast milk.

7. In the maternity wards of two private and two public hospitals in Port-au-Prince, it was observed that breast-feeding was not being encouraged. Both Olac and Enfamil are being prescribed by doctors in four of these maternity hospitals. At one hospital it was purported (by one of the nurses) that the doctors receive a small renumeration for this, but this was not substantiated. In these hospitals I was told that Meade Johnson infant formulas are available for sale; one woman said she had been given a free sample of Olac, another said that she had bought one marked "sample". Neither salesmen nor promotional materials were observed in the maternity hospitals that I visited. While visiting one mother at her home, she was surprised to hear that breast-milk was better than canned infant formulas, her doctor had prescribed Olac.

One doctor stated that Enfamil is distributed in the pediatric ward of the university hospital. It is given to mothers as they leave as a "relief" food (when it is evident that mothers will not be able to afford milk for their malnourished children). Though the doctors at this hospital give away Enfamil samples, I was also told that they encourage the mothers to continue with a cheaper milk when they arrive home.

8. It is recognized that some cases of infant malnutrition and digestive tract diseases are related to bottle-feeding, because of unsanitary feeding practices and overdilution of the formula. However, the majority of these cases may never reach the hospital. Thus, bottle-feeding may be a contributing

factor to the severity of gastro-enteritis and child malnutrition, but it is virtually impossible to isolate it as a major cause.

9. In Haiti, 90% of the population are rural poor, their income estimated at $80.00 per annum. These people speak Creole, are illiterate (only approximately 15% of the country can read and write), have no refrigeration, often are inaccessible to sufficient water let alone clean potable water, and can hardly afford the fuel (charcoal) to cook food let alone fuel to sterilize infant formulas. Most importantly, they are not even exposed to the distribution channels, i.e. to the urbanized market economy of pharmacies and grocery stores where in Haiti, all Meade Johnson infant formula products are sold. So while Meade Johnson infant formula products are being promoted in a country where chronic poverty and ignorance exist, product exposure is limited to the elite and rising middle class in Port-au-Prince, the capital city and possibly other major towns in Haiti (although I personally did not ascertain this).

Because Meade Johnson products are well above the financial means of many Haitians, the more affluent people purchase them. With affluence comes education, usually more sanitary living conditions and financial means to buy the formulas. Yet there are many members of the rising middle class who are beginning and will continue to emulate the elite by using bottle-feeding and the "prestigious" infant formulas. These persons often live in very crowded and unsanitary living conditions, often do not have refrigerators and are not familiar enough with the English language to properly follow written instructions for preparation of the infant formulas. Thus, while Meade Johnson products may be nutritionally beneficial to health, it seems to me that in Haiti, it can be in the distribution and ultimate use of the product where there are potential hazards to health. What is needed, as I see it, is firmer control of product distribution and information dissemination, namely:

1. Pharmacists should know their products: While visiting one well-established pharmacy, I questioned the manager. He seemed to know very little about the Meade Johnson products and was unable to explain to me the distinguishing

differences of each. In my opinion it is very important for the pharmacist to be well informed, especially when doctors' prescriptions are not needed to purchase the formula.

2. Improved education in the maternity hospitals: Besides the doctors, nurses and hospital attendants should be well-informed on correct product use. They are an important link in the communication lines between the doctors and the mothers. It is my opinion that nutrition and health education should also be available to the mothers -- then they would be more educated and capable of making their decision to pursue either bottle-feeding or breast-feeding.
3. Vendors should control sale of expired products: When a Haitian child gets diarrhea from a bottle, the mothers say it's the milk that caused it (rather than the sanitary conditions) and change milk products. Whatever the case, the average Haitian mother would not think to relate it to an expiration date. Mission doctors told me that expired formulas are especially dangerous for babies under five months of age. Whether marked or unmarked, the average Haitian would probably not refer to the expiration date when buying a product. Thus, the vendor should take the responsibility for quality control of his infant formula commodities.
4. Doctors should prescribe a milk within the economic capabilities of the family: In the Haitian society, the extended family may live in one home. Ten people or more may live under the wing of one income: more often in the urban areas, as persons from the rural area come into the city, they seek relatives and family to live with. While visiting one family who was prescribed Olac, the father was surprised when told breast-milk was highly valued. He insisted that next time his wife would breast-feed his child. I empathized with his reaction, he was struggling to meet the costs of an expensive formula, spending about 13% of his family income on infant formula

for his child. He works as a taxi driver, his wife in a floral shop. Their income is about $150.00 a month. This was their first child.

5. Providing printed mixing instructions in either French or Creole: Even when prescribed by a doctor, mixing instructions may be forgotten or too difficult to understand. As one such mother said, "I mix it until it's good." Her child, 1½ months old, fortunately was receiving a 1 lb. can of Olac every 3-4 days.

