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DEPARTMENTS OF LABOR, AND HEALTH, EDUCATION, AND WELFARE APPROPRIATIONS FOR 1969

HEARINGS

BEFORE A

SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS HOUSE OF REPRESENTATIVES

NINETIETH CONGRESS

SECOND SESSION

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PART 4

PUBLIC HEALTH SERVICE
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DEPARTMENTS OF LABOR, AND HEALTH, EDUCATION, AND WELFARE APPROPRIATIONS, 1969

WEDNESDAY, MARCH 6, 1968.

PUBLIC HEALTH SERVICE

STATEMENT OF THE SURGEON GENERAL

WITNESSES

DR. WILLIAM H. STEWART, SURGEON GENERAL
DR. LEO J. GEHRIG, DEPUTY SURGEON GENERAL
JOHN H. KELSO, EXECUTIVE OFFICER
CHARLES MILLER, CHIEF FINANCE OFFICER
G. RICHARD CLAGUE, DEPUTY CHIEF FINANCE OFFICER
JAMES B. CARDWELL, DEPUTY ASSISTANT SECRETARY, BUDGET

Mr. FLOOD. Now we have the pleasure of having with us Dr. William H. Stewart, who will present the Public Health Service justification.

BIOGRAPHICAL SKETCH OF THE SURGEON GENERAL

You have a biographical sketch which is most impressive, and if there is no objection, we will place that in the record.

(The biographical sketch follows:)

WILLIAM H. STEWART, M.D.

William H. Stewart, M.D., was named Surgeon General of the Public Health Service by President Lyndon B. Johnson on September 24, 1965. Six days later, the U.S. Senate confirmed his appointment as 10th Surgeon General in the 167-year history of the Service.

Born in Minneapolis, Minn., on May 19, 1921, he attended the University of Minnesota and Louisiana State University, and received his medical degree from Louisiana State University School of Medicine in 1945. His internship at Philadelphia General Hospital was followed by 2 years' duty with the U.S. Army Medical Corps. Upon completion of his residency in pediatrics at Charity Hospital, New Orleans, he was in private practice in Alexandria, La., until he entered the Public Health Service in 1951. He was certified by the American Board of Pediatrics in 1953.

His first 2 years as a Public Health Service career officer were spent in Thomasville, Ga., where he headed the epidemiological unit of the Communicable Disease Center. He came to PHS headquarters in 1953 to serve the next 4 years with the National Heart Institute and the heart control program of the Bureau of State Services. The next 8 years, he spent in a staff capacity, first to the Surgeon General and, later, to the Secretary of Health, Education, and Welfare.

In 1957, he became assistant to the Surgeon General and the following year was named chief of the Division of Public Health Methods, major staff planning arm to the Surgeon General. During the 3 years he held that post, he also served as executive director of the Surgeon General's committee on medical manpower which issued "Physicians for a Growing America." He was also a member of the study group on the mission and organization of the Public Health Service, and was staff director for the study of environmental health, conducted

by the National Advisory Health Council and for the special report of the same Council on the role of the Service in medical care.

In early 1963, after organizing the new Division of Community Health Services, he was named to the immediate Office of the Secretary of HEW as Assistant to the Special Assistant to the Secretary (Health and Medical Affairs). He left that post in August 1965 to become Director of the National Heart Institute, and was named Surgeon General the following month.

Dr. Stewart is author of scores of publications and presentations dealing with a wide range of public health issues including spread and control of various diseases, health status of the population, education for the medical and health professions, and medical care administration.

He is a member of the American Academy of Pediatrics, the American Medical Association, the American Heart Association and the American Public Health Association.

Mr. FLOOD. You may proceed with your statement, Doctor.

GENERAL STATEMENT

Dr. STEWART. Mr. Chairman and members of the committee, it is a pleasure for me to appear before you in support of the Public Health Service budget request for the 1969 fiscal year. Since my associates will be presenting detailed accounts of many of the programs under our administration, I thought I would present to you a brief accounting of the state of the Nation's health, and a general review of the year just past.

This has been, as you know, a period of transition for the Public Health Service.

It was also a year of progress—both in the discharge of the mandates given to us by the Congress and in the advancing level of health of the American people.

Health ranks very high on the list of priorities of our American society. We take pride in the health of the Nation, and the most recent statistics indicate that we have much to be proud of.

INFANT MORTALITY RATES

A child born in the United States has a life expectancy at birth of slightly more than 70 years. Our infant mortality rate declined substantially in 1967 to the lowest point we have ever recorded—about 23 deaths during the first year of age per 1,000 live births. Maternal deaths due to complications of pregnancy are also moving downward.

Mr. FLOOD. Is that good?

Dr. STEWART. Yes, sir. It is not as good as some other nations in the world, though.

Mr. FLOOD. What do you mean by that?

Dr. STEWART. There are about 10 nations that have lower infant mortality rates than the United States.

Mr. FLOOD. I thought it was more than that.

Dr. STEWART. It depends on whether you use 1966 figures or 1967 figures. We did have the decline in 1967 which changes it. I believe the President said 10th in the world.

Mr. CARDWELL. There were 12 when we testified last year.

Mr. FLOOD. Why would that be? It is not just a matter of medicine, is it?

Dr. STEWART. It is not just medicine. Some of it can be the homogeneity of population in some countries versus the nonhomogeneity in others.

Mr. FLOOD. What does that mean?

Dr. STEWART. The United States is a melting pot. Other nations were not necessarily a melting pot but were single ethnic groups.

Mr. FLOOD. I remember when I was in Germany during the war it occurred to me there was something funny about a particular town. I did not know what it was. Then I realized that everybody looked alike and they all went to the same church.

Dr. STEWART. That is what I mean.

DEATH RATES FROM VARIOUS DISEASES

Moreover, our death rate as a whole, while remaining substantially the same for the population between 15 and 55 years of age, shows a significant decline among the younger and older age groups. In terms of specific diseases, deaths from cardiovascular disease were down 3.3 percent from 1966 figures, from diabetes about 6 percent, and from tuberculosis 16 percent.

Mr. FLOOD. Are these figures impressive?

Dr. STEWART. Yes, they are, because it was not until recently that we began to have a decline in cardiovascular deaths.

INCREASE IN DEATHS DUE TO HOMICIDE

On the negative side of the ledger, the largest proportional increase in 1967 as compared with 1966 was the 10-percent rise in deaths due to homicide—a fact of grave concern to all agencies, including our own, which deal with the health of the American society.

Mr. FLOOD. What in the world do you have to do with that?

Dr. STEWART. We have a great deal to do.

Mr. FLOOD. Do you do supportive work under the Gun Control Act?

Dr. STEWART. No, sir; we do a fair amount of work through the National Institute of Mental Health on the factors that make society unstable.

INCREASE OF DEATHS FROM CANCER

Cancer deaths increased about 3 percent over the previous year.

Mr. FLOOD. There are many kinds of cancer.

Dr. STEWART. That is correct, but the number of cancer deaths has been increasing for some time. The number of cases of cancer has been increasing. We cure a lot more cancer. The net is a 3-percent increase in death rates.

Mr. MICHEL. When you come to this conclusion, is it partially due to the increase in the population? There are more people dying this year than last year because we have an ever-growing population.

Dr. STEWART. The population wave has not hit the older age groups yet. I do not know what rate this would figure out to be.

Mr. MICHEL. I want to know if it is a percentage increase in deaths, or actual count.

Dr. STEWART. It is the count of deaths last year and the count of deaths this year which shows a 3-percent rise.

VARIOUS KINDS OF CANCER

Mr. FLOOD. How many different kinds of cancer are there?

Dr. STEWART. I think it is on the order of 60 or 70 or even more, clinically distinct types of cancer. Cancers are classified by the cell type.

Mr. FLOOD. Many you can handle within reason?

Dr. STEWART. Yes, sir; the amount that have been cured, or the number that are being cured, is increasing.

Mr. FLOOD. There are certain cancers you can actually cure, period?

Dr. STEWART. That is right.

Mr. FLOOD. Out of the 60, what would you say as a guess? How many types and kinds can you cure, period?

Dr. STEWART. I cannot really give you that figure. But I can say, about one out of three are cured.

CHRONIC DISEASE

Our estimates of the number of Americans afflicted to some degree by one or more chronic disease problems rose from 93.5 million to over 96 million.

Mr. FLOOD. What is a chronic disease?

Dr. STEWART. One that exists over a long period of time, usually when the cause is not known, but not necessarily.

Mr. FLOOD. It does not mean incurable?

Dr. STEWART. No. It means over a long period of time.

Mr. SMITH. Your statistics indicate that approximately one out of every two in the United States has a chronic disease.

Dr. STEWART. That is about right; yes. These chronic diseases range all the way from hay fever, to asthma, to arthritis, so it is a wide range.

Mr. FLOOD. A chronic disease is not necessarily serious or fatal or very bad. It is a chronic disease by degree.

Dr. STEWART. That is correct. We also go on to measure how much disability there is, and we measure disability on how many workdays were missed because of a condition or how many days were spent in bed. We have those figures.

Mr. SMITH. I think we should have those figures.

Dr. STEWART. I do not have them with me but I can get it for you.

(The information follows:)

Three out of every four deaths in the United States are attributed to chronic disease. Half the population is estimated to have one or more chronic diseases. In 1966, this resulted in 11 out of a hundred people being limited in activity, with two out of a hundred being limited in their major activity. Almost a billion and a half days of restricted activity stemmed from chronic disease; half a billion of them were days of bed disability and over 150 million were days lost from work by the noninstitutional population.

Dr. STEWART. In the national health survey we measure chronic illness by asking questions of people.

NATIONAL HEALTH SURVEY

Mr. FLOOD. What is the national health survey?

Dr. STEWART. The national health survey is a sample of the population of the United States taken by the National Center for Health Statistics in the PHS.

Mr. HULL. How do they select the people?

Dr. STEWART. They draw a sample of the United States, a rolling sample that is changed every 2 weeks.

Mr. HULL. In different areas.

Dr. STEWART. Yes; it is all over the United States.

It gives you national figures. It won't give you any figures you can relate to a region or city.

INJURIES FROM ACCIDENTS

The number of people injured in accidents of all kinds went up from 45 million in 1966 to almost 52 million in 1967; although, interestingly, the number injured in accidents involving moving motor vehicles declined by about 400,000 during the year—a decrease which we hope may reflect in part the increasing availability and use of safety devices in automobiles.

Mr. FLOOD. What was that?

Dr. STEWART. The number involved in accidents involving moving motor vehicles declined about 400,000 during the year.

Mr. FLOOD. This fact is much to the contrary of the general opinion of the fellow on Main Street. Why is this not publicized?

Dr. STEWART. Dr. Haddon from the Department of Transportation gave it in a speech.

Mr. SMITH. What happened to the deaths?

Dr. STEWART. The deaths fell a little bit but not very much. This was injuries. We hope this reflects in part some of the safety devices, but it is hard to tell whether it is that or the general concern about injuries. In general, this is the health record of a healthy nation. Yet, as this committee is well aware, it is a record that leaves no room for complacency. National averages, reflecting the population as a whole, tend to mask very serious problems among certain groups of our people.

HEALTH CARE

American medicine at its best is unsurpassed anywhere in the world. Unhappily, American health care at its best is still extremely difficult for millions of our people to obtain.

Mr. FLOOD. How long has it been, Doctor, since you took a pulse at a bedside?

Dr. STEWART. As a practicing physician, in 1951.

People are still separated from health care by economic, geographic, and social barriers, by shortages of critical manpower and other resources, and by our lack of coordinated, comprehensive patterns of service designed to make the right care available to the right person at the right time.

DELIVERY OF HEALTH SERVICES

As you know, Mr. Chairman, we have embarked in the past 3 years on two major and highly significant new approaches to the delivery of care. I refer to the regional medical programs authorized by Public Law 89–239, and the partnership for health program embodied in Public Law 89–749, as extended and amended last year by the 90th Congress. Both of these acts are based to an almost unique degree on local initiative. They call for flexible Federal support of programs

designed and developed in the regions, States, and communities to meet top priority needs as seen by local people—both the providers of services and those who need them. I am happy to report that, although both programs are still in their early developmental stages, we are already finding across the Nation the creative and imaginative response on which their success depends.

COMPREHENSIVE HEALTH PLANNING

Although the partnership for health program has been underway considerably less than a year——

Mr. FLOOD. What is this program?

Dr. STEWART. Public Law 89-749 as amended last year. The partnership is the partnership between Federal, State, and local government and nongovernment. These programs are Federal programs, and they are State programs. It was an attempt to revamp our old Federal-State programs. We have only been underway less than a year and we are hopeful it will be very successful.

In addition, we put comprehensive health planning into this act. It is a partnership between both public and private health areas.

Mr. FLOOD. At this early stage are you getting cooperation from the so-called private sector?

Dr. STEWART. We certainly are.

All but one of the 55 States and territories have now designated a single agency to administer their comprehensive health planning responsibility as required by the act, and 33 State plans have been approved.

Mr. FLOOD. Who approves them?

Dr. STEWART. Approved by the Surgeon General. The majority of these State planning agencies—33—are located within the State health department. Sixteen are located in the Office of the Governor, and the remainder are of the interagency or commission type.

Mr. FLOOD. Do you have any special preference?

Dr. STEWART. No, we do not.

State advisory councils to these planning agencies, also required by the law, are now in process of formation. A majority of the members of these councils must represent consumers rather than providers of health services. Meanwhile, regional advisory councils, which will advise our regional health directors in the administration of the programs, are already functioning in regions I, III, IV, V, and VII.

Mr. Flood, when I said the Surgeon General approves, this is in fact being done in the regional offices.

Mr. FLOOD. What is the regional health director?

Dr. STEWART. The regional health director is the Public Health Service representative in the HEW regional offices.

Mr. FLOOD. How many are there?

Dr. STEWART. Nine.

REGIONAL ADVISORY COUNCIL

Mr. FLOOD. What is a Regional Advisory Council?

Dr. STEWART. It is made up of citizens from the region who are knowledgeable in the health field to advise him on these State programs.

Mr. FLOOD. Who appoints them?

Dr. STEWART. They are appointed by me.

Of the professional planning staffs designated so far by the States, about half the members come from outside the traditional health professions. Thus, the States are employing economists, public administrators, and others with the special competencies needed for the development of information systems and cost-benefit, cost-effectiveness analyses that will enable them to establish health priorities.

To create urgently needed expertise in the planning process, graduate curriculums in health planning are being developed in a number of universities, supported by PHS grants.

GRADUATE DEGREES FOR NONMEDICAL PROFESSIONS

Mr. FLOOD. How many universities in this country give graduate degrees in this area of public health?

Dr. STEWART. Graduate degrees?

Mr. FLOOD. To the nonmedical people.

Dr. STEWART. All the schools of public health give graduate degrees to nonmedical people. An engineer can get a master's degree in public health from any of the schools of public health. There are also graduate degrees in hospital administration which also could be nonmedical.

This year, the larger part of the funds available for health services project grants will be used to continue support for projects already in operation. But the requests for new projects which are coming in touch upon new areas—health counseling, family planning, information and referral services, alcoholism. Many propose projects in connection with model cities demonstrations and neighborhood service centers, and other federally assisted programs.

MODEL CITIES PROGRAM

Mr. FLOOD. There is great interest in this model cities program. How are you identified with that?

Dr. STEWART. We are identified in the sense that the use of our mechanisms of project grants for health services within a model cities area is fitted into the total program for the model cities rather than individual project grants.

Mr. FLOOD. And you cooperate from your regional office?

Dr. STEWART. Yes, we do, with the HUD regional office.

Mr. FLOOD. You go and meet with these local mayors and commissioners and what not?

Dr. STEWART. That is right.

Mr. FLOOD. What do you do? Here is an area of 20 square blocks and here is a commission and they are all set up under model cities, what do you do?

Dr. STEWART. If they want a neighborhood health center, we can make a grant to help finance the operation of it.

Mr. FLOOD. It is not bricks and mortar?

Dr. STEWART. No, the bricks and mortar part would not come from us. That would be almost entirely HUD. We have set aside from our project grant money about $5 million that might flow into this area if we get the applications in.

At the present time we have about $3½ million worth of applications against that $5 million that will go into either neighborhood health centers or mental health clinics in these designated areas.

This, I think, fits in with our own priorities for funding of project grants to give primary consideration—within the context of the development of comprehensive health services—to these and all other projects intended to serve the urban and rural poor and to improve their health status. The Nation has no higher health priority.

PROJECT GRANTS TO RURAL AREAS

Mr. FLOOD. How do you serve the rural people?

Dr. STEWART. Again in two ways and perhaps more than two. A project grant such as I am talking about could go for a rural area as well as for an urban area.

Mr. FLOOD. How do you make a grant to a rural area?

Dr. STEWART. There has to be something there that initiates this.

Mr. FLOOD. What would it be?

Dr. STEWART. It could be a local health department. Sometimes it is a church group.

Mr. FLOOD. How would that be done, Mr. Hull, in a rural area? This fellow wants to make a grant to a rural area.

Mr. HULL. As I understand it, they designate a rural area. The Smithville Hospital is in a so-called rural area.

Dr. STEWART. A hospital could be a grantee. It could be the local government. It could be a nonprofit public or private organization.

Mr. HULL. In some of the smaller communities where they band together.

Dr. STEWART. That is correct. As far as we are concerned, it is any organization that is capable of handling the money and carrying out whatever program is being proposed.