In Haiti, where there is a chronic lack of high quality protein sources, milk and milk products can play a vital role in ameliorating the nutritional problems in the country. There is obviously a market for Meade Johnson products in Haiti, and in my opinion, from what I have seen and heard, there does not appear to be any intentional misinformation etc. by the Bristol-Myers company. However, there is definitely evidence in isolated cases I have come across that there is misuse in the distribution of the roducts. With the introduction of any new commodity into a ulture, education on safe use is essential, and I believe it is the best interests of the Bristol-Myers Company to take an ive role in this phase of product development.

Kathleen Lucas Roberts

Kathleen Lucas Roberts

EPUBLIC OF HAITI)
CITY OF PORT-AU-PRINCE)
EMBASSY OF THE UNITED) ss:
STATES OF AMERICA)

to before me this
day of July, 1976.

M. Patricia Wazer

M. PATRICIA WAZER
Consul of the United States

THE HOUSEHOLD CONTEXT OF INFANT FEEDING PRACTICES IN SOUTH TRINIDAD

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THE HOUSEHOLD CONTEXT OF INFANT FEEDING PRACTICES IN SOUTH TRINIDAD

ABSTRACT: The infant feeding practices of a community of rural East Indians in south Trinidad are described, drawing on interviews conducted in 1969 and 1976. The Rampat community is a dispersed settlement of small-plot cultivators and wage laborers which has experienced rapid expansion of economic opportunities in the last decade. Hinduism, Islam, the patrilocal extended family and arranged village-exogamous marriage are the primary East Indian cultural patterns which derive from India, while caste, jajmani ties and lineage organization have weaken to insignificance.

The infants of this community are fed in the mixed pattern of breast feeds alternating with bottle feeds. During the past decade there has been no shift in the distribution of feeding histories toward either the exclusive use of the bottle or exclusive use of the breast. However, there has been a significant change in the content of the bottles. In 1969 infants were given bottles containing flour pap, sage, arrowroot and bush tea. In 1976 these had been overwhelmingly replaced by the use of commercial milk powders, including some infant formula powders.

The decisions which are made regarding modes of infant feeding in the Rampat community are embedded in a larger strategy for the comfort and economic survival of the patrilocal extended household group to which the infant belongs. Infant survival, while desired, is not given precedence over the interests of the household group as a whole. Correlaries of this situation include the low status of new mothers, subordination to the senior generation in the household and the labor value of both men and women to the household.

Mothers do not decide to purchase commercial milk powders in response to advertising or the desire to emulate "modern" or urban behavior. They are pressed and directed to use this mode of feeding in combination with breast milk in order to maximize their utility to the group while not discarding their own milk.

Policy planners have become alarmed by the apparent decline of breast feeding in the non-industrial world. The Nestles suit, the suit against the Bristol-Myers Company brought by the Sisters

of the Precious Blood, the research initiatives of A.I.D. and other government agencies testify to a movement to save infants from dirty coke bottles filled with the milk of American technology. To a surprising extent, this movement has been nursed by public health reports of infant morbidity and mortality which, at best, iterate only the surface characteristics of the varied situations of which these infants are a part. Nutritionist Michael Latham says that "... for about two-thirds of the world's population bottle feeding of infants is highly undesirable, and in many instances placing an infant on a bottle might be tantamount to signing the death certificate of the child." Latham is also quoted as saying that advertising and marketing of products for bottle feeding "is probably the single most important reason for the rapid decline in breast feeding in developing countries in recent years." [1]

These statements don't seem to make anthropological sense. The potency ascribed to advertising would suggest that mothers around the world are poised waiting to be told what to want and what to do, and in the interim are living lives of no reality, no culture. More important, the stress on linking bottle feeding to mortality ignores the real problems of living infants - the continuous low-grade morbidity and poor growth -in favor of the drama of death. And it ignores the many pathways for enteric pathogens found in humid environments, with poor drainage of contaminated water, inadequate supplies of potable water and contemination from human and animal waste products, clothes, bedding. To isolate the feeding bottle as the source of fatal

insult is curiously myopic, and to isolate the feeding bottle as the source of poor infant growth is naive.

An anthropological perspective on why women carry out one or another mode of infant feeding would suggest, even before we look at any evidence, that 1) infant feeding behaviors are likely to be embedded in a context of other cultural values and behaviors, and 2) infant feeding behaviors, like many culture traits, may not be developed to achieve the straightfoward goal of feeding the baby.

The case study of this report - rural East Indians of Trinidad - provides an example of a culture in which the comfort and economic survival of the patrilocal extended household group takes precedence over the prosperity of any of its individual members, and among these members a mother and her new infant are both particularly low in status. Infant survival, while desired, is not given priority over the interests of the household group as a whole. For the past two decades and perhaps longer, most infants have been fed in a mixed mode of breast and bottle feeding followed by early weaning, and this may be viewed as an adaptation which best serves the family group, not the infant.

The East Indians of Trinidad are the direct descendants of indentured laborers brought from India to Trinidad in the second half of the last century. They now compose almost half of the Trinidad population, and number about 500,000 people. Much of their family organization is derived from north Indian culture. Because their villages were established at the behest of the sugar cane estates house lots and garden land were sold equitably to members of all castes. Through succeeding genera-

tions this pattern of land ownership has greatly weakened caste and lineage ties. Caste has almost disappeared as an organizing principle in every area except marriage arrangement. The caste hierarchy has been replaced by more subtle and familial indicators of worth such as land, capital, religiosity, political power, family authority and personal conduct. But the sense of status and rank is still pervasive in Indian thinking. It colors all social contexts with potential for insult, maneuver and mistrust.

Because of the decline of community wide organizing principles households are the central focus for personal loyalty and identity. Households are like small islands, separated from each other by suspicion, competition and sometimes extreme differences in status and comfort. Every household has a standing or reputation among its neighbors, based in part on its physical amenities, in part on its ritual cleanliness and the comportment of its members in part on caste. Every household also has its own store of economic resources and reserves, quite meager for some, plentiful for others. Like the statuses, the economic resources do not flow freely from household to household. The great range of differences in social prestige and in economic levels is central to the way the culture works. Because households are separated from each other by these staus differences they are untrusting andguarded in their dealings with each other, reinforcing the importance of one's own household as a safe and comfortable place.

The separation between households has been further aggravated by recent growth in the cash economy. The rural East Indian districts of Trinidad have experienced rapid expansion in wage

employment and commercial development in the last decade, stimulated by the rise in the price of sugar, the discovery of new off-shore oil reserves and the development of light industry in the north. While the East Indian population is still tied to the agricultural seasons for subsistence most families also attempt to perform wage work year round. Land is not being ignored for cash employment, but employment possibilities are luring families into working harder to profit from both sources of support. Women are valued for their economic contribution to the household through gardening, animal care, market selling of produce, and, inpoorer families, work as agricultural laborers. Thus the value of women's labor is rising even as the district is moving closer to a consumer economy.

The factors I have noted thus far - the north Indian inheritance of family and sex roles, the subsistence base in agriculture, the importance of the household as the only significant identity group and the increasing value of women's labor for the household as men move into the wage economy ser the context for the status of mother and infant in the household group.

Marriages are arranged by parents and should ideally be neighborhood exogamous, hypergamous and cast/class endogamous. Hypergamy, the marriage of a girl to a higher status boy, sets the tone of the relationship between wife-givers and wife-receivers even when it is not based on the reality of their relative statuses. The bride is by definition from a lower status family.

When a bride enters her husband's family circle she is an intruder. Her success in this new role will rest in her ability to demonstrate her receptivity to direction and guidance, and

quite literally the absense of any ideas of her own. This is of course, the traditional Indian model of the tabla rasa child bride, but Trinidad East Indian brides are now approximately eighteen and the role requires a very skillful mixture of innocence and maturity. Suspicion of the girl's willfulness is heightened by the fact that an increasing number of amrriages are "love matches" - arrangements made after the boy and girl have "seen each other". If it appears that the girl entered the marriage by choice rather than by obedience to her parents then she will be regarded by her husband's household group as a threat to their solidarity - a girl with ideas.

Appropriate respect behavior requires her to be a cheerful, willing and deferntial assistant to her mother-in-law. Her daily life is at the mother-in-law's direction. She will be expected to stay at home, stay in the background and stay on her feet.

The first infant is conceived and born during a period in which the new mother is most likely the lowest status female in the house. The birth may actually create a series of test cases in which the low status of the young mother is affirmed by separating her from her achievement - the infant.

For instance, young mothers are expected to continue their household chores, such as preparing food for the entire extended family and maintaining the kitchen garden despite the presense of the infant. It is not considered good form for a mother to fondle her infant, especially not to create a situation in which the infant shows attachment to the mother (or father). Rather the baby should passs willingly from hand to hand to hammock without protest. A "spoiled" infant will cause criticism of the

INFANT DIETS DURING FIRST MONTH OF LIFE - 1969 N=1' 2

Type of Food	n=	%
breast milk alone	47	27 3%
breast milk and powdered milk	33	19 %
breast milk and powdered milk, brown sugar	28	19 %
breast milk and powdered milk, sago	12	16 %
breast milk and powdered milk, Farax	12	7 %
powdered milk, brown sugar	5	3 %
breast milk and powdered milk, sago, brown sugar	4	2 3%
powdered milk alone	3	1 7%
breast milk and diluted cow's milk	3	1 7%
breast milk, powdered milk, Farax, Brown sugar	3	1 7%
powdered milk with glucose sugar	2	1 1%
breast milk, diluted cow's milk, brown sugar	2	1 1%
breast milk, powdered milk, arrowroot	2	1 1%
breast milk, powdered milk, glucose sugar	2	1 1%
breast milk, powdered milk, lime bud tea	1	
breast milk, powdered milk, green tea	1	
breast milk, powdered milk, flour pap, brown sugar	1	
breast milk, diluted evaporated milk	1	
breast milk, diluted cow's mild, sago	1	
powdered milk, brown sugar sago	1	
powdered milk, glucose sugar, sago	1	
powdered milk, Farax and glucose sugar	1	
powdered milk and green tea	1	
diluted cow's milk	1	
diluted cow's milk, sago, brown sugar	1	
diluted cow's milk with flour pap	1	
breast milk and diluted cow's milk, flour pap	1	