Mr. FLOOD. But your regional office people administer this?

Dr. STEWART. That is right.

REGIONAL MEDICAL PROGRAMS

The regional medical program I think has been progressing extremely well. Active planning—by local health organizations, institutions, and practitioners and by consumers of health services—is being supported in 54 regions which encompass our entire population. Five of the programs have received grants to begin operations.

Mr. FLOOD. There are 54 regional medical programs?

Dr. STEWART. Planning programs. My statement shows that five of the programs have received grants to begin operations. There are now eight instead of five.

Mr. FLOOD. We touched on that with Mr. Cohen.

Dr. STEWART. In keeping with the original intent of the legislation to encourage local initiative, regional boundaries have been defined at the local levels to help assure that resources are logically grouped to meet regional needs. As the planning proceeds and these needs and resources are more precisely identified, these boundaries are subject to change. At present 32 of the regions approximate State lines, 16 are parts of States, and six cover more than one State.

In 30 of the regions, the coordinating headquarters are medical schools and universities; in five others, medical societies. State and interstate agencies have primary responsibility in two regions. In 15 of the regions, brandnew institutions have been created specifically for the purpose of carrying out the RMP's.

The operational phase of the RMP's has necessarily taken longer to get underway, but applications for operational grants have now been received from 15 RMP's, and by June of this year we expect to have received applications from 10 more. Five regions already have been awarded roughly $7.6 million.

We have been particularly pleased with the caliber of leadership attracted to this program. The regional coodinators include among their number university vice presidents, deans, and other distinguished leaders in medicine, education, and public health. The strength of this leadership and the progress of the program to date were clearly evident in a meeting held this past January here in Washington, in which the regional coordinators exchanged experiences and views with our staff.

HOSPITAL CONSTRUCTION

In fiscal year 1967 a total of 679 Hill-Burton construction projects were approved. When completed these projects will add over 30,000 hospital and nursing home beds to our national resource, serving many thousands more people in need of health care. In its history which now spans 20 years, the Hill-Burton program has helped to provide more than 300,000 beds in medical facilities across the Nation and brought hospital care within convenient geographic reach of virtually every community.

DIRECT HEALTH SERVICES

Our hospital and clinic system, while continuing its basic mission of providing direct health services to designated beneficiaries, is also increasing its commitments to research, training, and community services. We are using our direct health care facilities as an important intramural setting for research in the delivery of health services. We have provided all or part of their training to more than 1,800 health workers in these facilities during fiscal year 1967. The hospital system has also participated in community health projects in collaboration with Federal, State, local, and private agencies in all phases of the provision of direct health care.

INDIAN HEALTH

About 90,000 American Indians and Alaskan natives were admitted for treatment to our Indian health program facilities and contract hospitals during fiscal year 1967. Our hospitals and clinics also recorded more than 1½ million outpatient visits and services during the year. These services and others provided to these beneficiary groups since the PHS assumed responsibility for Indian health in 1955 have resulted in significant improvements in such critically important health indexes as infant and maternal mortality, incidence of tuberculosis and other diseases, and life expectancy.

DEVELOPING HEALTH MANPOWER

Fiscal 1967 brought the initiation of the varied programs of education assistance authorized by the Allied Health Professions Personnel Training Act. One hundred ninety-two training centers received grants to improve 395 allied health professions curriculums in which more than 11,000 students were enrolled. More than 300 members of these professions will receive in 1968 traineeships for advanced study in preparation for positions as teachers, administrators, supervisors, and specialists. With Federal grants, six institutions are developing and evaluating curriculums for training new types of health technologists.

Construction grants awarded through January 1, 1968, under the Health Professions Educational Assistance Act, since its inception are adding 3,848 additional first-year student places. These will expand our national educational capacity by more than 1,500 medical students, nearly 700 dental students and 800 nursing students, and smaller numbers in other health professions. Also through January 1, 1968, construction projects in schools of nursing, aided by Federal grants authorized by the Nurse Training Act, are providing nearly 3,000 new places for first-year students and maintaining over 12,000 places that might otherwise have been lost.

TRAINING PERSONNEL TO ASSIST NURSES

Mr. FLOOD. I am advised that about 35 to 40 percent of a nurse's time on the floor is engaged in paperwork. I do not like the idea of nurses being handmaidens to patients. I do not like the idea of a patient with or without reason pushing a button alongside of a bed and the light goes on and a nurse has to dash down the hall a half mile to hand somebody a glass of water or bring in some soap. These are professional people of high training and skill and dedication. I am annoyed by the idea of seeing them running around as handmaidens. Are you concerned about that?

Dr. STEWART. Very much so, Mr. Chairman.

Mr. FLOOD. Can't you get somebody to do that and the paperwork? There is, of course, this new concept of floor manager.

Dr. STEWART. Actually, the figures you cited were developed through studies that were done by the Division of Nursing in the Public Health Service. We were trying to find out how much nonprofessional work nurses were doing and came up with the idea of the floor manager, and the person who can administer the wards or the floors or the beds units while the nurses devote more of their time to professional work. The programs that I have described here are for the training of the professionals, and not particularly this type of individual.

Mr. FLOOD. I was talking about what I was talking about.

Dr. STEWART. We are very anxious to promote it. There are training programs that have been developed under vocational educational programs. Also, the vocational education programs train the licensed practical nurses.

Mr. FLOOD. Do you as Surgeon General think that a bona fide major effort is being made? I think this is of extreme importance. We are so short of nurses and it is such a waste.

Dr. STEWART. I think there has been more effort put on in this last year or a year and a half. I think what really began the effort was, first, the studies that have been done that revealed the data, and second, the nurses themselves.

Mr. FLOOD. I thought perhaps the record I built since I came with this subcommittee a few years ago might have helped.

Dr. STEWART. Third, the rising cost of hospital care, which is 60 or 70 percent in this field.

Mr. FLOOD. Some of us are concerned about this waste of nurse power. I am glad you are.

Dr. STEWART. It is quite possible under the Allied Health Professions Act, with the new curriculums that they are developing within the community colleges, that that is a place where we could support training programs.

Mr. FLOOD. In junior colleges? This is a 2-year technical training course.

Dr. STEWART. Yes.

Mr. FLOOD. I am very much interested in that.

Dr. STEWART. We are just finishing our first year of experience in this program. The idea of the project grants was to try to develop new curriculums for skills that would fit into the mix of all the skills in the health profession.

Mr. FLOOD. I talked to these nurses and asked "Where were you born?" and "How old are you?" They are very efficient, sharp people, you know, nine and a half out of 10. "What time did you come on duty?" and "When do you go off?" Then I put a bathrobe on and walk up and down the hall to get a little exercise and I see a light go on and I see this very intelligent highly trained person rushing down the hall past me, 200 feet, and I stand there. She comes back out and I ask her, "Is it proper for me to ask you what you did in that room?" She said, "Yes." I said, "What did you do?" She went down there because this patient could not reach a clock. A clock had moved over on a table. This nurse had to rush down there at 3 o'clock in the afternoon, leaving paperwork, which is bad, too, to put this clock within reach of this patient.

Dr. STEWART. This is a beautiful example of the poor utilization of skills. We do not have enough professional nurses.

Mr. FLOOD. I am speaking of a first-class hospital.

Dr. STEWART. That is right. This is true all through the hospital system.

EDUCATIONAL IMPROVEMENT GRANTS

Over the past 2 years, fiscal 1966 and 1967, over $40 million has been awarded to 170 professional schools for educational improvement.

Mr. FLOOD. What kind of professional schools?

Dr. STEWART. A variety of professional schools, medical schools, optometry, schools of public health. In a sense it is an institutional grant to improve the educational programs. It is a formula grant.

In fiscal 1967, approximately 3,800 students of the health professions held scholarships averaging about $800. This year, some 7,600 nursing students of exceptional financial need will receive scholarship aid through nursing education opportunity grants awarded to the school.

More than 72,000 health professions students and 57,000 nursing students have received federally financed loans since September 1964.

MEASLES PROGRAM

Last year's intensive immunization effort against measles has sharply reduced the incidence of this disease. The preliminary estimate is 62,232 cases in 1967, compared with 203,010 reported cases in 1966.

Mr. FLOOD. Your immunization program was breathtaking in its scope and I gather most effective, as you say. What kind of measles?

Dr. STEWART. This is the regular measles that we are talking about here. It is not the German measles. We are very proud of this measles program. We were really trying to eradicate measles entirely last year; 62,000 cases were reported, which is the smallest number of cases since reporting started in 1920.

Mr. FLOOD. I can assure you in my town of Wilkes Barre this campaign was simply extraordinary. I never saw such an organizational effort in anything including war bonds and the Community Chest. It was done in a short period of time. It was simply overwhelming.

Dr. STEWART. The vaccination assistance program, under which the measles immunization campaign was supported, last year awarded project grants to States that include over 90 percent of our total population. Although the legislation authorizing vaccination assistance expires this year, we will continue to encourage the use of vaccines as a routine part of health care through the partnership for health authority and to maintain surveillance of immunization levels to assure that our high level of protection is maintained.

TREATMENT OF VITAMIN DEFICIENCY BY INJECTION

Mr. FLOOD. Is there any value of injections of vitamins where people have deficiencies in their diet?

Dr. STEWART. You mean injecting the vitamin itself?

Mr. FLOOD. Yes.

Dr. STEWART. If you want quicker ingestion, rather than taking it orally It is a matter of a few hours. If I was treating somebody who had severe beri-beri, an injection would be given. The vitamin is in the injectionable material.

Mr. FLOOD. What is the B-complex?

Dr. STEWART. It is a complex of vitamin B, vitamin B being several vitamins.

Mr. FLOOD. Is it expensive?

Dr. STEWART. I don't really know whether it is or not. It can be taken orally, too.

The recent licensure of a mumps vaccine represents an important addition to the health protection arsenal.

Testing continues with the experimental rubella (German measles) vaccine developed by scientists in the Division of Biologics Standards of the National Institutes of Health.

MUMPS

Mr. FLOOD. I understand that there is some concern with mumps with reference to its affecting men. Does this have a high incidence of sterility?

Dr. STEWART. It can very well. It is called the incidence of orchitis.

Mr. FLOOD. What is that?

Dr. STEWART. Inflammation of the testicles in men—of adult men, or adolescent age—is about 25 percent of those who get mumps. It is a very serious thing for young adult males to get mumps. This is why we recommend that the vaccine be used in that group.

Mr. FLOOD. There is a hazard of sterility in the young men.

Dr. STEWART. That is right. You get atrophy just as a residual.

Mr. FLOOD. It has great importance merely beyond the condition itself.

Dr. STEWART. That is right. The actual mumps themselves I don't think would be too important if it were not for the complications. Also, you get encephalitis in mumps.

Mr. FLOOD. Is this contagious or infectious?

Dr. STEWART. Both.

GERMAN MEASLES VACCINE

On the experimental German measles vaccine, over 90 percent of the 550 persons to whom the vaccine has now been administered have developed protective immunity; continued observations of the first groups of children to receive the vaccine 2 years ago indicate that immunity will be of long duration. No adverse reactions to the vaccine have been experienced. The rapid blood test developed by the same scientists to determine rubella immunity is now in use in vaccine development centers, hospitals, diagnostic laboratories, and doctors' offices in many countries. The test is being used to identify candidates for the vaccine studies and to determine the immunity conferred. Large-scale field trials are anticipated in the near future.

Mr. FLOOD. Will you tell us about that again?

Dr. STEWART. It is a blood test which shows you have had German measles.

Mr. FLOOD. About the rapidity of the test.

Dr. STEWART. A few drops of blood are taken, then the serum is taken out and a few things put in, and this shows whether there is a reaction that you can see.

Mr. FLOOD. It is a very dramatic breakthrough?

Dr. STEWART. Yes. The thing that makes it so useful is that it is so simple to do. It allows you to separate those who are immune and those who are susceptible.

Mr. FLOOD. Can this be done by technicians?

Dr. STEWART. Yes, any laboratory technician.

Mr. FLOOD. You make no reference here to women who are pregnant.

Dr. STEWART. No. Of course, the purpose of the vaccine will be to immunize females so when they get pregnant they will be immune and will not get the disease and have deformed offspring. German measles goes in cycles in a country. About every 7 or 8 years we have an epidemic of it and you get a fair number of deformed infants.

OTHER VACCINATION ASSISTANCE PROGRAMS

In 1952, there were 57,879 cases of polio. In 1967 there were less than 40 cases in the entire Nation. Under the vaccination assistance program which began in the spring of 1963, roughly 31 million children had been immunized against this disease by the end of 1967.

Vaccination assistance programs against other communicable diseases also continued through 1967, by which time about 25½ million children had been immunized against diphtheria; 30.5 million against tetanus; and 19.5 against whooping cough. In January I witnessed the 25 millionth smallpox vaccination given in a program being conducted in 19 nations of west Africa by the PHS in conjunction with the Agency for International Development. Also in 1967, for the first time since records have been kept in this country, there were no human deaths due to rabies contracted within the United States.

SMALLPOX

Mr. FLOOD. Do we have any small pox in the United States?

Dr. STEWART. No, not since 1948.

Mr. FLOOD. That was probably imported then.

Dr. STEWART. It was a Mexican that came by bus to New York City.

RABIES

Mr. FLOOD. Have they been able to develop a serum or a treatment for rabies which is not as horrible as we understand the treatment used to be?

Dr. STEWART. The vaccine is much improved—the injections that prevent you from getting the disease after you get bitten. It is a different kind of vaccine and does not have the complications. It is not as painful as the process used to be. Once you get the disease there is no treatment.

Mr. FLOOD. What do you mean by that?

Dr. STEWART. There is nothing that will cure you, once you get the disease. It is 100 percent fatal.

Mr. FLOOD. In the United States, what are the chief carriers or the most common carrier?

Dr. STEWART. Mainly wild animals, foxes, and skunks, and wild dogs that run in some areas of the country. Most domestic dogs and cats have been immunized within the cities.

Mr. FLOOD. It must actually be an abrasion by the animal?

Dr. STEWART. The wild animal that has it bites another one and it passes on.

Mr. FLOOD. As far as the human being is concerned, the animal must break the skin?

Dr. STEWART. Yes, there must be a break in the skin. There is quite a loss from wild animals biting cattle.

In the field of chronic diseases, the full application of known methods of prevention and detection continues to receive high priority.

CANCER DETECTION

It is estimated that 190,000 cases of cancer are cured each year—and that 95,000 more could be cured.

Mr. FLOOD. Why aren't they?

Dr. STEWART. The diagnosis is not made early enough. They do not have access to early diagnosis. That is principally the reason. Last year, 143 hospital-based cervical cancer detection demonstration projects were supported by the Public Health Service. Over 1 million women have been examined in this program, now in its 5th year, and

more than 6,500 cervical cancers have been detected. An additional 500,000 women have been examined in the cooperative program with the Academy of General Practice, which now includes 4,000 physicians in 36 States. More than 1,000 carcinomas have been detected.

Mr. FLOOD. How often should a female, 20 years of age, and a female, 50 years of age have the Pap test?

Dr. STEWART. If an older woman has had many negative Pap smears during her lifetime, this indicates she could possibly have them less frequently as she ages.

Mr. FLOOD. How often if they were 21?

Dr. STEWART. For all women, a Pap smear should be part of their regular physical examination.

Almost 550 students are being trained annually in cytotechnology—the technique of reading cell slides—in 71 schools aided by Federal grants.

KIDNEY DIALYSIS

Public Health Service-supported projects have demonstrated that the artificial kidney can maintain useful life in persons with total kidney failure. Last year, we began a study of the feasibility of artificial kidney dialysis in the patient's home, as opposed to the hospital. It appears that, with available equipment, home dialysis may cost only half as much as institutional dialysis, once the patient is trained and the equipment provided.

Mr. FLOOD. Once the patient is trained? I thought somebody in the family had to be trained.

Dr. STEWART. They both have to be trained. This study, which is being conducted by 12 artificial kidney centers, will provide the comparative clinical and cost data which may permit the extension of artificial kidney therapy to more of the people who cannot live without it.

LUNG CANCER TASK FORCE

At the direction of President Johnson, a task force on lung cancer has been established. The task force will devote primary attention to improved methods for detection and diagnosis of lung cancer, the development of a less hazardous cigarette, and environmental factors including atmospheric pollution, occupational exposures, and the like. Meanwhile, we are proceeding with our educational programs designed to present the facts on the hazards of cigarette smoking to the American people, in the hope that young people may decide not to start smoking and adult smokers may decide to stop.

Mr. FLOOD. Do you smoke.

Dr. STEWART. I smoke a pipe.

Mr. FLOOD. What is the difference?

Dr. STEWART. Quite a bit of difference. The data that we have do not show the relationship of pipe smoking and cigarette smoking.

Mr. FLOOD. You don't inhale when you smoke a pipe.

Dr. STEWART. There is a slightly increased risk.

Mr. FLOOD. Do you inhale when you smoke a pipe?

Dr. STEWART. No. But there are a lot of other differences between pipe smoking and cigarette smoking; the tobacco, the temperature burning and so on and so forth, which may mean something or it may not.

Improving Mental Health

Community mental health centers in 48 States, Puerto Rico, and the District of Columbia have been awarded grants to aid construction, staffing, or both. These 257 centers serve both urban and rural areas with a population totaling 42 million. Eighteen percent of the centers are located in cities with populations of 500,000 or more; 36 percent in communities between 50,000 and 500,000; and the remaining 46 percent in communities with 50,000 people or less.