mother. The mother should not use infant care as an excuse of avoiding more arduous (or more demeaning) work. As as sign of respect for the parents-in-law she should entrust the daytime care and feeding of the infant to their direction and devote her own attention to chores for the benefit of the whole family. At night the youngcouple and infant share one bed. In matters of clinic attendance, private doctors, jahree healers or other health care the initiative properly comes from the husband's mother and father.

The infant feeding patterns facilitate this relationship between the young mother, the family circle and the infant.

I have conducted systematic feeding history interviews with mothers at two points - the spring of 1969 and the summer of 1976[2]. The diets described in 1969 for the feeding of infants during the first month of life are listed on the accompanying table. Essentially, only 27% of the infants were maintained on breast milk alone during the first month; 57% were given bottle supplements in addition to breast mild and 16% were fed exclusively by bottle. The actual content of bottle feeding varied enormously. Water was mixed in varying proportions with granulated brown sugar, sago, glucose sugar, flour pap arrow-root, green tea, coffee or commercial whole or skim milk powders such as Cow and Gate or Klim. These commercial milk powders were not infant formulas. Cow's milk was used rarely, buffalo and goat's milk not at all.

In the second and third months, the number of infants who were given bottle supplements or fed exslusively by bottle rose

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rapidly. By the end of the thier month over one-third of the total group had been weaned from breast milk to these liquid diets. While an increasing number of infants were weaned over the next four of five months, there was also a small proportion (perhaps 10%) who continued night nursing into the second year of life. For most infants the introduction of solid supplements described by the mothers as "salty food", began in the sixth month, usually in the form of plain rice. Eggs were mentioned in only a few instances and meat is apparently absent from the infant diet until well after the second year.

Children learn to drink green tea or coffee diluted with condensed milk and sugar in the second year and this is the daily drink of all children and adults.

In 1976 the profile of infant feeding in the early months had not changed. Exclusive breast feeding was maintained for 26% of the infants during the first month of ife, breast and bottle was used in combination in 64% of the cases, and exclusive bottle feeding was established in 10% of cases. The comparable figures for 1969 had been 27%, 57%, 16%. Thus the only possible contrast between practices reported in 1976 and those of seven years earlier was a slight shifr away from exclusive bottle feeding toward the mixed model utilizing both breast and bottle. There is no evidence of a decline in breast feeding.

What did change dramatically during this seven year interval was the content of the bottles. Powdered milk (usually Klim whole milk powder) used alone with water or with an additive of brown or glucose sugar has become the standard bottle feed, while

indigenous supplements such as arrowroot, sago and flour pap have greatly declined. It appears that the proportion of powdered milk to other substances has increased substantially, since the only other additives used now are sugars.

What causes the mothers of this community to change from flour pap to powdered milk, to add brown sugar or the very expensive glucose sugar to bottle feeds? Are they motivated by status? By advertising? The explanation for changing from indigenous foods to commercial milk powders may well be as simple as the mothers and their mothers-in-law say it is: they say that milk is better and now that they can afford to use it, they do. Only the poorest families now use flour pap for very young babies. The explanations most often heard for the introduction of bottle feeding in combination with breast fedding were 1) that if you breast feed during the day "people will quarrel with you", other members of the family will argue that you are avoiding work. A woman should not sit down; her work is not finished. 2) Sugar is necessary to "strive" in the tropics. Using the bottle for some feeds allows the addition of mor sugar to the infant's diet. 3) If a baby does not begin to accept the bottle early he will be difficult to wean from the breast later and will "upset people", make the household group uncomfortable.

In effect, young mothers are well aware of a need to balance their loyalties, to give up the child during the day, but nurse at night. Some of the explanations for bottle feeding reported for other cultures do not occur here. No woman responded to the suggestion that lactation might annoy husbands, interfere with

appearance, or hamper health of the mother. All agreed that lactation does not require any change in diet or workload (an extension of the model of the industrious woman who never sits down). Several mothers felt that their milk supply was not adequate to the baby's needs but non reported failure to initiate lactation. Mothers do not decide to purchase commercial milk powders or bottle feeding equipment in response to advertising or the desire to emulate "modern" or urban behavior. They are pressed and directed to use this mode of feeding in combination with breast milk in order to maximize their utility to the household group.