National Center for Prevention and Control of Alcoholism

The National Center for Prevention and Control of Alcoholism, established late in 1966 in the National Institute of Mental Health, is now serving as the focal point for all our activities against this national problem.

Mr. Flood. What do they do at the National Center for the Prevention and Control of Alcoholism?

Dr. Stewart. The center is supporting research. It is conducting some of its own research. It is assisting the States and local governments to develop their own kind of programs, particularly trying to develop research centers on alcoholism in universities. Very little research effort has been going on until the last few years. Rutgers has had an Alcoholic Research Center and Yale has had one, but there are not very many in the country.

The center is assisting State and local governments and various organizations with the development of alcoholism programs, as well as conducting and supporting research. A high priority has been assigned to the development in universities of multidisciplinary research centers in alcoholism; grants were awarded for the establishment of five such centers.

Saint Elizabeths Hospital

This is the first year for which I have had responsibility for presenting the appropiration request of Saint Elizabeths Hospital.

Most of the patients come from the District.

Mr. Natcher. Most of the money does, also.

Dr. Stewart. That is right, under the reimbursement formula. You will be hearing a great deal about this when Dr. Yolles is here. It is in the National Institute of Mental Health. It is our intention that this institution will develop into one of the finest mental clinical research centers in the world.

At the same time, we shall continue our efforts to improve the quality of treatment given to our patients, and the clinical training provided to professional and ancillary personnel.

Studies of Drug Use by Young Adults

Several surveys of the patterns of drug use by high school and college age young people are nearing completion. In the field of opiate drug dependence, scientists are investigating the neurophysiological studies of the effects of such drugs in various portions of the

central nervous system and other aspects of physical dependence and tolerance.

Mr. FLOOD. We can't go by that first sentence quite so casually, can we? Do you want to say anything further about that?

Dr. STEWART. I will be very happy to. These were surveys made in colleges by the National Institute of Mental Health in conjunction with the Food and Drug Administration.

Mr. FLOOD. What is your approach in these surveys?

Dr. STEWART. I cannot tell you the technique used, Mr. Flood. You can ask Dr. Yolles what their methodology was.

Mr. FLOOD. By drugs, you don't mean heroin and morphine?

Dr. STEWART. I am talking mainly about LSD, barbiturates, amphetamines. The hallucinogenic drugs.

Not heroin or opiates, because you don't see that much in the high schools and colleges. It does cover marihuana.

Mr. FLOOD. Another facter is that the other things are terrifically expensive, aren't they?

Dr. STEWART. Well, yes. It depends on the market, I suppose.

These surveys were done because a couple of years ago, when the Nation, began to be concerned, about drug abuse——

Mr. FLOOD. Well, what do you think? Do we have a problem in that in the high schools?

Dr. STEWART. There is no question that we have a problem in all economic groups and in all age groups.

Mr. FLOOD. I am talking about high schools.

Dr. STEWART. Yes, we have a problem. Occasionally they try it once or twice and then quit. There is a small percent who become dependent, or are using it more often than the occasional user. This is a characterization we didn't know about before.

USE OF LSD

Second, we find the use of LSD is dropping in the colleges and high schools. We think this is because the dangers of LSD have been broadcast.

Mr. FLOOD. Are you familiar with the information the Defense Department puts out to the troops on the use of LSD?

Dr. STEWART. No, I haven't seen that.

Mr. FLOOD. You should see that.

Dr. STEWART. We are trying to characterize the pattern of use, how much there was, what kind of drugs, and if you want the data on it, Dr. Yolles will have it when he comes up for the hearing.

The possible biological hazards of LSD and other hallucinogenic drugs are being given high priority in the research effort. There is the fracturing of chromosomes that has been reported, and so forth.

When the drug abuse problem developed rapidly, as it did, we knew there was a use of drugs in high schools and colleges. But we had no idea of how much or what the characterization was, what the pattern was. That is why these studies were done, to try to get an idea of what was going on, and I think we have a pretty good idea now. However, the pattern changes with time.

I think the fact that the LSD use is dropping illustrates that when you do know that it can be harmful to you——

Mr. FLOOD. You have had a commission, an investigation, and a report, and you are aware of the facts. They are not good. What do you do now?

Dr. STEWART. The President has a bill before the Congress at the present time which strengthens the penalties for trafficking in drugs, and makes the possession of LSD a misdemeanor.

Mr. FLOOD. There are some people who have the opinion this is not the important thing—the penalty.

Dr. STEWART. Well, there are some people who have that opinion, that is correct.

Mr. FLOOD. What do you think?

Dr. STEWART. I think if you look at it from the medical standpoint, and the patterns of drug abuse that we have on LSD, that making possession a crime is contrary to what would be good health practice. What happens though is that when you talk to people who are in enforcement—and I know nothing about enforcement—they feel quite strongly that they need this kind of penalty in order to really get after the traffickers. I think the problem is so acute that I think we need to go in that direction. I share with Dr. Goddard the concern of making criminals of young people who have tried it once or twice and happen to be in possession. Again this is shaded by the need for enforcement, and the real crackdown on trafficking.

Mr. FLOOD. What are you doing about this report that you now have in your office?

Dr. STEWART. Well, the report itself was used to develop the President's legislative proposal that you have before the Congress. It also is being used by colleges and universities. We have put out the information, or will when we finish it, so they can use it to try to do as much in education and understanding and prevention as they can.

Mr. FLOOD. You are giving this priority?

Dr. STEWART. We surely are.

ENVIRONMENTAL PROTECTION

One measure of the progress which is being made in the control of air pollution is the growth in the number of control agencies and expenditures. In 1961, there were 85 local and regional air pollution control programs—many of them inactive—in the United States. In 1967, Federal program grants were awarded to 144 control agencies—regional, State, and municipal. In 1961, the total expenditure for programs to control air pollution was $7.6 million, and almost half of that was sent in a single State—California. In 1967, $26 million was spent for air pollution control programs.

There are other measures. All 1968 model cars and light trucks are required to meet Federal standards for emission control. Broader, more stringent standards have been proposed, to take effect with the 1970 model year. Progress has been made toward abatement of air pollution in one intrastate and nine interstate cases under the Clean Air Act. In most cases in which recommendations have been made, compliance is on or ahead of schedule.

The 48 contiguous States have been divided into eight atmospheric areas. The definition of these areas, which is determined mainly by meteorological data, is a step in the development of a system under

which the States will be called upon to develop and apply air quality standards on a regional basis under the Air Quality Act of 1967.

SOLID WASTE PROGRAM

Under the solid waste program, planning grants have now been awarded to 35 States and Puerto Rico. We are supporting demonstration projects in a variety of settings, in cities like Washington, D.C., where the site of the Kenilworth dump, a main source of air pollution, will be converted to recreation use; and in small towns, counties, and groups of small towns. In a project being undertaken in Takoma, Wash., demolition wastes are being shredded and compacted for use in sanitary landfills, instead of being burned. In another project, wastes hauled by train from the urban area are being used to fill abandoned strip mines. The experiment here is to measure the economics of hauling solid wastes from Baltimore to use as landfill. You might restore the area and see what it does to the area.

Mr. FLOOD. The seal of approval is placed upon this; there is nothing wrong with this?

Dr. STEWART. I know of nothing wrong with it.

Mr. FLOOD. There is no fallout?

Dr. STEWART. It may turn out to be very costly. I don't know.

Mr. FLOOD. Doesn't it affect the water supply in the area, and the streams?

Dr. STEWART. No, I don't think so. By the time the solid wastes are tamped in, it is just like a landfill anywhere else. Any organic material will degenerate very rapidly.

Mr. FLOOD. There is quite a difference of opinion about this in the coal fields now, or do you know that?

Dr. STEWART. Yes, I do know there are differences of opinion. The PHS–TVA Johnson City compost plant, which began operations on June 20, 1967, is studying the conversion of solid wastes into usable soil conditioners by creating conditions in which harmless bacteria consume the waste material.

The idea here is to try to get a product you can sell out of the solid wastes.

Mr. FLOOD. You have heard of this Japanese process in which they have some kind of processing equipment? I understand Chicago bought a piece of Japanese equipment recently in which they compress waste material and use it for building material like cement blocks.

Dr. STEWART. This is another kind of possibility. There are others where, if you can find a way of separating certain solids out, you can use it for animal feed with certain things in it; you can use it for soil conditions. When you have a good incinerator which doesn't have air pollution, you can use the heat generated by the burning of the solid wastes to generate electricity so you get some offset on the cost. These are all the various kinds of experimentation that are going on.

Mr. FLOOD. Nationwide we are confronted with a really serious problem in our wastes, aren't we?

Dr. STEWART. There is no question about it.

Mr. FLOOD. Especially in metropolitan areas.

Dr. STEWART. What I have seen indicates about 40 or 45 pounds per person at the present time, solid wastes of all types.

Mr. FLOOD. What do you see in this particular problem vis-a-vis population growth in 25 years?

Dr. STEWART. There are going to be a lot more solid wastes and our problem first will be to catch up; second, there has been very little development in the ways of handling the wastes for 20 or 30 years. It has been to burn it or bury it, or dump it in the ocean if you are on the seacoast. Then, third, the character of solid wastes changes. When you convert from something that will dissolve under air, or over a year or two, you can put it one place, but if you put something in a can that will stay as a can for 400 years, you have a different kind of disposal problem. The solid waste problem is a major problem.

I think the New York City episode illustrates in a sense how sensitive the mechanisms are for removal—and this has happened in garbage; not all solid wastes—within a large, major city. Within a few days it becomes almost uninhabitable.

ADVANCING MEDICAL KNOWLEDGE

The Nation's biomedical research effort, operating at the high level of capability which has been created over the past two decades and to which this committee has made such a distinguished contribution, continues to move forward with accelerating productivity. It is almost gratuitous for me to add that the rapid advance of medical knowledge generated by this research effort is the basic source of present and future advances in the health of the Nation.

I have already alluded to two significant research achievements of the past year in the infectious disease field—the licensing of a vaccine against mumps and great progress with the experimental vaccine against rubella or German measles.

Mr. FLOOD. Who licenses a vaccine?

Dr. STEWART. We do.

Mr. FLOOD. Someone must apply to you; is that it?

Dr. STEWART. That is right. As I noted, we now have evidence that the attenuated virus vaccine may confer lasting immunity. Additionally, the simple, precise, and quick blood test for rubella infection, developed barely a year ago, is expected to advance the target date of final rubella vaccine by about 1 year, and to result in a saving of over a million dollars in Government expenditures for rubella vaccine research.

SYNTHETIC VIRUS

The end of the year brought a historymaking announcement in the field of biomedical research. Two grantees of the National Institutes of Health and the National Science Foundation, working at Stanford University, have succeeded in synthesizing a biologically active DNA molecule. This synthetic molecule is actually a virus, complete with at least 5 or 6 genes, which, like the natural virus from which it was copied, is able to produce exact replicas of itself in the infected bacterial host. The implications of this achievement are awesome. One type of virus, for example, is known to cause a variety of cancers in many animals. If this virus can be snythesized with the same or similar methods developed by these grantees——

Mr. FLOOD. How could a synthetic molecule be a virus? A virus is not synthetic.

Dr. STEWART. They have in a sense created a virus by synthesizing the biologically active DNA molecule. Viruses are really very primitive, complicated molecules that are capable of reproducing themselves.

Mr. FLOOD. But a virus is a living thing. It is a thing in being.

Dr. STEWART. That is right, which will reproduce itself and therefore it is a living thing and they reproduced it by synthesizing a molecule that acted like a virus and is identical to the one they copied.

Mr. FLOOD. I understand that, but I thought it would be called something else. A virus is a virus.

Dr. STEWART. A virus is a DNA molecule too.

Mr. FLOOD. It is a thing in being. It is not synthetic?

Dr. STEWART. That is right. It can reproduce itself.

Mr. FLOOD. But it is not synthetic?

Dr. STEWART. They synthesized one that became a virus and can reproduce itself. It is synthetic life.

Mr. FLOOD. That is quite a phrase, isn't it? Is that what you mean by "awesome"?

Dr. STEWART. Well, there is more to it than that.

Mr. FLOOD. That is enough.

Dr. STEWART. At the moment, if you can synthesize other viruses this way, you can then study the particular pieces of the molecule which may lead it to be a virus that has cancerigenic properties or what-have-you. It gives you a tool for study.

We may one day be able to manipulate the laboratory synthesis of DNA in order to modify genes in a direct way.

Mr. FLOOD. That is awesome.

COMBATING TOOTH DECAY

Dr. STEWART. Tooth decay costs Americans an estimated $1 billion each year. If all the dental caries which develop annually in this country were treated, moreover, the figure would rise to something like $10 billion.

Mr. FLOOD. What is a "cary," other than a cavity? Is it something else?

Dr. STEWART. No.

A team of four scientists announced early this year that they had kept hamsters virtually free of tooth decay simply by giving them a particular enzyme in their drinking water.

Mr. FLOOD. What is "enzyme"?

Dr. STEWART. An enzyme is a chemical that catalyzes chemical action.

Mr. FLOOD. I had something wrong with my eye a few months ago. There was too much wax. There was a red spot on it. The doctor gave me something to put in it and he said it was an enzyme. What is an enzyme?

Dr. STEWART. It is a protein chemical which will produce a chemical action itself.

Mr. FLOOD. It worked miraculously.

Dr. STEWART. It produced the action that removed the material. A lot of times when you take toxic materials into your body it is the en-

zymes that tackle the toxic material and promote the removal of it through the liver or through the urine, or something else like that.

Mr. FLOOD. It is a weapon?

Dr. STEWART. Yes, it is like a regulator, in a sense.

Previous work at the National Institute of Dental Research had shown that some forms of bacteria normal to the human mouth, when introduced into the mouth of a cavity-free laboratory animal, will cause it to develop rampant tooth decay. These bacteria are believed to be largely responsible for the formation of dental plaque, a tough, sticky film that is deposited on the teeth and, it is generally believed, is a precursor to tooth decay. The recently discovered enzyme, when administered to hamsters, broke up dental plaque and prevented more from forming.

Mr. FLOOD. What is dental plaque?

Dr. STEWART. It is a film that gets on the teeth, that film that you try to get cleaned off every once in a while when you have good dental hygiene.

Mr. FLOOD. It is not good?

Dr. STEWART. No, because it seems to be a precursor, a beginning, a necessary thing in order to have tooth decay afterwards.

Mr. FLOOD. A strange term, "plaque."

Dr. STEWART. If you let it go long enough, it becomes plaque. You can remove plaque.

Mr. FLOOD. It is more than a film then?

Dr. STEWART. That is right. The results were so striking that plans are now underway to test the enzyme, possibly in ointment or mouthwash form with humans. This work, which may well prove to be a major breakthrough in the control of tooth decay, was carried out jointly by an investigator from Merck, Sharp & Dohme research laboratories and a team of scientists from our National Institute of Dental Research in Bethesda.

Mr. Chairman, I hope I have been able to communicate to you and to the committee the sense of purpose, direction, and progress which I feel in viewing the national health effort. Our goals are high, for health stands very high on the list of our society's priorities. We still have far to go to achieve the best in health care and health protection, readily accessible to all Americans.

Yet I feel that we are moving forward and gaining momentum. New partnerships are being forced among governmental agencies at all levels, and between those agencies and the private and voluntary elements which play such a critical role in health. New medical knowledge is constantly being brought into action. Stronger resources of manpower, facilities, and services are being developed.

I welcome this opportunity to discuss with this committee, from which we have gained so much guidance and leadership in the past, the role of the Public Health Service in helping to meet the national health challenge.

Mr. FLOOD. You are always a very interesting witness.

Dr. STEWART. I will be glad to try to answer any questions, Mr. Chairman.

STATUS OF HEALTH OF PEOPLE IN THE UNITED STATES

Mr. FLOOD. I am startled by a statement on page 48 of volume 4 of your justifications:

> The health of this country, by any number of indexes, lags behind that of many less prosperous countries.

You touched upon this in your direct statement a few moments ago. What indexes and what countries are you talking about?

Dr. STEWART. The most common index is infant mortality. We have already mentioned where we sit and what our average is.

Mr. FLOOD. I am talking about the health of the country. I am not talking about infant mortality.

Dr. STEWART. Infant mortality among Negroes is twice our national average, which is equivalent to a developing nation. It is not an index of good health.

Mr. FLOOD. Of course not, but the health of the country means much more than infant mortality, doesn't it?

Dr. STEWART. Well, I think you must understand that infant mortality is a conventional measure used by all nations in the World Health Organization as the most sensitive measure of the state of health of that nation; the most sensitive. It is used worldwide.

Mr. FLOOD. Why infant mortality?

Dr. STEWART. The infants in the first year of life are most vulnerable to the environmental conditions that would bring death. It is equated with the state of development, sanitation, the disease pattern.

I can get an infant mortality rate from any nation and I think I could describe for you what the health conditions are in that nation on that figure alone. Until you get down fairly low, then it becomes pretty general.

Mr. FLOOD. If I didn't tell you what the country was, could you do it?

Dr. STEWART. I think so. You can talk about how many deaths they have from other diseases; you can talk about the state of development of their sanitation; you can talk about how many doctors they have; these are crude characterizations, but you get an idea of what it is.

Mr. FLOOD. "Indexes" is plural. That is one thing.

Dr. STEWART. Yes; that is true. We have population groups in the United States which have death rates of diseases which are——

Mr. FLOOD. Do you mean so-called minority groups?

Dr. STEWART. That is right.

I was talking in terms of characterization in certain population groups. Negroes, Mexican Americans, Indians, Alaskan natives; where the indexes of mortality, the pattern of disease is different than the average in the population. It indicates they do not have the status of health that is enjoyed by the others. Since they in total are less than half of the population, I guess you could call them a minority.

DENTAL CARE

There are other indicators also. I mentioned that $1 billion is spent annually to treat tooth decay in the United States, but if we repaired all dental problems, it would cost about $10 billion. The dollar indicator therefore shows a $9 billion deficit in treating dental problems

alone. There are an awful lot of people who never get dental care in their entire lifetime.

Mr. FLOOD. Why isn't dental care under the social security program like medicare? If dental care is so important to the health, and you suggest that it is, why do we ignore it? Is it money?

Dr. STEWART. Money is an important factor, but I think there are other reasons, too. Money, in the sense of choosing between life-preserving measures, may be more important than repairing teeth, given a limited amount of dollars.

A second reason is the shortage of dentists to take care of everybody's teeth.

Mr. FLOOD. There is a shortage of doctors.

Dr. STEWART. Yes, and the situation with dentists is even worse, if you look at the trends.

There are fewer dentists than physicians in the country, and the dentist-to-population ratio is worsening.

A third reason is that dental prepayment mechanisms are in the early development stage. Dental service plans are just now being developed to enable people to pay a small amount and be assured of receiving at least some dental care.

Fourth, I think people's attitudes about dental care are basically different than about medical care. For example, people very often do not go to the dentist until pain drives them there.

There are many other reasons, too.

For both dental care and medical care, we have indications that the quality of care provided in different places is most uneven. Some is good, some far from good. Continuing education programs are needed to correct this situation.

Mr. FLOOD. How far are we behind as a nation? There are x countries who are ahead of us. Now, how far are we behind? Are we badly behind?

Dr. STEWART. No; I don't think we are badly behind at all.

Mr. SHRIVER. Is it because we are not spending enough money?

Dr. STEWART. No, I don't think it is as much money, Mr. Shriver, as it is the structure of our medical organization in the country. For example, you would know this, that we have had a flight of doctors from rural areas just as well as people. We have many rural areas which are good farming areas where we have no doctors at all. We have no mechanism at all to get doctors there. Occasionally somebody is able to get one to come because of an acquaintance.

Mr. SHRIVER. What do you mean by the cost? You say it costs a billion dollars because we don't take care of our teeth.

Dr. STEWART. I said we pay about $1 billion for just the dental cavities that are treated at the present time. Only those teeth that actually get care cost $1 billion.

DENTAL MANPOWER

Mr. FLOOD. I am unhappy with your answer to my question and Mr. Shriver's question on dentists. You just simply say there are not enough dentists. Can't you expand on that?

Dr. STEWART. We have not had a commensurate expansion of dental schools compared to medical schools. There are fewer new dental schools being developed.

Mr. FLOOD. Why?

Dr. STEWART. Because I think expenditures for dentistry, generally end up at a lower priority.

Mr. FLOOD. What does that mean? If the condition of teeth is as bad as you say it is, why does it have such a low priority?

Dr. STEWART. I think the lower priority given dental matters is a relative value held by the general population and not among us in the Public Health Service. I think we are trying as hard as we can to expand the enrollment in dental schools in the country. The initiative has to come from the university or from the profession. We just don't have as many dental schools being developed as we need.

Mr. FLOOD. I think the initiative should come from somewhere else. What about you, you are the Surgeon General?

Dr. STEWART. We do have grant programs for dental school construction. We can provide up to two-thirds of the cost. We also work closely with the schools through our direct operating programs.

Mr. FLOOD. I know, but are you out beating the bushes?

Dr. STEWART. Yes, sir; we are trying to do everything we can to develop dental schools, not only their physical plants but to help them develop new teaching methods, new research programs, and new continuing education activities.

One new dental school is completed, three new ones are under construction, and four more are in the planning stage. In addition, five dental projects to modernize and expand schools have been completed, and 14 more are started. Unfortunately, there is one dental school that has announced it is closing its doors.

Mr. FLOOD. Is that a miracle?

Dr. STEWART. No, I think it is a result of their financial situation. The St. Louis University Dental School has announced it is closing. They no longer can finance the operation of the dental school and repair of the building.

Mr. FLOOD. Why not?

Dr. STEWART. The sources of private funds are insufficient to run it and to remodel the facility. The university has not been able to obtain enough funds from private sources and our current legislative authority is limited in what we can do for a school such as this.

Mr. FLOOD. Then there is something wrong with the system. What can we do about that?

Dr. STEWART. They have not had a large inflow of research grants from NIH or other sources.

Mr. FLOOD. Why not?

Dr. STEWART. Because the dental schools have such small basic science faculties to start with, they have difficulty in obtaining research grants. There has been some correction in this through the National Institute of Dental Research and through contracts from the Division of Dental Health. But when you measure the totals against what has gone into medical schools, there is quite a disparity in the amount of support.

The cost of educating a dental student is rather high. In many schools the dental student takes the same first 2 years as the medical student, and in the last 2 dental years clinical costs to the school and student alike are expensive.

Mr. CASEY. Mr. Chairman, could I make an observation on that point? I think it is pretty obvious that most of your medical schools are supported through the guise of grants. In other words, they give enrichment grants, they give special grants on particular projects and in a way it is a kind of a subterfuge. One of the problems I think we are going to have with new medical schools is that you are not going to have the talent in the new schools that will attract the grants—that really qualify for the grants. I think we are going to have to come to the basic assumption that we are going to have to subsidize on the basis of students—per student—the medical education, including the dental education.

Dr. STEWART. Mr. Casey, we are actually doing this, but in relationship to total dollars the medical and dental schools need, it is still small.

Mr. FLOOD. My problem is this. We have had a great upsurge in public awareness of health on the whole in the last decade. But now we hear that the condition of the mouth and the teeth is very important to the health of the body.

If this is so, why after all these years of public interest do we this afternoon have dentistry brushed under the rug with a low priority?

Dr. STEWART. I want to emphasize that I don't brush dental problems under the rug as a low priority, but I believe that taking the Nation as a whole, when one is talking about illness, the illness that causes a person to go to a dentist is less threatening, less calamity causing than the kinds of illnesses for which one would go to a physician. You might go to a medical doctor because you think you have cancer, heart disease, pneumonia or something else. Many people go to a dentist because they have some cavities or a toothache. Most teeth lost by adults are the result of gum diseases, but I think in the minds of people dental ills have a priority which is relatively different, and usually lower than medical ills.

Now, when you look at it the other way around and look at mouths that have been neglected and are in bad shape—particularly in children—that is bad. I don't want to imply the Public Health Service considers the dental problem of a low priority. I think values on dental health are a mixture of many things.

When one looks at the spectrum of the ills of people, dental ills get a lower priority than those things which threaten life. I think this is unfortunate in a way, but this is the way it happens.

PROSPECTS FOR FUTURE IN DENTISTRY

Mr. FLOOD. What do we do about that tomorrow morning?

Dr. STEWART. We are doing a number of things right now. For example, the Health Professions Educational Assistance Act is showing results in increasing the number of dental students in training. More schools and more student places are on the way. Our Dental Health Division supports programs in all dental schools to increase the productivity of dental graduates by using auxiliaries. They are also experimenting with auxiliaries doing many technical procedures for patients, thus relieving the dentist of many routine tasks so he can treat more people. The Dental Division is helping to prevent dental diseases before they occur through the fluoridation program, oral can-

cer detection, pyorrhea control and the cleft palate studies. We are beginning to focus our attention on the dental problems of children and youth. We have and are improving the dental programs under the Office of Equal Opportunity. Now the new pilot dental programs for children authorized last year by the Congress provides us an opportunity to really attack dental decay and periodontal disease before they cause irreparable damage. We shall also apply the latest preventive measures at an age when they are the most beneficial and also most effective in reducing treatment need and thus manpower requirements.

We are attempting to build the research bases in dental schools so we can begin to attract more basic science faculty who then can build a better educational base and make it a more attractive place to work and to teach. These things are happening.

HIGH COSTS OF MEDICAL CARE

Mr. FLOOD. In your opinion as Surgeon General, what practical action should be taken to level off this skyrocketing increase in the cost of medical care?

Dr. STEWART. If you mean by practical, a short time, something to be done now, or in a very short time, I don't think anything could be done. I think that the real answer is going to be a long-range answer and not a short-range answer.

The skyrocketing medical costs in hospitals are a complexity of increasing wages and salaries, which makes up 60 or 70 percent of the costs in hospitals. We know those wages and salaries have been behind at times. We also know this is a labor-intensive type of organization where you hire more people rather than get a machine to replace people. We also know technology is moving so rapidly that a hospital is obsolete very shortly, and I don't know of anything that is going to change this very rapidly.

Mr. FLOOD. It is like in the Defense Department. The minute we get a weapon, if it works, it is obsolete.

Dr. STEWART. It is just about like that. The science of medicine is moving so rapidly that to provide the best and the latest requires a change in equipment structure, type of people, technicians, very rapidly.

Mr. FLOOD. What practical action can be taken by anybody, by you or by us or by all of us to do something about this skyrocketing of medical costs?

Dr. STEWART. I think we should talk more about rationalizing the cost rise. You may not be able to lower the cost, but you may be able to at least slow the rise in cost and explain it so that it is an acceptable cost.

I think the thing we are doing right now is the best thing we can do. That is to experiment under the reimbursable cost formula of medicare, try to find ways of reimbursement of hospitals. Medicare is such a major force now in reimbursement of hospitals. The Congress authorized medicare last year to experiment to find ways that give incentives to hold costs down.

Mr. FLOOD. And penalties for abuse too. It works both ways.

Dr. STEWART. That is right.

LEGISLATION TO HOLD MEDICAL CARE COSTS DOWN

Now, the President is seeking legislation this year which extends this even further; that, if the Social Security Administration should find in their experiments a way of incentives for holding down costs, they will be able to implement it. This would authorize their implementation of this through medicare, medicaid, and the maternal and child health program.

In addition, Mr. Flood, I think the rest of it is a matter of how we might apply the technology to hospitals to see if we can't replace some of the labor with machines. We are developing the National Center for Health Services Research and Development, which you will hear about later, as a way of supporting research and development in these areas, to see if we can't get as much technology as possible into use in the control of cost.

I think these are the avenues we can follow. I don't believe there is any snap answer one can give at this time to bring a lower cost tomorrow. I just don't think there is.

AUTOMATED DIAGNOSTIC LABORATORIES

Mr. FLOOD. We have been impressed in this committee by testimony regarding automated diagnostic laboratories, like that Kaiser-Permamente setup. We thought this approach would catch on like a prairie fire. Why hasn't this caught on?

Dr. STEWART. I think it caught on more than you are saying, Mr. Chairman. You will find that most of the major hospitals now have all the analyzers and automation into their laboratories. The ordinary blood tests, 12 or so of them, can be done now automatically with a printout of the results at a much cheaper cost per test, and with much more accuracy.

I think automation is moving very rapidly into the laboratories in the hospitals.

There are some tests that haven't been automated yet which are very common. For instance, when you want to know how many red cells you have and how many white cells there are, the differentiation of the kinds of cells, we have no way of doing this automatically. It looks like there may be a possibility of developing this. It is time consuming. You have to look in a microscope and do the count by hand.

There are tests NIH is now working on to measure hormones, which can be done automatically. I think we see this kind of development working very rapidly in the hospitals. We are seeing it introduced into hospitals all over the country in automation.

I think what we are really talking about is how you hook that up to a system that is making the patient's record and it automatically takes out the record and you don't have to have a clerk to do it.

FINANCIAL DIFFICULTIES OF MEDICAL SCHOOLS

Mr. FLOOD. We hear that some medical schools are in financial difficulites. How serious is this? What can be done about that?

Dr. STEWART. I am told there are some medical schools in serious financial shape.

Mr. LAIRD. You are told? You know it, don't you?

Dr. STEWART. Yes, but I don't have the exact figures of what all the problems are that they have, and as to why they are in bad financial shape, Mr. Laird. I have already mentioned the two dental schools that are closing.

Mr. FLOOD. Never mind the reasons why. As Mr. Laird says, the fact remains there are medical schools, and some distinguished medical schools, that are in serious financial difficulties.

Mr. LAIRD. Marquette and St. Louis University are two. I can go through and give you the names.

Mr. FLOOD. What can we do about that?

Dr. STEWART. I think at the present time we can't do anything about it, other than increase what is in the budget before you in the educational improvement grants, which will add some funds, but won't solve the problems, particularly for medical schools. Within the money and authority we have, there isn't much you can do.

Mr. LAIRD. There is nothing in this budget to help Marquette or St. Louis?

Dr. STEWART. That is right.

Mr. LAIRD. That is the answer to that question. There is nothing in this budget to keep those doors open.

Dr. STEWART. We do not know of the plans of the two schools that have been mentioned but one dental school has announced its plans to close and we have no way of helping to keep its doors open.

Mr. FLOOD. That is the question I asked: What do we do about that? We know that there are certain distinguished medical and dental schools in very serious financial difficulty. That being a fact, what do we do?

Mr. Laird says there is nothing in the budget. Did you ask for anything? Has anybody talked about this besides us?

Dr. STEWART. Yes; we asked for more funds in the Health Professions Educational Assistance Act.

Of course, if this helps any school, it helps all schools.

We are getting out the figures on what we have. We did ask for a great deal more but in construction and not in the basic improvement grant which is limited by the formula in the statute.

Mr. FLOOD. What did you ask for basic improvement grants?

Dr. STEWART. We asked for $240,732,000.

Mr. FLOOD. For what?

Dr. STEWART. This is the request for the appropriation, "Health manpower education and utilization." It includes a request of $80 million for educational improvement grants, $33,700,000 for which is for basic improvement grants. The Bureau of the Budget took $14 million out of the health professions educational improvement grant.

Mr. FLOOD. That isn't a world-shattering figure. The question now recurs: What are we going to do about it?

Dr. STEWART. I don't think there is anything within the authority or the money that we have now, or before you, that can help this situation.

Mr. FLOOD. Do you need law?

Dr. STEWART. I think what we need is the proposal that we have before the Congress, which is the extension of the Health Professions Educational Assistance Act, in which we have asked to change the project grants so that one can use them to take care of special situa-

tions, emergency situations. I think this is the avenue where we can help. In fact, we designed it that way so we can help out schools that are in difficulty.

At the present time, up until this year, we haven't had any money in the project grants. The main obstacle was that we had to satisfy the formula first. Anything left over was for project grants. This year for the first time we had enough in the formula grants to have some project grants; the project grants were used to experiment with new kinds of curricula and for improving quality.

What we want to do in the proposed health professions extension, which is now before the Congress, is use the project grant not only for improving curricula, but in emergency situations that we have in many different kinds of schools, not only the medical schools, and to separate it out so it is not dependent on using all the money for formula grants before having any for project grants. But until that happens, I don't see how within what we have we can do anything about that at the present time.

Mr. FLOOD. Well then, you need law and money.

Dr. STEWART. That is correct.

Mr. LAIRD. Mr. Chairman, could I interrupt a minute there?

Mr. FLOOD. Yes.

Mr. LAIRD. You know, Dr. Stewart, we have over the years saved schools by using NIH.

Dr. STEWART. That is correct.

Mr. LAIRD. Many people don't understand that that is what a lot of the money at NIH has been used for. It is to save medical schools. We would have medical schools closed up all over America today if it weren't for these grants. We have used the NIH research grants as practically a subterfuge in many cases to keep schools open.

Dr. STEWART. That is correct. There has been some criticism, because people don't understand that, but we would really be in bad shape in America today had it not been for the indirect support provided to medical education through the NIH grant programs.

Mr. FLOOD. We can be thankful that they did or we would be in trouble today with medicare and medicaid and all the other demands for health manpower.

Dr. STEWART. That is correct.

NEW MEDICAL AND DENTAL SCHOOLS

Mr. FLOOD. What new medical and dental schools are we planning and how many are under construction?

Dr. STEWART. One new dental school is completed, three are under construction, and three more are on the planning boards. In addition, 14 other new dental schools are in the preliminary discussion stage. In the medical schools there are 10 active projects of which two have been approved and funded to date.

Mr. FLOOD. How many are opening this year?

Dr. STEWART. There are four new medical schools that are opening their doors this year in the United States. We have had four others which have opened their doors in the last 3 or 4 years. There are two that are underway. There are four others that are close to digging

a hole in the ground. There are three or four others which are in the beginning, preliminary planning stage.

Mr. FLOOD. What about dental schools?

Dr. STEWART. We have funded four new schools, but three of these are not completed. Nineteen dental projects already approved and funded will expand existing schools. We have before us applications for two new schools and 14 more are being talked about.

The St. Louis dental school plant, by the way, was in worse shape than the medical school plant was. There was a great deal more construction that would have to be done to replace or modernize the dental school at St. Louis University than in the medical school.

EMPHYSEMA

Mr. FLOOD. I understand that emphysema is the one condition which is now the fastest rising cause of death. Is it so?

Dr. STEWART. Yes. This is the category of chronic respiratory diseases, of which emphysema is a major category—others are chronic bronchitis, and lung cancer.