Clearly many of the factors that appear to determine infant feeding behavior are culture and situation-specific. Vulnerability to the milk companies must also be culture and situation-specific.

NOTES

[1] The Washington Star, February 20, 1976: The Baby Bottle May Be a Third-World Death Warrent, by Vernon A. Guidry, Jr.

[2] In both cases the population interviewed included all mothers of living infants under twenty-four months of age and residing contiguously in the study district. The mothers of 172 infants were interviewed in 1969; because a smaller area of the district was covered in 1976 the mothers of 100 infants were interviewed at that time.

Attached are the tabulations of infant mortality rates for selected countries, which were originally constructed in January, 1976 in preparation for our meeting with the ICCR representatives on 17 February, 1976.

The sources of the data for 1920 to 1973 were the United Nations Demographic Yearbooks for 1954, 1968 and 1973, updated with more recent data from the U.N. Population and Vital Statistics Reports and the 1975 U.N. Demographic Yearbook.

INFANT MORTALITY RATES

Asia

(per 1000 live births)

Year	Burma	Ceylon (Sri Lanka)	China (Taiwan)	Hong Kong	India	Iraq	Israel	Japan	Jordan
1920-24	184.8	192.3			184.2		119.4	164.7	
1925-29	204.9	174.0			175.3		106.5	140.8	
1930-34	198.2	165.1	152.8		176.2		78.8	124.2	
1946		140.5		89.1	136.4		31.8		
1947	282.7	101.0	77.4	102.3	145.6		29.6	76.7	
1948	260.1	92.1	56.6	91.1	130.1		36.3	61.7	
1949	331.5	87.0	47.9	99.4	122.8	97.6	50.3	62.5	
1950		81.6	35.3	99.6	127.1	97.3	45.6	60.1	
1951	252.8	81.9	34.5	91.8	124.4	89.0	39.4	57.5	
1952	239.2	78.4	35.3	77.1	116.3	56.0	38.7	49.4	
1953	230.5	71.2	33.7	73.6	119.1	36.9	35.9	48.9	100.1
1954		72.0	30.1	72.4		43.9	34.5		89.0
1964	130.9	56.9	23.9	25.8		19.4	28.2	20.4	48.4
1965	109.3	53.2	22.2	22.8		23.7	27.4	18.5	42.0
1966	88.7		20.2	23.9		17.9	25.3	19.3	38.3
1967	66.5		20.6	23.9			25.9	15.0	30.7
1968	65.8			22.3			23.5		
1969				21.0		21.0	22.9	14.2	25.4
1970				19.2		19.7	21.3	13.1	22.1
1971				17.7	122	25.5	20.4	12.4	20.7
1972	62.7	45.1		17.4		28.2	21.3	11.7	21.3
1973				16.4		27.5	22.8	11.3	22.6
1974				16.8			23.5	10.8	21.9
1975				14.9			22.9	10.1	21.3
1976									

Africa

Year	Algeria (Muslim pop.)	Egypt (UAR)	Madagascar	Mauritius
1920-24	91.1	140.7		149.7
1925-29	98.7	152.5		126.5
1930-34	87.4	162.5		163.1
1946	95.7	140.8		145.2
1947	96.0	126.8	130.8	113.9
1948	90.3	138.6	140.9	186.2
1949	95.2	135.5	126.0	91.0
1950	86.2	129.6	111.5	76.3
1951	83.1		89.7	83.5
1952	85.1		90.7	80.8
1953	87.1			93.5
1954				81.1
1964	57.5	117.3	56.5	56.7
1965	86.3	113.2	65.5	64.1
1966			102.0	64.2
1967		83.2		70.5
1968				69.1
1969		119.0	57.6	70.4
1970		116.3	62.6	57.0
1971		103.3	55.3	51.7
1972		116.0	53.2	63.8
1973		97.9		63.3
1974		100.4		45.6
1975				50.1
1976				

Year	Nigeria (Lagos)	South Africa			Senegal (Dakar)
		Asiatic	Colored	White	
1920-24				77.7	
1925-29				67.7	
1930-34				64.1	
1946				35.9	
1947	125.7			34.4	
1948				36.0	
1949	105.8			38.5	
1950	90.8			35.7	
1951	85.7			33.5	
1952	70.4			34.6	
1953	81.7			34.1	
1954				34.2	
1964		53.7	127.1	27.6	82.4
1965		55.9	134.0	24.5	90.2
1966		45.3	133.6	23.2	90.2
1967					
1968		50.8	128.8	24.6	
1969	58.0	38.1	134.6	23.0	75.7
1970		36.4	132.6	21.6	67.4
1971		35.6	122.2	21.0	74.9
1972					62.7
1973					

INFANT MORTALITY RATES

Asia

(per 1000 live births)