Mr. FLOOD. Man has been in existence a long time. Of course, he has been destroying his environment for a long time. Why all of a sudden has this become the fastest rising cause of death?

Dr. STEWART. Well, we think it is related to an increasing pollution of air that one breathes in, which is from a variety of sources. Air pollution and cigarette smoking are all contributing factors to this rise in emphysema.

Dr. GEHRIG. The diagnosis has also improved. Your question does pose a problem. There is a real increase in this disease, but there is also a question of just how much better we have become in making a diagnosis.

Dr. STEWART. We had about 3,000 deaths in 1950 and over 23,000 in 1966.

Mr. FLOOD. We will adjourn until 10 o'clock tomorrow morning.

THURSDAY, MARCH 7, 1968.

Mr. FLOOD. The subcommittee will be in order.

Mr. Laird has the witness.

PUBLIC HEALTH SERVICE REORGANIZATION

Mr. LAIRD. Dr. Stewart, the Acting Secretary told us he didn't believe that the reorganization of the Public Health Service would be ready for submittal for at least a few more weeks. The additional time was required in view of the fact that the White House and the Bureau of the Budget had requested further studies to be made.

So I think it might be well for us to take the plan as presently drawn as a basis for this discussion.

Under the reorganization plan it is contemplated that there will be three separate administrations.

The regional medical program, which is currently in the National Institutes of Health, is transferred into an administration with the comprehensive health program.

Dr. STEWART. Yes; among other things.

Mr. LAIRD. Among other things, but the reason for the transfer is that you wanted it in the same administration with the comprehensive health program.

Dr. STEWART. That is correct.

Mr. LAIRD. What is your personal feeling about transferring the regional program at this time when it is just getting started, to the comprehensive health program? I would like to see it combined, eventually, but right now it would be charitable to say it is a program that is just getting off the ground.

What is your personal feeling in regard to this?

Dr. STEWART. Well, Mr. Laird, my personal feeling has been, and I so told the Secretary early last fall, that I felt we had had not enough experience yet, and that I would prefer to see the extension legislation passed through the Congress and put into law before we moved the regional medical programs from the National Institutes of Health.

I think the concept and the target of a combining within one organizational entity regional medical programs, comprehensive health planning programs, and the National Center for Health Services Research and Developments, and some elements of the chronic disease center, makes very good sense, and my personal feeling is purely around timing and not around the concept or the mixture of these various programs.

Mr. LAIRD. I agree with that. I believe the transfer can be worked out. But it seems you just slow down the regional health program development for the next 2 years to do it now. The States are not going to be ready to move in this area as rapidly as various regions could move if they could operate separately during this developmental stage.

Dr. STEWART. This is close to my own thinking, Mr. Laird. The reason I hesitated about the timing is not only are the regional medical programs emerging and developing, and we really need a little more experience which includes the extension of the authorization, but the planning portion of the comprehensive health program is even more recent than the regional medical programs, and it is just beginning to emerge as a structure now.

Mr. LAIRD. Don't you think the comprehensive health planning will take maybe 18 months to 2 years?

Dr. STEWART. I think for the actual State health planning agency functions that is quite right. In fact, I would be very pleased if it could emerge in an 18-month period. This is a difficult job we are asking the States to do, and this will vary from State to State. Some are more ready than others, but on the average I think that is about right.

Mr. LAIRD. I have tried to audit the regional meetings of the regional health people. There was a 2-day session at the Washington Hilton about 5 weeks ago. Because of my interest I just attended as an auditor. My feeling is that it has taken the last 24 months just to

barely start this program and get it moving. I am just afraid that to throw it into this new administration now will have the effect of slowing it back down and this concerns me.

Dr. STEWART. Again, it is a judgment factor on the timing, Mr. Laird. I was heartened myself by the meeting in January. I was not able to attend. I was in Africa, but I did read all the papers that were given there. For the first time we began to see the interrelationship between the people working directly in the regional medical programs and comprehensive health planning.

Mr. LAIRD. I think it would be well to put in the record at this point, Mr. Chairman, a very outstanding summary of that meeting by Dr. Coggeshall. It summarized activities all over the country and set out some of the real challenges the regional program did face in the next 12 months. It speaks well for the program and it would add a great deal, I think, to our record.

Mr. FLOOD. I think that is an excellent suggestion. Without objection, that will be so done.

(The document referred to is as follows:)

CONFERENCE-WORKSHOP ON REGIONAL MEDICAL PROGRAMS, WASHINGTON, D.C., JANUARY 19, 1968

At the outset of this meeting Robert Marston spoke of the emerging substance of the regional medical program. In so doing he made my summing up task so much the easier by providing, in one modest but apt little phrase, the keynote for the entire proceedings. Reading the proceedings of a year ago, I vaguely recognized the form of the program. Now in addition to form I find substance.

In medical science and practice—health care—the ultimate substance is advancement of knowledge or method that makes some worthwhile difference in the lives of people. That is, what we as members of the health professions and the great American public look for, is to be found under the tormenting, unforgiving, one-word label: Results. If we do not have in hand the kind of good results we want, and this is certainly the case in heart disease, cancer, and stroke, then we are prone to speak in terms of promise. I do not mean false promise in this instance. I mean reasonable hope for enriching as well as prolonging life. What are the goals we seek to accomplish? As Laura G. Larson from the Mountain States regional medical program has so intelligently pointed out; "Goals are essential to the success of any project because no one gets what he wants until he knows what he wants."

REGIONAL ACTIVITIES AND IDEAS

The corpus of this conference is found in the 60 reports selected, I understand, from 100 papers submitted. These 60 have been presented to you in the last 2 days and, with astonishing speed, published in two bound volumes and placed in your chairs, day by day, and volume by volume.

I will address my first fleeting remarks to this body of reports entitled "Regional Activities and Ideas." Since the total program, both in its planning and initial operating phases is, exclusive of a short leadtime hardly more than a year old, it is a little early to speak about results. So, quite logically, we find little about results in these reports.

Rather, most of these reports run much in the vein of the one from the Tennessee mid-South region, as presented by Lloyd Elam from Meharry Medical College. Let me give you enough of the sense of Elam's report to make my point about emerging substance and, in sum, provide a frame of reference for a reaction to the regional medical program that I find I share with a good many others. It would be inaccurate in the extreme to say that I came to sneer and stayed to cheer, but I did arrive at this conference in a state of ignorance and I am going away much impressed with what I have learned, and with a great deal of enthusiasm for the program's future. I will try to make this enthusiasm a little more specific later on.

Elam, in the introduction to his report, points out that—in contrast to its dramatic exploration of causes, diagnoses, and treatment of disease—American medicine "has conducted only rudimentary research into how this new knowledge can be distributed and whether it makes much difference when it is." He points out what so many of us know but not all of us can make rigorously clear when we go to the White House or Congress for the money: "Yet," he says, "we have no precise knowledge of whether comprehensive medical care coupled with modern technology can be effective in improving the health of our citizens."

In this frame of mind, this voluntary program, headquartered jointly at Vanderbilt and Meharry is attempting to find out whether comprehensive, family-oriented health care in a neighborhood health center coordinated with an automated multiphasic screening laboratory will result in improved mortality, morbidity, health service utilization and in health attitudes among impoverished people. Further, can this approach reduce the costs of illness, and can it preserve or restore the family?

This program, I am delighted to find, prefers the experimental to the exhortatory method of health progress. It is dividing its study population into three groups. One will deliver comprehensive care in a neighborhood health center plus multiphasic screening laboratory services to one group. It will give only the screening laboratory services to a second group. And it will save a third group for control, leaving it to obtain traditional medical services as best it can. The meaning of comprehensive health care, by the way, has been defined here as compassionate, personal, continuing, family-oriented, relating the patient to one doctor but giving him specialist group reinforcement and a modern technological backup. Further, the participating members of the community will have a direct voice in policymaking at the center.

This is but one example, and perhaps more sophisticated than some, but is fairly typical of many other regional efforts, I think. The effort is sober, sensible, and devoid of any claim or promise overrunning the evidence or defying reality. It is an effort in which any of us in clinical, academic, and scientific medicine would be proud to take part. Indeed, I think it is an approach we have been groping for. The willingness to experiment, to try and risk negative results is a source of strength in these programs.

The program reports reflected both a wide variety of plans and a general sense of progress but, because no one as yet has the recipe for instant health, it was a progress of expectations rather than of realization in most instances. In the time available I can give only a few examples.

As Breslow pointed out, the granddaddy of American regional medicine is the Bingham Associates Fund of the Tufts-New England Medical Center, which has been operating in the State of Maine since 1931. This program still flourishes, now under regional medical program auspices. It is pleasing to find that innovation still flourishes, too. As reported by George Robertson, a guest resident program has been placed in operation. Tufts sends residents and clinical fellows from Boston to work in selected small community hospitals of Maine. These postdoctoral students go to Maine as teachers without diplomas. They cannot be used for routine hospital work because their presence is discontinuous. The local doctors do not think of the guest residents as teachers so much as channels of information from the medical center. They seem happy to learn, through these young men, how the professors currently handle various problems. It seems that you can teach an old dog new tricks, provided you know more than the dog. Put a nicer way, it always has been possible for the old to learn from the young.

The Albany regional medical program approaches continuing education by turning the tables on the medical center, as Frank M. Woolsey implies. If the mountain, that is, the practicing physician in the community will not come to Albany Medical College for further training, Mahomet, that is, the medical center, will go to the mountain. The strategy is "community hospital learning centers" and the instrument is a so-called medical juke box, now in its developmental stage. This juke box plays records and projects pictures of whatever the medical center is pushing, educationally speaking. The basic machine is actually a commercial juke box, and the new jargon is wonderful: "dial-access carousel projectors have been added."

We find a great deal about automated multiphasic screening at the rate of 60 tests a minute in the program reports, and a heavy emphasis on the familiar

subject of continuing medical education. I am pleased to find Margaret Sovie from Syracuse reporting on continuing education in nursing, using the teaching facilities of a university hospital nursing service. Again, as throughout the program, we find a resort to electronic communications techniques, television, the telephone, and so on. The medical and nursing professions are capitulating quite brightly and gracefully, it appears, to the offerings of the visual and audio communications industries. Yet I am enchanted to learn, although not from a formal paper, that a network of small rural hospitals in a western area of North Carolina called the "state of Franklin" plans to resort to carrier pigeons to transport laboratory specimens back and forth. The pigeons can carry the load. But for transplantable hearts, I assume, it will be necessary to employ falcons. Actually, a pigeon homing on a hospital laboratory serving smaller institutions, to me expresses the very essence of regionalization.

We find another kind of innovation involving geography and logistics in the program of the Mountain States regional medical program, operated by an oranization called WICHE (pronounced "Whichy") the Western Interstate Commission on Higher Education. Here is a region covering all or part of four States—Idaho, Montana, Wyoming, and Nevada—an area of 440,000 square miles with only 2,100 physicians, 15,000 other health professionals, and no homing institution that is, no university medical center. Yet, I am told, this program has one of the most active and enthusiastic organizations and has found a cordial reception in the medical centers serving it from outside of the Mountain States region.

Much emphasis has been placed on the need for innovation in the regional medical program, but it is not all innovation, of course. Many of the principles of good health care that do require innovation for wider and more effective delivery are deeply rooted in the traditions of medicine as well as community organizations. We find frequent reference to the importance of "concern" and "involvement" and at one point Williard A. Krehl wraps the matter up by stating: "The important objective is concern involvement."

Speaking of the "educational package," William G. Cooper says: "One of the major overall objectives of regional medical programs is to enhance the learning of all members of the health care team in order that they in turn will be able to provide medical care for their citizenry. The 'learner' in this case may be the doctor, the nurse, the medical technologist, the physiotherapist, other members of the team or indeed the patient himself."

But Luther Christman, dean of school of nursing at Vanderbilt, a sociologist, sounds a warning that I can appreciate, from a career lifetime in internal medicine: "* * * Because messages about care must filter through many people, the messages may become garbled or not reach their target at all. Much time must be spent scurrying around * * * to insure that everyone is informed about the necessary care measures for each patient. Under this set of conditions there is likelihood of many errors of omission * * * Thus, patients may be placed in some jeopardy by the very system set up for their care." It warms my heart to find a sociologist preaching this essential point of first-class clinical medicine.

Vincent Larkin, from the New York metropolitan regional medical program, a megalopolis constituting one of the largest regions in the Nation, diverts our attention from the limitations of the average practitioner about which we hear so much, to those of the medical schools, so often assumed to be the ideal base for regional medicine:

"On closer inspection we can see that the medical school falls far short of being able to play this central role effectively. Institutions which have focused on the training of medical students are asked to focus on the patient; faculties which have been devoted to the education of medical students, interns, residents and fellows are asked to instruct practitioners; high walls which were erected to protect the standards of the ivory towers are to be demolished without assurance that the standards will not be lowered and the ivory towers sullied; in short, the racing car is to be harnessed to the plow."

Therein lies one of the less obvious but more difficult problems in our heaven and earth moving project, otherwise known as regional medicine. I can speak with the authority of a retired dean who has had many times to move his faculty in the direction of desirable change, sometimes finding that having moved these distinguished men he has to move them again at a later time and over the same ground.

Having felt my first responsibility was to do justice, however inadequate, to the regional medical programs in action, I can now, as the program for the opening session suggested, focus on the issues in summary fashion.

The first three speakers were extremely well chosen for a diversity of viewpoint and as it turned out, quite to my astonishment, for the general harmony of their remarks. On essentials, I think, there was not discord but general agreement, a wonder to contemplate since they projected the disparate images of medical dean, public health official, and medical politician. I grant that each represents a great deal more than these one-dimension profiles as anyone who knows Carleton Chapman, Lester Breslow, and—most pertinently—Dwight Wilbur might protest. I speak of this professor of medicine as a medical politician only because I doubt that anyone can rise to become president-elect of the American Medical Association without engaging in the politics of organized medicine.

Because the regional medical programs now seem to be developing, explicitly or implicitly, as a reasonable and acceptable idea, and do have the approval of the American Medical Association, I am sure the regional medical program's councils and staff would as leave forget the program's rather opportunistic conception and bizarre gestation, but our speakers, with a sense of history that scholars can hardly abandon without impairment of their spirit of free inquiry, could not leave genesis quite alone.

Chapman remarked that the enabling legislation was born "amid talk of crisis in medicine," and added, "There has been so much talk about the crisis in medicine that we are beginning to consider all the shouting with suspicion instead of alarm." Wilbur, reflecting on origin and intent, agreed that "In many respects this act is quite extraordinary." Certainly none of us who had the opportunity to read the DeBakey report from an objective position can express anything but pleasant surprise that the heart disease, cancer, and stroke program has turned out so well. Whatever ground the infant lost in questionable parentage or difficult delivery, it has been made up through skillful legislation and administration, as well as demonstrated in the emerging substance I mentioned. Due in part to the information overkill on heart disease, cancer, and stroke and in part to the simple fact that planning and organization strike the public as dull, the regional medical program until now has not had much of a story to tell. Speaking perhaps gratuitously for rational medicine, I would say the story is getting better all the time. I am much impressed with it.

Speaking under the title, "Science and Service," Chapman's primary message was that research is service, even as teaching and patient care are services. There is really no quarrel here, and his is a nice way of promoting healing of the conflict resulting from the overemphasis on medical research at the expense of teaching and patient service.

Chapman speculated that Federal participation in the creation of a climate favorable to research is traceable to the career officers of the Public Health Service; in this, I should differ with him by amplifying those responsible to include not only crusading Public Health Service officers but health-minded politicians and research-minded physicians from the medical schools and research institutions. As a matter of fact, the first sizable medical research grants to nonprofit institutions and their investigators came from private philanthropy, followed by national voluntary health organizations. The Federal Government took over this support after World War II and greatly augmented it.

Chapman further speculated that the "politics of the research climate," have "kept us from developing a mechanism capable of looking at the health problem for what it actually is: a tightly interrelated, enormously complicated, and overwhelmingly important unity." He pointed out that we as yet do not have an organizational pattern that is strong enough to foster balanced development of research, teaching, and practice.

Chapman denied that medical practice has failed to bring the fruits of biomedical research to the patient's bedside, but agreed that the delivery of these fruits has been spotty. He also justly contradicted the common charge of a gap between laboratory discovery and application in medical practice, suggesting that if the biomedical researcher has any fault, it is that "he rushes into print and sometimes onto the television screen much too readily and uncritically" with findings described as breakthroughs. So, "It is small wonder that both physicians and laymen become bewildered when so many breakthroughs are either forgotten or proved wrong a year or two later."

This speaker conceived the problem to be one of equal access to health services on the part of all people, and concluded that the regional medical programs is a moderate, evolutionary measure designed to carry out the prophecy that public dollars spent for research can bring us better health.

Those who believe that social groups with long-established and well-defined self-interests are apt to be moved only by threats or by promises have been made skeptical of the outcome of a program which depends, by direction of Congress, on voluntary cooperation of practicing doctors, academic medicine, public authorities, and a variety of others not wholly distinguished for their compatibility. I must admit to having shared this skepticism until the last 3 days.

Wilbur, however, was more sanquine about our capacity for social action and progress by common consent. He recalled that "De Tocqueville identified this unique American ability to become associated with others to plan and operate programs in the absence of central governmental direction and control."

Here, beyond a doubt, is the key to the future success or failure of a regional medical program that has the singular characteristic of being imposed not from the top down but the bottom up and therefore leaves the distinct impression of having no strong and inspired leadership. The potential genius of the Division of Regional Medical Programs is that it insists that the ideas and the initiative, the organization and the stimulus, come from the grassroots, so to speak. There are some students of their fellow man and his motivations who regard all this as too good to be true, yet as far as the arrangements in 54 different regional programs have gone it is true.

Wilbur praised Dr. Marston and his staff for "the creation of a local and regional climate which engenders voluntary cooperative action to improve the health care organizational patterns and delivery system which currently exist," and lated added, "In a sense, the program combines the better features of the liberal and conservative approaches to a creative society."

At the same time, Wilbur spelled out the position of organized medicine's cooperation in unmistakable terms. It is well known that physicians and hospitals have credentials and qualifications by which they attempt to assure themselves of each other's competency and hope to insure their patients of a high quality of medical care. Since a poor quality of care is something worse than none at all, it is natural for intelligent patients or their group representatives, such as organized labor or welfare agencies, to apply the profession's own standards to obtain the "best medical care." There is, of course, no guarantee.

Wilbur warned: "* * * If RMP becomes an instrument for the establishment of national standards with the coercive compliance compelled by such standards, it will arouse nationwide resistance from physicians, institutions, and allied health professionals. What can be gained by cooperation and meaningful participation will surely be lost if the use of coercive power, which for the moment lies dormant in Public Law 89–239, becomes its dominant characteristic."

This was practical advice on how to avoid conjuring up old devils, such as the fear of socialized medicine.

Breslow touched on other kinds of problems in the regionalization of health, such as the fact that those interested in environmental health control and those planning patient care services "have remained almost entirely oblivious of each other," and also mentioned runaway costs: "The tremendous costs involved in applying just one set of advances in medical science; namely, organ transplantation, are causing top budget officials in Federal and State governments to burn the midnight oil. How fast should we develop these new procedures and how can economy be maintained?"

We must hurry on without answering these questions.

Roger O. Egeberg wished to give no ground on the need for excellence, but plead that availability of services was every bit as important as their quality.

Ray E. Trussell conceded that the pursuit of high-quality care was time consuming and costly, and supported Wilbur's position against national standards in regional medical care, yet he held that at his level (the city of New York) it was necessary to limit public funds to medical and hospital services that met minimum standards. "Training private practitioners to give better care to patients will not satisfy the requirements of a regional medical program," he said.

Frank P. Lloyd explored the techniques of involvement by which the quality of medical care can be raised; for example, by persuading practitioners to give routine Papanicolaou smears. Amos Johnson, the articulate general practitioner from a rural North Carolina community attacked the issue of quality and avail-

ability from still another standpoint: How you persuade doctors to come to and stay in a small town. One good way is to begin with a community attractive to the doctor's wife. Anything that makes life tolerable for the doctor also helps. Johnson demonstrated himself to be quite comfortable with the idea of upgrading the quality of the practitioner's services.

DISCUSSION GROUPS

A kind of rough and ready validation of the choice of issues and points pursued by the program speakers came out of the discussion groups. In some instances, discussants stated their problems and their opinions more forcefully than the speakers. This was the case in the group that pondered urban and related problems. Their concern had to do with the difficulties of promoting community involvement and organizing regional programs in metropolitan areas containing a wide variety of overlapping or conflicting institutions and agencies—medical schools, hospitals, voluntary health and welfare agencies, or the like. I listened, and heard lively discussion but no answers.

In these discussions, no one questioned the existence of a health manpower shortage, nor did anyone quite know what to do about it. Participants appeared to agree that no one knows for sure how many doctors and other health professionals the country needs, inasmuch as there is presently no way to measure the quality of care they are giving, the efficiency of their methods, the validity of felt needs, or the number of persons not getting adequate health care.

The suggestion that the regional medical programs offered an extraordinary opportunity to pin down some of the variables in meeting manpower demands and thus make a beginning toward solution obtained ready acceptance. In my own opinion, the organization, distribution, and more effective utilization of the services of health professionals is equally as important as, if it does not have higher priority over, large increases in the production of doctors, nurses, and others.

ADMINISTRATION OF REGIONAL MEDICAL PROGRAMS

Presentation of the regional medical program through the eyes of Bob Marston and his staff provided an excellent demonstration of the Division's genius for drawing attention not to itself but to its regions, whence all things come and where all things happen, according to the law. In all probability, those listeners who concluded that the staffers of this Division of the National Institutes of Health were a lot less interesting than the people from the field were merely uncomprehending of the devotion of Bob and his staff to the concept that leadership must come from the community or region and not from Washington bureaucracy.

It was a highlight of the conference, from my standpoint, to find that the members of both the Division and the staffs of the programs themselves were at every level, persons of apparent high caliber. The observation extends to the many bright, young people I met. The analogy of the university came to mind; the institution is precisely as strong or as weak as it faculty. Talent was plainly visible in the Division staff and the regional coordinators and their staffs.

If this unusual policy of leadership—someone called it creative anarchy—survives its inherent disadvantages, such as the apparent lack of aggressiveness and articulateness, it will constitute one of the great tours de force in the history of public administration. The idea of carrying out the effective organization and operation of a program based on the necessity of voluntary cooperation and implemented by letting leadership come from the outside in and the bottom up, is difficult to get used to, I conceded. Once one appreciates what is happening however, he is not disposed to change it, but becomes rather intrigued with how it will come out. The Division staff otherwise gives every evidence of being extremely able. There seems to be method in their madness.

Marston quoted his chief, James Shannon: "Although we must contend with many diverse geographic and social circumstances, NIH, in administering the regional medical programs, will strive to preserve existing centers of excellence in science, education, and service while, at the same time, working with State and local forces, evolve a system that will make available to the bulk of the population medical services that are excellent in quality and adequate in quantity—at least in a major segment of the diseases that plague us all."

I have little doubt that his approach would have been extremely puzzling to some of the earlier prophets of regional medicine, such as John Grant of the Rockefeller Foundation or Joe Mountain of the Public Health Service, as it may

also perplex some of the advanced students of social systems and processes. But if we regard the program as an experiment we may also conceive it as a rather startling innovation. It has the great virtue of keeping the enterprise well removed from that battlefield where we can still see the unburied bones of many a social planner and social reformer—that is the battlefield of socialized medicine.

Alexander M. Schmidt, Chief of the Continuing Education and Training Branch sums up the situation in the articulate fashion:

"The challenges faced by regional medical programs are now readily apparent, and while great in size and scope, are matched by the potential for solution offered by the programs. The fragmented medical services, the rising costs of care, the shortages, the impersonalized and disjointed system, and the educational imperfections are the fabric of our health care crisis. The new emphasis being placed on these major issues by regional medical programs is being reflected by the developing resources and energies of the programs.

It is significant that the staffers speak of not one program but of programs in the plural. In other words, we have borne witness in these 3 days to the emerging substance of 54 happenings; that is, 54 regional programs now in existence. In place of the old medical analogy of the three-legged stool of teaching, research, and service to patients, I should like to introduce a new one to fit the occasion. I see the Federal Government as the hub of a wheel in which the spokes are teaching, research, and service and the rim binding them together is regional medical programs.

MANPOWER PROGRAMS

Mr. LAIRD. In the reorganization, the manpower programs will be concentrated in the National Institutes of Health.

Dr. STEWART. That is correct.

Mr. LAIRD. The training, whether it be in the area of technicians, nurses, doctors, dentists——

Dr. STEWART. All the activities now included in the Bureau of Health Manpower would become part of a single administration.

Mr. LAIRD. And the National Institute of Mental Health would also become a part of that administration.

Dr. STEWART. No, that is not correct.

Mr. LAIRD. Where would it be?

Dr. STEWART. That would be in the Health Services Administration. In fact, the proposed name for that is Health Services and Mental Health Administration.

Mr. LAIRD. Why is the Mental Health Institute going to be placed over there?

Dr. STEWART. As you know, the National Institute of Mental Health is different than most of the institutes in NIH in that it has a full range of activities from research to service, with a great deal of effort in the development of services. The community mental health program, the construction of centers, the training of psychiatrists, nurses, and so on. It seemed to be a judgment on our part that it was better there than in the National Institutes of Health.

Mr. LAIRD. Will psychiatric training be handled in that administration?

Dr. STEWART. Yes. This is no change from our present philosophy, Mr. Laird. We look at the Bureau of Health Manpower as forming in a sense the basic pool of health manpower. The M.D. degree, the dental degree, the nursing baccalaureate or diploma. The development of these people into research workers or into specialists of some kind, falls within the program areas.

Mr. LAIRD. The Secretary gave me to understand that all these programs including psychiatric training would be in NIH. All the man-

power grants and the training grants would be handled in NIH, whether it be for nurses, for technicians, for doctors, or for psychiatrists. All the manpower activities would be in one place.

Dr. STEWART. I can't speak to what the Secretary said to you. It has been my understanding that we were talking about the totality of NIMH as it now exists—being in the health service and mental health administration.

Mr. LAIRD. All the manpower programs of the National Institute of Mental Health will be in a different administration than the other manpower programs?

Dr. STEWART. That is right. As it is now. Its manpower programs are not in the Bureau of Health Manpower.

Mr. LAIRD. NIH has a lot of manpower programs now too. We have manpower programs in medical education through all of the institutes. And then the Public Health Service has a separate manpower bureau.

Dr. STEWART. Yes.

Mr. LAIRD. I thought we were going to try to get the manpower programs in one place.

Dr. STEWART. No, I think the proposal has been only to bring the Bureau of Health Manpower and the NIH into an organizational entity of administration. Again I say the Bureau of Health Manpower is aimed at the basic degrees. You cannot have a psychiatrist until you have an M.D. first. You cannot have a psychiatric nurse until you first have a nurse.

The big manpower area is this basic pool. How they develop into a research worker, a scientist, a psychiatrist, an environmental health specialist or anything else is better associated with the program areas, and this is why we have left these specialist training programs in the program areas.

Mr. LAIRD. You don't think we can get into the functional grant approach for manpower in our medical schools instead of the traineeship-fellowship basis as we are currently doing?

Dr. STEWART. No; I think the Bureau of Health Manpower's relationship to medical schools is an institutional relationship and a student relationship. The National Institutes of Health is more in the graduate area after they have become a physician.

Mr. LAIRD. And so is the National Institute on Mental Health.

Dr. STEWART. That is right. This is why we have kept these programs separate from the Bureau of Health Manpower.

Now, whether in the future one could begin to pull all of the manpower efforts throughout the Department into an entity, I don't know. As far as I know, we are only looking at this first step of bringing these together. NIH has so many relationships with the special schools, and the Bureau of Health Manpower—which is only a year old—is also beginning these relationships. They also have relationships with community colleges and undergraduate colleges and hospitals, as far as the technician and the diploma schools are concerned.

Mr. LAIRD. The nurses' training program is in the manpower bureau now and will go into the NIH administration?

Dr. STEWART. That is correct.

Mr. LAIRD. What other health manpower programs will not be under the NIH's administration, other than mental health?

Dr. STEWART. It is easier for me to say what will be included, because all of those programs authorized by the Education Assistance Act, the Nurse Training Act, the Allied Health Professions Act, and the Public Health Training Act would be the ones that went to NIH.

Mr. CARDWELL. In a way, what you are observing is the separation of NIMH from NIH. Where the mental health functions, so go the psychiatrists.

Mr. LAIRD. It used to be with NIH and it was separated out. It is my understanding we are now trying to get the manpower programs all back into one place.

Dr. STEWART. No, this was not the intention. The intention was to take those programs which were aimed at the basic pool and which have large institutional relationships and put them together in an organizational entity in the NIH administration.

If I may say one other thing, it might help clarify our discussion. The Bureau of Health Manpower was put together not only to integrate functions which were scattered throughout the Public Health Service, but on the philosophy that health personnel are now being trained in combined groupings rather than as separate and individual groups.

You will notice the trend in universities. A vice president of medical affairs is responsible for a school of allied health professions, medical school, dental school, veterinary school. In many instances they are beginning to train the dental students and the medical students in the first 2 years in the same classroom. They are beginning to pull together the multiple technicians schools giving the baccalaureate degree into allied health professional schools. In one instance the nursing school is included in the allied health professions school. This is an attempt to bring together the scattering we have had in this massive manpower pool, into a more rational approach within the institutions that are most likely to be involved in it, the community colleges and the universities. This is what the Bureau of Health Manpower is doing. So far as I know, we have not gone beyond that in our consideration of this reorganization.

Now, Mr. Gardner may have gone way beyond it in his own thinking, but I am not aware of it.

Mr. LAIRD. It was my understanding we were moving to solve the very critical need in health manpower. Three very good recent reports, make it clear the greatest need we have today in the whole medical field is manpower.

Dr. STEWART. There is no question about it.

Mr. LAIRD. This has a great deal to do with prices. Everyone wants to talk about what they can do with skyrocketing medical prices.

One of the greatest things you can do is to fill the manpower need. That has a lot to do with the cost. It is a basic economic supply-and-demand problem. You can talk all you want about reducing medical costs, but until you fill the manpower need there is no way to reduce it, is there?

Dr. STEWART. No; I think you are quite right. It is the key element; that plus organization. Those are the two key elements in the cost factor.

DELIVERY OF HEALTH SERVICES

Mr. LAIRD. And delivery?

Dr. STEWART. That is right. Health services are personal services. It has to be a person who is trained and skilled to give the service.

Mr. LAIRD. Do you think we are doing a better job of getting information to nurses, doctors, and the health profession, on better delivery? Do you think we have really improved our techniques of delivering medical services?

Dr. STEWART. We have only improved it in pieces here and there, Mr. Laird, around the country, but even this progress is heartening because it is in a sense in the forefront of change. I think there is an awareness of the lack of organization of health services and the need for organization, and of the need to improve health services that was not apparent 2 or 3 years ago.

MEDICAL LESSONS LEARNED IN VIETNAM

Mr. LAIRD. How are we applying the things we learn in Vietnam? There are some good things coming out of Vietnam even though most of the things coming out of there are bad. One of the good things is the new methodology for delivering medical services.

Are we using the experiences in Vietnam in the United States at all?

Dr. STEWART. I don't know that I can relate it to the situation in Vietnam, Mr. Laird.

Mr. LAIRD. I know it is because of the shortage there, but when you see the way people are transported from very serious accidents and other things in Vietnam, when you see the way the services of a surgeon are used and then you see the lack of organization here. I wonder if some of these techniques can't be adopted.

Dr. STEWART. I think that in connection with the evacuation of injured people, say from the highways, or other locations, the President does have in his health message a proposal to try to adapt the use of the helicopter for evacuation at traffic accidents, or other injuries.

Mr. LAIRD. We talked about that about 2 years ago. Not very much has happened.

Dr. STEWART. No.

Mr. LAIRD. There are about three places in the United States that I know of that have actually utilized this technique.

Dr. STEWART. There is some utilization of these evacuation techniques. There are ramifications which go beyond just whether one can use a helicopter to speed up the evacuation time. The efficiency of the system and how much would it cost if you really put it in and when would you use it and when would you use ground transportation. All these questions I think have to be answered before one embarks on the whole effort.

Mr. LAIRD. I think you have to merchandise these things to people. I don't think many people in this country understand some of the fine new developments we have had in medicine. I am showing an Air Force film in the schools all over my district now. I am also getting one from the Space Agency and one from the Army which are good

25-minute programs for school assemblies. I can't keep up with the demand for those. I am trying to do the same thing in the Public Health Service field. You saw that film on the operation out at Bethesda, "The Miraculous Pool" by Becton Dickenson.

Dr. STEWART. Yes, I saw that film.

Mr. LAIRD. This was a very interesting film. I think I am going to use it to help build up a film library in my district. But I didn't think that that film really told the key message that the Public Health Service should be getting across to people and that is the improved delivery of services to people.

Dr. STEWART. With regard to the delivery of health services and the care of the injured, some of our studies contemplate several things. Eventually we will have a trained pool we didn't have before. One member of this team could be a helicopter pilot. In appropriate situations, we probably will recommend the use of helicopters.

It is well known, I think, in medicine, that the time of evacuation is a key factor in determining survival from an injury. This has been illustrated during the wars.

NURSE TRAINING INFORMATION PROGRAM

Mr. LAIRD. What kind of a manpower program do you have to attract young men and women to nurses' training? What kind of a public information film do you have? Do you have a film that you use in the high schools?

Dr. STEWART. Not of our own. We work through the State nursing associations?

Mr. LAIRD. I wrote to my State board of social services which handles nursing activities and asked them for background for my daughter with regard to going into nurses' training. I was quite disappointed with the kind of material they sent out. It wasn't the kind that would attract someone to go into nurses' training.

Maybe this is a small matter, but we have a shortage of nurses. We have a better presentation on why you should go to Carlton College where I went to school—just for that one college—than we have in this country to attract people into nurses' training.

Dr. STEWART. I would agree with you, Mr. Laird. I think our national effort to recruit women and men into nursing is not very good.

Mr. LAIRD. This school I am talking about had only 1,300 students. They have more applications than they know what to do with.

Here is a broad profession where there are great shortages right now. I just don't think we are doing a very good job, based on my own personal experiences.

Dr. STEWART. You are quite right, Mr. Laird. The story of nursing has changed, particularly the fact that a nurse now is quite different than a nurse was just a few years ago—I think she has become quite a skilled professional, and there are opportunities in a variety of fields.