Year	West Malaysia (Malaysia before 1954)	Philippines	Singapore	Syria	Thailand
1920-24	156.9	229.7			
1925-29		155.4	212.4		61.2
1930-34		152.7	185.0		93.0
1946	91.7	125.5	89.7	48.9	94.6
1947	102.2	115.5	87.3	62.4	79.8
1948	89.6	114.4	80.8	47.6	68.1
1949	80.6	108.5	72.0		68.2
1950	101.6	101.7	82.2		62.4
1951	97.3	104.2	74.9	40.1	65.3
1952	90.0	108.7	69.8	43.1	63.3
1953	83.4		66.9	44.0	64.9
1954	83.1		56.0		
1964	48.4	70.5	29.9		37.8
1965	50.0	72.9	26.3	22.3	31.2
1966	47.9	72.0	25.8	28.2	33.5
1967			24.8		
1968					
1969	43.2	67.3	20.7	25.0	26.2
1970	40.8	60.0	20.5	24.5	25.5
1971	38.5	62.0	20.1	24.0	22.5
1972	37.9	67.9	19.2	21.7	27.0
1973	38.5	74.2	20.3		21.8
1974	35.4	58.9	16.8		
1975			13.9		26.3
1976			11.6		

INFANT MORTALITY RATES

Europe

(per 1000 live births)

Year	Austria	Belgium	Bulgaria	Czecho-slovakia	Denmark	Finland	France
1920-24	141.6	108.2	156.8	160.0	82.4	97.9	97.1
1925-29	120.0	101.3	149.8	145.8	82.2	89.8	91.4
1930-34	100.2	91.6	144.1	128.5	73.1	73.9	80.1
1946	81.4	74.8	125.1	108.8	45.8	56.2	71.9
1947	78.3	68.7	129.5	88.9	40.4	58.5	70.6
1948	76.2	59.1		83.5	35.3	51.9	55.9
1949	75.2	57.2		82.4	34.5	48.3	60.2
1950	66.1	53.4		77.6	30.7	43.5	52.0
1951	61.3	50.0		73.4	28.9	35.4	50.8
1952	50.6	44.8	101.0	56.0	28.9	31.8	45.2
1953	49.9	41.9		45.0	27.2	34.2	41.9
1954	48.3	49.1		37.0	26.9	30.7	
1964	29.2	25.3	32.9	21.4	18.7	17.0	23.3
1965	28.3	24.1	30.8	25.5	18.7	17.6	21.9
1966	28.1	24.7	32.2	23.8	16.9	15.0	21.7
1967	26.4	23.4	33.1	22.9	15.8	14.8	20.7
1968	25.5		28.2			14.0	20.4
1969	25.4	21.3	30.5	23.1	14.8	14.3	19.8
1970	25.9	21.1	27.3	22.1	14.2	13.2	18.2
1971	26.1	20.4	24.9	21.7	13.5	12.7	17.1
1972	25.2	18.8	26.2	21.4	12.2	12.0	16.0
1973	23.8	16.9	26.2	21.3	11.5	10.6	15.5
1974	23.5	17.4	25.5	20.4		10.2	12.1
1975	20.5		22.9	20.9	10.5		11.3
1976						10.5	

INFANT MORTALITY RATES

Europe
(cont.)

(per 1000 live births)

Year	Germany*	Greece	Hungary	Iceland	Ireland	Italy	Luxem-bourg	Malta
1920-24	127.2	84.8	192.2	60.2	71.5	128.8	106.3	265.6
1925-29	98.1	94.2	175.1	53.4	70.3	127.2	112.9	273.9
1930-34	77.8	118.9	156.7	46.7	67.5	105.6	88.1	278.8
1946	90.2		116.5	28.5	64.6	86.7	74.9	130.8
1947	83.8		102.7	22.4	67.9	84.2	60.1	120.3
1948	67.9		91.1	26.2	50.3	72.1	56.8	113.0
1949	58.4			23.7	53.2	73.9	45.7	83.8
1950	55.5		85.7	21.7	45.3	63.8	45.7	88.5
1951	53.4		83.9	26.0	46.0	66.5	41.7	99.8
1952	48.2		69.9	21.4	41.4	63.4	44.0	71.9
1953	46.2		70.8	17.1	39.4	58.4	41.7	64.8
1954	42.8		60.7		37.9	52.8	43.8	67.0
1964	28.8	35.8	40.0	17.5	26.7	36.1	29.8	33.8
1965	24.8	34.3	38.8	15.0	25.2	36.0	24.0	34.8
1966	27.8	34.0	38.4	13.8	24.9	34.7	26.8	30.1
1967	21.2	34.3	37.0	13.3	24.4	32.8	20.4	27.3
1968	20.4	34.4					17.0	27.4
1969	23.4	31.8	35.7	11.7	20.6	30.8	16.7	24.3
1970	23.6	29.6	35.9	13.2	19.6	29.6	24.6	27.9
1971	23.3	26.9	35.1	12.9	18.0	28.5	20.4	23.9
1972	22.7	27.3	33.2	11.6	18.0	27.0	13.5	
1973	22.9	24.1	33.8		17.8	25.7	15.5	24.7
1974	21.1	23.9	34.3		17.1	22.6		20.8
1975	19.8	24.0	32.6	12.5		20.7		18.9
1976			29.7				17.9	16.9

INFANT MORTALITY RATES

Europe

(cont.)