Mr. LAIRD. How is it that a college can do the job so well to meet its own particular needs and you can't do it for a great profession like nursing?

Dr. STEWART. We have had a desire to do this as part of our Division of Nursing program, and we have done some of it working with the National League for Nursing and the American Nursing Association.

Over the last year and a half, we have been concentrating on recruiting inactive nurses back into the nursing field where we have contracts with State agencies to do recruiting and to indicate to nurses who are in retirement, but who have kept up their licenses, that there are retraining programs available in hospitals under the MDTA program, so that they can get a refresher and get back into nursing again. There is a large pool of nurses who are not active, but who have kept up their licenses, and many of these nurses wish to come back to nursing after their family has gotten to a certain point, but they need retraining in the field of nursing.

This has been, I think, a very successful program. There are an increasing number of nurses returning to the field.

Mr. LAIRD. How many do you get back in? How many returned this year?

Dr. STEWART. I would have to get you the number. I don't know.

(The information follows: This year about 8,000 are taking refresher training and approximately 80 percent are returning to work.)

With regard to getting the story over to young men and women on nursing, I think we have a lot of work to do.

BUDGET ESTMATES FOR NURSING PROGRAMS

Mr. LAIRD. I was merely using this as an example, but now that we are on the subject, what amount of money is in this budget for programs in nursing?

Dr. STEWART. There are a variety of programs in nursing, Mr. Laird. There are project grants for the improvement of nurse training; there is $4 million in the budget this year for that.

There is payment to the diploma schools of nursing; there is $3 million in the budget for that; there is the nurse traineeship program and there is $11 million in the 1969 budget for that.

There is also a nursing educational opportunity grant program.

Mr. LAIRD. Those nurse traineeships are all for degree nurses?

Dr. STEWART. Some of them are, Mr. Laird, but the traineeship program is directed at helping graduate nurses to become prepared for teaching and supervision. In some instances nurses do obtain a degree and this means that the nurse receiving a traineeship is a diploma school graduate.

The funds under the traineeship program provide funds for short-term training which is not degree oriented and for long-term study.

Mr. LAIRD. That is the $11 million figure.

Dr. STEWART. That will be the nurses who become supervisors or teachers. Nurse opportunity grants are $7,050,000.

Mr. LAIRD. I would like to have that broken down between diploma and degree. I personally feel that right at this particular time we are putting so much emphasis on the degree and the advanced degree that we are jeopardizing many of the diploma nurses. We need diploma nurses right now.

Dr. STEWART. There is no question about it. About 44 percent of the grants go to diploma schools. We are talking about the nurse opportunity program now.

Mr. LAIRD. Let's go on with your review of the grants.

Dr. STEWART. The loans for nursing students are $9,700,000 from the regular appropriation and $7,300,000 from the revolving fund for a $17 million total.

Now, construction is $21,462,606.

Mr. LAIRD. How is that divided?

Dr. STEWART. The construction is divided—this is awards that have been made as of December 31, 1967; 73 grants. They are divided into 28 baccalaureate, eight junior college, and 37 diploma schools.

In terms of first-year places provided, it is 1,802 baccalaureate, 429 junior college, and 632 diploma. In addition, 11,445 student places were maintained. Of those, 5,342 were in diploma schools.

I think, Mr. Laird, you have to look at other figures, too. I don't have the figures with me, but I will tell you what they show, and I will get them for you.

(The information follows:)

Nurse opportunity grants

Diploma schools	$3,100,000
Baccalaureate degree	3,100,000
Associate degree	850,000
Total	7,050,000

First, there are more nurses in training than there have ever been. I am adding together 2-, 3-, and 4-year students. There has been a total expansion. The rate of expansion in the 2 and 4 year is much more rapid than diploma. The number of nurses in diploma schools is dropping down gradually. There has been a shift toward the 2- and 4-year schools. This shift, I think, is not because of the flow of money from the Nurse Training Act, but it is rather a change in the character of nursing. Women who want to go into nursing now want to go to college, and I think we see the community college development of nursing schools granting the associate degree as the new kind of nursing that is coming along.

Many of these community colleges, in fact, grow out of the closing of the diploma school, and then they have a third year, or do their clinical work in the same hospital where they used to have the diploma school. They can attract faculties. They are becoming a place where one goes for technical training.

In terms of numbers of students produced, the diploma schools are much larger and are a very essential resource.

Mr. LAIRD. It seems to me you are giving the diploma schools less help than you are the degree schools. I think that is fine to help the degree schools, but you don't have very much down here to turn out medical manpower.

Dr. STEWART. The construction grants, of course, are available to all the kinds of schools.

Mr. LAIRD. But over half the money in your construction grants is going into the degree schools.

Dr. STEWART. But that is where the applicants are coming from, Mr. Laird. This, I think, reflects this beginning shift.

Mr. LAIRD. But your associate degree schools and your diploma degree schools are turning out more nurses.

Dr. STEWART. But the proportion of nurses who are coming from diploma schools is dropping, and I think will continue to drop. I don't think it will go away entirely. I think there are some excellent hospital nursing schools, but the students, I think, want associate degrees or baccalaureate degrees to go to nursing, because they recognize if they go on into nursing this opens up future opportunities for them much greater than a diploma.

We are in this transition stage, and I think the danger is that we create the transition too fast and destroy an asset we have in diploma schools before the other asset is built, but over time I think this shift is going to continue, and I think we will see it reflected in our programs where the applicants determine the direction that things are going.

The traineeship program was one started in 1956 before the Nurse Training Act existed, and was mainly aimed at the fact that we couldn't expand nursing schools, diploma or any type, at that time, because we didn't have faculties. The reason for the expansion of the use of RN's and LPN's on the wards was because of the development of a new position, and they had to have a more highly trained person. This fact was reflected in the Nurse Training Act when it passed the Congress in 1964.

MEETING FUTURE MANPOWER NEEDS

Mr. LAIRD. Now, are we going to get ahead in this medical manpower area, based on the budget presentation that you have made to us? I am speaking not only in the area of nurses, but in the other important areas that have been pointed out so dramatically in the last 12 months.

Dr. STEWART. Well, Mr. Laird, this budget that is before you in 1969 in the health manpower field gives us total obligations in the manpower fields which are considerably increased over the 1968 obligations. The amount of money to obligate will be much greater. It will provide for an expansion of the programs into the 1969 fiscal year.

Mr. LAIRD. What are those?

Dr. STEWART. In obligations?

Mr. LAIRD. No; I want to know about the number of people, the expansion in people.

We have almost runaway inflation in this country today so I am more interested in the number of people. That's more meaningful than dollars.

Dr. STEWART. Mr. Laird, I can't give you how many people will come out of the 1969 money because of an obligation in 1969 to begin the construction of a nursing school will not result in any increased people in 1969. I can give you the figures that have resulted up to now from this program.

Mr. LAIRD. I have those figures. They were covered quite adequately in this last report.

Dr. STEWART. That is correct.

Mr. LAIRD. But the report showed that we weren't getting ahead, that we were falling behind.

Now, I want to know, are you satisfied that we can make sufficient progress in moving to solve this manpower problem based on the recommendations which you have in these justifications?

Dr. STEWART. I think this budget gives us the money available for obligation in 1969 which will move this program forward.

Mr. LAIRD. And we will not, for the first time in the last 10 years, be going at a deficit rate?

Dr. STEWART. No; this shows an expansion and the effort will expand.

Mr. LAIRD. Our population is expanding and the demand is growing. Now, the manpower report shows a deficit.

Dr. STEWART. When you talk about keeping up with demand, that is a different kind of number. I don't think it is possible to keep up with demand.

Mr. LAIRD. Then we better start working on better means of delivering services. Let's go forward one way or the other. Now, which way are we going?

Dr. STEWART. Well, you have to move on every front, Mr. Laird, and I wasn't implying that the increase in numbers solves the problem. You have to develop the pool of people, and you have to keep expanding it as much as you can, but that won't solve the problem. Unless we can increase the efficiency of the manpower when they are providing services, we are not going to get anywhere, and this is an organizational problem and it also involves use of people as teams rather than as individuals. I think the report of Secretary Gardner to the President on prices had a statement there that if we could just get a 4-percent increase in the efficiency of physicians, this would be like 10 new medical schools.

We want to use manpower most efficiently, and to develop the kinds of manpower that might extend the hands particularly of the physician who takes so long to train. We are supporting some experiments in this area of physician assistance, or whatever you wish to call it, at Duke, for example. We are trying to use some people who have developed some skills in the health field—these happen to be returning corpsmen—to use them as persons who work with the physician but in a sense makes him one and a half people, or one and three-quarters or whatever is possible.

This is applied in the hospitals where there are technicians in the operating rooms whose use begins to make the procedure more efficient. This has only begun. There are many difficulties in it, and I think we are still searching. I don't think we have the answer at the present time.

ORGANIZATIONAL CHART OF REORGANIZATION

Mr. LAIRD. Could you put in the record at this point the organization chart under the proposed reorganization as it is presently drawn?

Dr. STEWART. Yes. If you do not want any breakdown below the administration level.

Mr. LAIRD. I just want the broad general breakdowns that you have showing what is included in each administration.

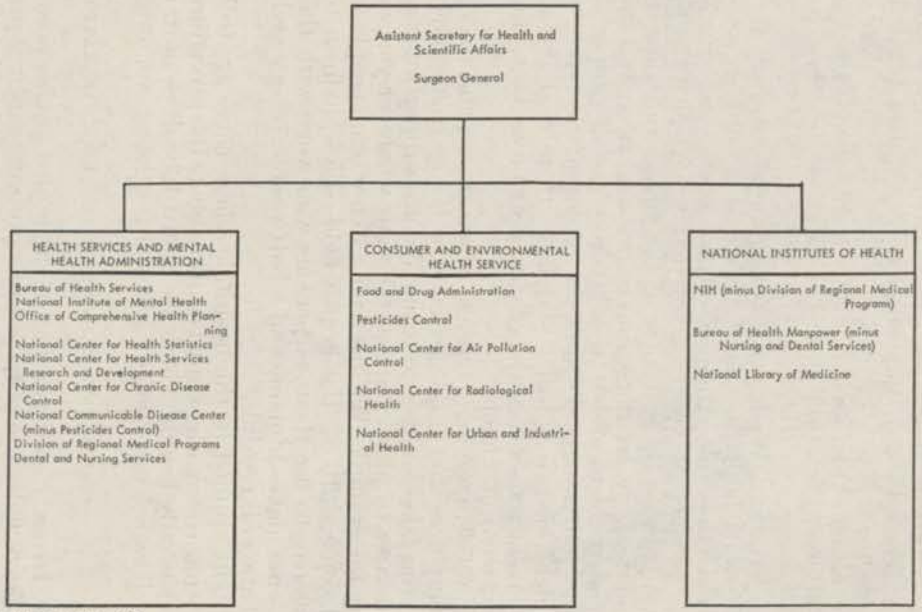
I realize this is tentative and may change because of the reappraisal that is going to go on in the next few weeks.

Dr. STEWART. Certainly.

(The information requested is as follows:)

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

PUBLIC HEALTH SERVICE *
(Proposed)



* As contemplated on March 6, 1968

NEW POSITIONS IN 1969

Mr. LAIRD. Dr. Stewart, how many new people are you asking for in the Public Health Service?

Mr. CARDWELL. The increase in the Public Health Service was 2,565.

Mr. LAIRD. May we have a breakdown by the various divisions?

Dr. STEWART. Yes; we have that.

Mr. CARDWELL. I have some figures here I can give you by organization: 588 positions for the National Institutes of Health; 439 for air pollution activities; 427 for Indian health activities; 109 for the National Center for Health Services Research and Development, and so forth. We can see that they all get in the record.

(The information requested is as follows:)

New positions, 1969

Appropriation:	*Number of positions*
Salaries and expenses	13
Comprehensive health planning and services	53
Health manpower education and utilization	51
Chronic diseases	35
Communicable diseases	159
Air pollution	439
Urban and industrial health	234
Radiological health	11
Community health services	205
Patient care and special health services	85
Hospital construction activities	−30
Indian health activities	427
Biologics standards	5
National Cancer Institute	43
National Heart Institute	19
National Institute of Dental Research	7
National Institute of Arthritis and Metabolic Diseases	40
National Institute of Neurological Diseases and Blindness	37
National Institute of Allergy and Infectious Diseases	18
National Institute of General Medical Sciences	19
National Institute of Child Health and Human Development	95
Regional medical programs	53
Environmental health sciences	61
General research and services, National Institutes of Health	33
National Institutes of Health management fund	163
Mental health research and services	92
St. Elizabeths Hospital, salaries and expenses	38
National health statistics	63
National Library of Medicine	10
Advances and reimbursements	−41
Service and supply fund	81
Allocations and allotments (net)	49
Total	2,567

JOHN E. FOGARTY INTERNATIONAL CENTER

Mr. LAIRD. Dr. Stewart, how much is in this budget for the International Health Center at Bethesda?

Dr. STEWART. $600,000.

Mr. MILLER. Those are operating funds only and not for construction.

Mr. LAIRD. Why did you strike John Fogarty's name out of the title again?

Mr. CARDWELL. The Public Health Service did not strike the name, sir.

Mr. LAIRD. We named that center when we wrote up this bill last year. Now the Bureau of the Budget sends it over here again with John Fogarty's name deleted. Hasn't that center been named by the action of this committee?

Mr. CARDWELL. Yes, sir. We can assure you that the institution itself shall bear the name. For reasons unknown to us, the Bureau of the Budget left the name reference from the printed budget itself.

Mr. LAIRD. The first time we went through this budget I couldn't even find it. I was a little disappointed that the Bureau of the Budget, or someone, knocked the name out again. I thought that had been pretty well tied down.

WORLD HEALTH ORGANIZATION MEETING

What is in this budget to prepare for the World Health Organization meeting in Boston?

Dr. STEWART. I don't think that appears in this budget, Mr. Laird.

Mr. LAIRD. Would it be in the State Department budget?

Dr. STEWART. It is an international agency. As I remember, it is $500,000, but I am not sure of that figure.

Mr. LAIRD. That would be in the State Department budget.

Thank you, Mr. Chairman.

Mr. FLOOD. Mr. Natcher.

FOUNTAIN SUBCOMMITTEE INVESTIGATIONS

Mr. NATCHER. From time to time, Dr. Stewart, I read stories in the newspapers concerning the investigation now being conducted by the Fountain Subcommittee of the Committee on Government Operations. Have you had an opportunity to testify before this subcommittee?

Dr. STEWART. No, I don't believe I have ever testified before that subcommittee, Mr. Natcher.

Mr. NATCHER. Do you know the investigation that is underway now before the subcommittee concerning certain grants made by the Department of Health, Education, and Welfare?

Dr. STEWART. I am not aware of what investigation is underway now. There was a report from the committee, I think it was before Christmas, and we just recently responded to that report.

Mr. NATCHER. This was the ninth report?

Mr. CARDWELL. I believe so.

Mr. NATCHER. This has been going on now for several years.

Mr. CARDWELL. That is right.

Dr. STEWART. That is right.

Mr. NATCHER. You, since becoming Surgeon General, have had no opportunity to appear to testify?

Dr. STEWART. No, because this report that was issued in December really discussed events which occurred just before I became Surgeon General, or just after I became Surgeon General, which were not discussed in hearings. I mean some of it was not discussed in hearings.

Mr. NATCHER. I believe at the time the Secretary appeared and at the time we began our hearings this year, it was pointed out to the committee, Dr. Stewart, that 94 percent of the funds received by the Department of Health, Education, and Welfare, is for grants. You knew that?

Dr. STEWART. It is high. I don't know whether it is 94 percent. Public health is about 75 percent.

Mr. NATCHER. That was the figure to come before the committee in the last week.

Dr. STEWART. Public health grant money is about 75 percent.

PAYMENT GRANT OVERHEAD COSTS

Mr. NATCHER. Dr. Stewart, are you acquainted with the provision that the 1963 appropriation bill contained for payment of overhead costs pertaining to grants?

Dr. STEWART. I don't recall whether that is the year where the cost sharing came in. If that is what it is, I am acquainted with it.

Mr. NATCHER. You are acquainted with that provision?

Dr. STEWART. Yes.

Mr. NATCHER. The provision pertains to certain matters concerning overhead and payment of funds and the recapturing of the funds after an audit. Are you acquainted with any of the cases, Dr. Stewart, that have occurred since you became Surgeon General where you have had some difficulty recapturing funds?

Dr. STEWART. I am acquainted with those cases that have been raised by Mr. Fountain. Some of them were underway before I became Surgeon General.

Mr. NATCHER. Are any of them underway at the present time? Do you have any cases pending now, Dr. Stewart, where you are trying to recapture money on grants approved by the Department of Health, Education, and Welfare?

Dr. STEWART. I believe there are some cases now.

HEALTH RESEARCH, INC.

Mr. NATCHER. Are you acquainted, Dr. Stewart, with the organization known as the Health Research, Inc., of New York City?

Dr. STEWART. I am. I believe you are referring to Health Research, Inc., of New York State.

Mr. NATCHER. Are you acquainted with the case pertaining to this particular organization?

Dr. STEWART. Yes, I am.

Mr. NATCHER. Has that $500,000 been recovered?

Dr. STEWART. Yes, it has.

Mr. NATCHER. The exact amount, I believe, was $496,000. That was for the years 1958 through 1963 which, of course, was before your time.

Dr. STEWART. That is basically correct but I believe the figure relates to a longer period of time—up to 1965.