(per 1000 live births)

Year	Netherlands	Norway	Poland	Portugal	Romania	Spain	Sweden
1920-24	74.4	53.3		152.8	206.9	148.2	61.4
1925-29	57.9	50.4	148.6	142.2	195.2	127.8	57.7
1930-34	46.7	45.2	139.6	144.7	179.3	118.0	51.9
1946	38.7	34.6		119.4	164.1	92.4	26.5
1947	33.5	34.6		107.3	198.8	76.1	25.4
1948	29.3	29.6	111.1	100.2		70.0	23.2
1949	26.8	27.7	107.1	114.5		74.6	23.3
1950	25.2	28.2	107.8	94.1		69.8	21.0
1951	25.1	25.7		89.1		68.2	21.6
1952	22.5	23.7		94.3		60.8	20.0
1953	22.1	22.0	83.0	95.5	96.0	58.9	18.7
1954	21.1			85.5		54.2	18.5
1964	14.8	16.4	47.7	69.0	48.6	39.2	14.2
1965	14.4	16.8	41.7	64.9	44.1	37.8	13.3
1966	14.7	14.6	38.9	64.7	46.4	36.0	12.6
1967	13.4		38.1	59.2	46.6	33.2	12.9
1968					59.5	32.0	
1969	13.2	13.8	34.3	56.8	54.9	29.7	11.7
1970	12.7	12.8	33.2	58.0	49.4	27.9	11.0
1971	12.1	12.8	29.5	49.8	42.4	18.9	11.1
1972	11.7	11.8	28.4	41.4	40.0	16.4	10.8
1973	11.5	11.9	25.8	44.8	38.1	15.3	9.9
1974	11.3	10.5	23.5	37.9	35.0	13.8	9.6
1975	10.6	11.1	24.8		34.7	12.1	8.3
1976	10.5		23.8				8.7

South America

Year	Argentina	Bolivia	Chile	Colombia	Ecuador	Paraguay	Peru	Uruguay	Venezuela
1920-24			266.4	104.8				105.8	
1925-29			233.2	132.8				101.3	150.2
1930-34			244.0	119.7	146.9	81.7		99.4	152.4
1946	74.0	113.1	137.2	150.4	132.8	52.0	113.5		102.1
1947	77.7	132.6	145.1	139.7	122.0	72.5	106.8		99.6
1948	69.5	133.5	147.0	136.1	122.4	75.8	109.0		97.8
1949	67.0	127.2	155.2	134.1	115.2		105.2		90.7
1950	68.2		139.4	123.9		62.3	103.7		80.9
1951	67.4	116.7	135.5	119.9			104.6		79.8
1952	64.9		129.2	110.7			100.0		79.5
1953	65.2	101.7	112.4	111.0			98.2		67.9
1954	61.9		123.8	102.7					68.0
1964	59.2	76.7	108.5	83.3	94.0	40.3	77.9	44.6	48.7
1965	58.3	76.5	101.7	82.4	93.0	41.5	95.2	49.8	47.7
1966	59.3	77.3	108.2	80.0	90.4	39.9	67.0	43.3	46.5
1967	58.3		99.9	78.3		36.7	61.9		45.5
1968									
1969			87.5		91.0	32.9		48.7	46.9
1970	59.0		78.8		76.6	33.3	65.1	42.6	48.7
1971			77.8	62.8	78.5	38.6		40.4	50.2
1972					81.9		58.2	45.4	
1973				97.1	75.8				53.8
1974					70.2			48.1	46.0
1975			55.6						
1976									

INFANT MORTALITY RATES

North America

(per 1000 live births)

Year	Barbados	Belize	Costa Rica	Cuba	Dominican Republic	El Salvador	Guatemala
1920-24			178.2	162.8		134.4	86.6
1925-29	280.1		168.9	120.1		138.9	94.4
1930-34	242.4	110.3	156.4	84.8		139.4	93.0
1946	159.7	105.1	101.6		89.4	113.0	114.5
1947	166.3	120.1	84.4		98.9	96.4	109.9
1948	154.1	105.3	124.8		81.3	100.4	117.4
1949	128.7	104.4	119.6		80.9	93.3	101.7
1950	125.2	106.9	112.1		87.7	81.2	106.8
1951	136.5	94.7	108.8		79.0	76.8	92.0
1952	145.5	78.6	110.7		78.7	85.4	112.2
1953	138.6	87.4	113.1		74.2	82.7	103.0
1954	109.4	93.5	101.2		68.3	81.5	87.9
1964	52.1	54.1	82.5	37.8	79.0	65.0	87.9
1965	39.5	48.5	75.0	38.4	72.7	70.6	92.6
1966	47.7	50.0	69.9	37.6	81.1	62.0	91.5
1967	54.1	60.0			80.4	63.1	
1968							
1969	41.8		67.1	47.4	61.9	63.3	91.3
1970	46.5	50.7	61.5	35.9	50.1	66.7	87.1
1971	29.2	30.9	56.5	34.4	48.8	52.5	81.6
1972	30.9	33.7	54.4	27.5	49.2	58.3	79.0
1973	37.7		44.8	28.9	38.6	59.1	79.6
1974			37.6		43.4	53.5	
1975			38.2	27.3		58.3	
1976							

INFANT MORTALITY RATES

North America
(cont.)

(per 1000 live births)

Year	Canada	Jamaica	Mexico	Nicaragua	Panama	Puerto Rico	Trinidad & Tobago	U.S.
1920-24	104.7	175.5	225.9				140.9	78.7
1925-29	94.3	166.3	194.3				131.0	69.0
1930-34	79.8	143.7	135.1	105.3		128.3	127.9	60.4
1946	47.6	89.5	110.8	101.2	62.0	83.7	78.6	33.8
1947	46.1	92.2	95.0	94.2	66.5	71.5	81.5	32.2
1948	44.2	86.7	101.7	95.1	60.6	78.3	75.5	32.0
1949	43.3	80.7	106.4	123.3	70.7	67.7	80.0	31.3
1950	41.3	78.3	96.2	82.0	68.4	67.5	80.3	29.2
1951	38.4	81.2	98.8	70.4	58.5	67.1	78.2	28.4
1952	38.0	75.1	89.8	77.5	50.6	66.4	89.1	28.4
1953	35.4	64.1	95.2		53.7	62.8	69.9	27.7
1954	31.8	66.1	80.5	74.5	50.4	57.3	61.3	26.8
1964	24.7	39.8	64.5	54.5	42.7	51.6	35.3	24.8
1965	23.6	37.4	60.7	51.6	44.7	42.8	38.1	24.7
1966	23.1	35.4	62.9	55.4	45.0	36.7	41.8	23.7
1967	22.0	31.0	63.1		42.7	30.9		22.4
1968						28.3		21.7
1969	19.3	33.4	68.4	45.3	39.9	29.7	39.8	20.7
1970	18.8	32.2	66.5		40.5	28.6	34.4	20.1
1971	17.6	27.1	63.3	45.0	37.6	27.5	28.5	19.2
1972	17.1	30.9	60.9		33.7	27.1	26.2	18.5
1973	15.6	26.2	52.0	46.0	33.4	24.2	24.6	17.7
1974	15.0	26.3			32.9			16.7
1975		23.2	49.7				33.9	16.1
1976					35.6			

INFANT MORTALITY RATES

(per 1000 live births)

Year	Switzerland	United Kingdom			Yugoslavia	Oceania	
		England & Wales	Northern Ireland	Scotland		Australia	New Zealand
1920-24	70.3	77.1	84.0	92.0		61.0	44.9Eur
1925-29	55.5	70.9	82.5	87.0	149.3	53.2	37.8Eur
1930-34	49.0	62.7	74.6	82.0	154.9	42.9	32.4Eur
1946	39.2	40.9	54.0	53.8		29.0	32.0
1947	39.3	41.8	53.0	55.8		28.5	29.9
1948	35.9	34.5	45.6	44.7		27.8	27.7
1949	34.3	32.7	45.2	41.4	102.1	25.3	30.0
1950	31.2	29.9	40.5	38.6	118.6	24.5	27.6
1951	30.1	29.8	41.2	37.4	140.0	25.2	27.5
1952	29.1	27.5	38.8	35.2	105.1	23.8	28.4
1953	29.8	26.8	37.6	30.8	116.3	23.3	25.7
1954	27.2	25.5	33.0	31.0	101.8	22.5	24.1
1964	19.0	19.9	26.3	24.0	75.8	19.1	19.1
1965	17.8	19.0	25.1	23.1	71.8	18.5	19.5
1966	17.1	19.0	25.6	23.2	62.1	18.2	17.7
1967	17.5	18.3	23.5	21.0	61.4	18.3	18.0
1968		18.3	24.0	20.8			18.7
1969	15.4	18.0	24.4	21.1	57.3	17.9	16.9
1970	15.1	18.1	22.9	19.6	55.5	17.9	16.7
1971	14.4	17.5	22.7	19.9	49.5	17.3	16.5
1972	13.3	17.2	20.5	18.8	44.4	16.7	15.6
1973	13.2	16.9	20.9	19.0	44.2	16.5	16.2
1974	12.5	15.8	20.9	18.9	40.0		
1975	10.7	15.7	20.4	17.0	40.5	14.3	16.0
1976					36.3		