Mr. NATCHER. Have additional funds been paid to this particular organization since that time that you are now in the process of attempting to recover? Since the recovery of the $496,000 for the years 1958 through 1963, do you have other claims against this company?

Dr. STEWART. I would have to find out.

Mr. MILLER. The total claim against the organization is $502,682. Of that amount approximately $412,000 has actually been recovered and the remainder of $90,000 results from a General Accounting Office audit of those same years which came up with a higher amount than we originally collected. This remaining claim of approximately $90,000 is still under negotiation with HRI.

But the amount since 1963 is primarily a question of the possibility that the indirect cost rate used on the grants may have been too low, and Health Research Inc. has a claim before the Department for a higher rate and possibly a recovery on their part for underpayment of indirect costs.

Mr. NATCHER. How is it possible for a period of time as 1958 through 1963 to pass before the audit places you in position to recapture the money? How do you account for that?

Dr. STEWART. Mr. Natcher, there is a long, long story behind all this between 1958 and 1963, which has been documented rather thoroughly and is disputed by some who think the documentation left out parts. This was a major review—there was a major review that Dr. Terry testified on in the hearings. I would be glad to supply it all to you. It is so complicated I don't see how I could respond to your question as to how it came about. There are many factors in it.

Mr. NATCHER. In fact, it took place prior to your time and you really don't know, do you, Doctor?

Dr. STEWART. No; when I became Surgeon General in 1965 the matter was in the legal realm of deciding the status of Health Research Inc., and was out of the Surgeon General's hands at that time, really.

I have read all of that background and the Fountain reports that have been issued on it and the testimony, but it has been some time since I have done that.

Mr. CARDWELL. Assistant Secretary Kelly has played quite a significant role in the review of this in recent years. I think he could answer some of your questions.

He does plan to participate in the hearings when Dr. Shannon appears, in anticipation of some discussion and the interest on the part of this committee of this very question. I will be certain that your interest in this matter is called to his attention so he will be prepared to talk to it.

Mr. NATCHER. I would appreciate your calling this to his attention, but I do want to continue with Dr. Stewart now, along this same line.

ROSWELL PARK MEMORIAL INSTITUTE

Mr. NATCHER. Doctor, is it true that the Health Research, Inc. company collects money for Roswell Park Memorial Institute?

Dr. STEWART. Collects money for it, yes.

Mr. NATCHER. This is the same company that you had under investigation for this $496,000?

Dr. STEWART. That is correct.

Mr. NATCHER. Does this institution known as the Roswell Park Memorial Institute have some sort of special position with the Public Health Service, Dr. Stewart?

Dr. STEWART. No; it does not.

DR. GEORGE MOORE

Mr. NATCHER. Are you acquainted with a man by the name of Dr. George Moore?

Dr. STEWART. Yes; I am.

Mr. NATCHER. Did you suggest that he appear before our committee last year?

Dr. STEWART. Not that I know of.

Mr. NATCHER. Did he talk to you before he appeared and inform you that he was to appear before our committee?

Dr. STEWART. Not that I am aware of.

Mr. NATCHER. Can you tell the committee how many projects this man, Dr. Moore, has received during the past 5 or 6 years from the Department of Health, Education, and Welfare, and how many millions of dollars he has received, Dr. Stewart?

Dr. STEWART. You are talking about Dr. Moore as a principal investigator?

Mr. NATCHER. Yes.

Dr. STEWART. I will be glad to supply it for you.

Mr. NATCHER. Let me give it to you right now, Dr. Stewart. You have no idea as to the amount?

Dr. STEWART. I could get it for you.

Mr. NATCHER. He appeared before our committee last year.

Dr. STEWART. Yes.

Mr. NATCHER. You are not sure as to whether he talked to you before he appeared or not?

Dr. STEWART. No; I don't know whether he did or not. I see Dr. Moore at meetings here and there, and I have been to Roswell Park, but I don't recall any conversation.

Mr. NATCHER. What can you tell us about this man, Dr. Stewart? Give the committee some idea as to his background.

Dr. STEWART. I don't know his specific background. Dr. Moore has always been considered to be a very competent investigator in the field of cancer, and particularly research related to cigarettte smoking and lung cancer. Roswell Park is considered to be an outstanding cancer hospital both for treatment and for research.

Mr. NATCHER. You say he is considered as a competent investigator. By whom, Doctor?

Dr. STEWART. By the scientific community.

Mr. NATCHER. Do you know anything about his training or his background? Do you have any specific information about this man?

Dr. STEWART. I would have to get his biographical sketches. All of his grants are reviewed by very competent scientific review committees who know him as a scientist and as a physician.

Mr. NATCHER. There is no particular——

Dr. STEWART. I understand Dr. Moore has moved to a job now in the State of New York with the State health department. I don't know specifically what his job is at the present time.

Mr. NATCHER. He is no longer Director of the Roswell Institute?

Dr. STEWART. I don't believe he is, no. I believe he is something in the State health department of the State of New York.

(Dr. George Moore is now director of research, New York State Department of Health.)

Mr. NATCHER. Dr. Moore is very much interested in research, isn't he?

Dr. STEWART. Very much so.

Mr. NATCHER. Dr. Stewart, if I told you that in the fiscal years 1966, 1965, 1964, 1963, 1962, and 1961, he received $4,797,071, would that surprise you?

Dr. STEWART. No.

Mr. NATCHER. It wouldn't surprise you?

Dr. STEWART. No.

Mr. NATCHER. Now, this is just Dr. Moore, himself.

Dr. STEWART. As the principal investigator.

Mr. NATCHER. As the principal investigator?

Dr. STEWART. Yes, he ran a very large research organization.

Mr. NATCHER. And in the year 1966 he had, I believe, Dr. Stewart, five projects totaling $464,004?

Dr. STEWART. Yes, sir.

Mr. NATCHER. Would you agree with those figures?

Dr. STEWART. I would have to check the figures, Mr. Natcher. I have no reason to doubt them.

Mr. NATCHER. If you want to check it, I will give you your own record here to check it from.

Dr. STEWART. That is what I would check it from. If that is where it came from, I agree with it.

Mr. NATCHER. In 1965 he had four projects, $789,180. In 1964 fiscal year he had four projects, $942,463.

Dr. STEWART. That is correct.

Mr. NATCHER. What sort of an organization did this man have at that time, Dr. Stewart? Tell the committee about it. How many employees did he have? I am not talking about Roswell Park now.

Dr. STEWART. Mr. Natcher, I would have to find out for you how many employees he had in 1963. I wouldn't know that at this time.

Mr. NATCHER. These are separate grants.

Dr. STEWART. I would be very happy to get out all the grants that he has had and show you what he had.

Mr. NATCHER. I will let you put it all in the record, Doctor. All the way back.

Dr. STEWART. And any review of the papers, the scientific publications that come out of this, and anything else, if you want.

Mr. NATCHER. Have you, since you have been the Surgeon General, had an opportunity to visit this man where he works, to see what is taking place?

Dr. STEWART. I visited the Roswell Park Memorial Institute, it must have been early in 1966, I think.

Mr. NATCHER. On any separate grants of Dr. Moore?

Dr. STEWART. No, I have never been there on any particular grant or any particular research project. I was there, I believe, at an anniver-

sary or some ceremony where I gave a speech as the Surgeon General. I had an invitation from the mayor of Buffalo to come. I went through his research organization but purely as a visiting fireman at that time.

I can assure you though that all of his research-grant applications to the NIH had a thorough scientific review by the study sections, and I am sure the review was made by people who were competent to review his scientific efforts.

Mr. NATCHER. You have no idea how many employees he himself had on any one of these projects?

Dr. STEWART. I would have to look at each project and find out how many employees he had.

Mr. NATCHER. Now, Dr. Stewart, in fiscal year 1963, I believe he had seven projects and was paid $1,263,127.

You have no idea as to the number of employees he had, or as to how much of this money was for his own salary?

Dr. STEWART. No, I can find out.

Mr. NATCHER. Do you know what the income of this man is a year? Do you have any idea?

Dr. STEWART. I have no idea.

Mr. NATCHER. Does it run several hundred thousand dollars a year?

Dr. STEWART. I have no idea.

Mr. NATCHER. No idea at all?

Dr. STEWART. No idea.

Mr. NATCHER. In fiscal year 1962 this man, Moore, had six projects and was paid $832,291. You have no idea about any of those, as to the number of employees or what transpired?

Dr. STEWART. No, I would have to look at our data to find out.

Mr. NATCHER. In 1961, five projects, and he was paid $506,006.

These projects and these years that I have given you, as I stated a few minutes ago, Dr. Stewart, total $4,797,071.

Now, Mr. Chairman, with your permission at this point in the record I would like to have Dr. Stewart insert the number of projects and the amount received by Dr. George E. Moore for the fiscal year 1967 and following that, Mr. Chairman, for the year 1968, and following that, Mr. Chairman, any amount that is in the budget for fiscal year 1969 that goes to this man.

Dr. STEWART. We wouldn't know that, Mr. Natcher. We would only know those research grants that have been approved.

Mr. NATCHER. Would you check and see if anything is set for 1969?

Dr. STEWART. There may be continuation grants which would come up in 1969 and we can get that for you, but we would not be able to identify new grants.

Mr. NATCHER. You would be able to furnish for the record at this point the fiscal year 1968? That is the fiscal year we are now in, Dr. Stewart.

Dr. STEWART. Yes.

Mr. NATCHER. All right.

In addition to that, Mr. Chairman, I would like for the record to show the years prior to 1961 back for a period of 10 years, the number of projects and the amounts involved that were paid to Dr. George E. Moore.

Dr. STEWART. As principal investigator.

Mr. NATCHER. That is correct.

(The information requested is as follows:)

PHS RESEARCH GRANTS AWARDED TO DR. GEORGE E. MOORE, FISCAL YEARS 1951-68 [1] AND FUTURE COMMITMENTS

	Research grants	
	Number	Amount
Fiscal year:		
1951	1	$15,058
1952		
1953		
1954	1	7,770
1955	1	7,000
1956	1	7,760
1957	1	7,760
1958	3	62,634
1959	3	160,608
1960	4	200,254
1961	6	553,003
Fiscal year—Continued		
1962	6	$832,291
1963	7	1,263,137
1964	4	942,463
1965	4	789,180
1966	5	464,004
1967	[2] 5	[2] 858,898
1968 [1]	2	278,782
Future commitments:		
1968	1	28,132
1969	1	26,726

[1] As of Mar. 15, 1968.
[2] Includes 1 general research support grant for $416,133.

Mr. NATCHER. I asked you if there was any closeness or any relationship between the Public Health Service and the Roswell Park Memorial Institute and you said no.

Dr. STEWART. The only closeness, Mr. Natcher, I would say is that it is one of the cancer institutes in the country, which are not very many, and Roswell Park is one of the major cancer institutes. That would be the closeness to the research effort and——

Mr. NATCHER. How long have you known Dr. Moore, Dr. Stewart?

Dr. STEWART. I don't know.

Mr. NATCHER. Give the committee some idea. Three or four years? Ten years?

Dr. STEWART. Perhaps 6 or 7 years.

Mr. NATCHER. Did you ever work with him?

Dr. STEWART. No.

GRANTS TO ROSWELL PARK MEMORIAL INSTITUTE

Mr. NATCHER. Can you give the committee some idea as to the number of grants and the amount of money received by the Roswell Park Memorial Institute?

Dr. STEWART. I would have to get that figure, Mr. Natcher.

Mr. NATCHER. Well, let's discuss these figures, Dr. Stewart.

In 1966 fiscal year they had 76 grants and received $3,434,190. This is the memorial institute that received assistance from the Health Research, Inc. company that has been under investigation for overpayment of funds. Do you agree with that?

Dr. STEWART. That is right.

Mr. NATCHER. In 1965 this institute received 82 grants and the sum was $48,098.

In the fiscal year 1964 they had 81 grants and the amount was $2,504,277. The fiscal year 1963, 112 grants; the amount was $3,523,577; for the fiscal year 1962 they received $2,183,840 and they had 102 grants.

This makes, according to my figures, a total of $15,297,256 over this 5-year period. Does that sound about right to you, Dr. Stewart?

Dr. STEWART. Let me say if those came from our figures, I think it is right. I am not surprised by the figures at all.

Mr. NATCHER. Dr. Stewart, could you give us the number of grants and the amounts involved for fiscal year 1967 for this institute?

Dr. STEWART. Certainly.

Mr. NATCHER. You will put that in the record at this point, Mr. Chairman, with your permission.

(The information follows:)

PHS RESEARCH GRANTS AWARDED TO ROSWELL PARK MEMORIAL INSTITUTE, FISCAL YEAR 1967

Fiscal year	Research grants	
	Number	Amount
1967	73	$4,440,553

Mr. NATCHER. In 1968 I would like to have the same information, Dr. Stewart, the number of grants and the amount of money involved. Then if you will, please, I would like for you to start with fiscal year 1961 and go back for about 10 years and let the committee know the number of grants and the amount of money involved.

Dr. STEWART. I think the Roswell Park Memorial Center was founded in the middle fifties, if I remember.

Mr. NATCHER. Go back to the time they were founded and come forward with it, if you will, please.

Dr. STEWART. I certainly will.

(The information follows:)

PHS RESEARCH GRANTS AWARDED TO ROSWELL PARK MEMORIAL INSTITUTE, FISCAL YEARS 1961-68 [1]

	Research grants	
	Number	Amount
Fiscal year:		
1951	1	$37,220
1952		
1953		
1954	3	27,624
1955	10	91,379
1956	17	190,575
1957	31	332,877
1958	31	447,711
1959	59	903,401
Fiscal year—Continued		
1960	79	$1,334,689
1961	82	2,603,276
1962	107	2,281,108
1963	112	3,523,577
1964	81	3,504,277
1965	71	3,810,498
1966	74	3,434,190
1967	73	4,440,553
1968 [1]	41	2,063,710

[1] As of Mar. 15, 1968.

REPORTS OF EXPENDITURES BY GRANTEES

Mr. NATCHER. Dr. Stewart, give the committee some idea when a grantee files a separate report of expenditures, what is done about it? When is any report filed?

Dr. STEWART. When?

Mr. NATCHER. When do you require a report?

Dr. STEWART. We require a report after the grant period ends, and the grant period varies.

Mr. NATCHER. I believe you have some limitation of 120 days?

Dr. STEWART. Yes. It is an annual report at the time of the grant anniversary. I think the expenditure report must be filed within 120 days.

Mr. NATCHER. What does this report show?

Dr. STEWART. It shows the expenditures under the grant.

Mr. NATCHER. Does it show the amount received by the grantee individually; that is, he himself?

Dr. STEWART. As his salary?

Mr. NATCHER. Yes, for salary.

Dr. STEWART. Certainly.

Mr. NATCHER. At this point in the record, if you would, Dr. Stewart, I would like for you to go back and check your reports and place in the record Dr. Moore's salary for each year that he has been participating in the grant program with the Department of Health, Education, and Welfare.

Dr. STEWART. I will put in whatever amount he has received from the grants for his salary; yes.

Mr. NATCHER. For all of the grants and for each of the fiscal years.

Dr. STEWART. Yes, sir.

(The information follows:)

An examination of all grants upon which Dr. George E. Moore was principal investigator shows that he received no salary from any of the grants.

Mr. NATCHER. Thank you, Mr. Chariman.

Mr. FLOOD. Mr. Smith.

TOTAL PUBLIC HEALTH SERVICES PERSONNEL

Mr. SMITH. Dr. Stewart, what is the total number of personnel?

Dr. STEWART. In the Public Health Service?

Mr. SMITH. Yes; in the Public Health Service.

Mr. CARDWELL. The 1969 budget would show 47,927.

Mr. SMITH. That is the proposed?

Mr. CARDWELL. Yes.

Mr. SMITH. What is it?

Mr. CARDWELL. 47,927.

Mr. SMITH. How many do you have now?

Mr. CARDWELL. The 1968 budget authorizes 45,360. That would include some numbers that are anticipated to be authorized through supplementals.

EFFECT OF EMPLOYMENT CUTBACK

Mr. SMITH. How many do you have on board?

Mr. MILLER. The total employment as of January 31, 1968, was 43,521. That is both permanent and part time.

Mr. SMITH. We are hearing a lot of speeches about cutting personnel 3 percent from what is now on board.

Mr. MILLER. Two percent.

Mr. SMITH. You must have heard a different speech.

Mr. CARDWELL. The point he is making is that after you exempt the direct medical care portion of your budget——

Mr. SMITH. I am not talking about your statement.

Dr. STEWART. I am sorry; we should not have interrupted.

Mr. SMITH. I am saying we in Congress are hearing a lot of speeches about cutting personnel in the various departments of Government 3 percent below those on board. For you that would be cutting 1,305 below the 43,521, which would mean 42,216.

Dr. STEWART. No, sir. The ceiling which is given to us which reflects the cut over what we had in 1968 budget is 45,220. So we are not quite up to the ceiling at the present time.

Mr. SMITH. But the number on board is 43,521.

Dr. STEWART. Yes; but the cut is not applied against that number.

Mr. SMITH. We are talking about something different. If you were to cut the number on board by 3 percent then you would have 42,200. Tell us what the consequences would be if you were cut to that extent.

Dr. STEWART. The consequences would be that expansion of some new programs would be slowed down. Whether we would have to cut back on existing programs or not, I do not know. I would have to go back and look at the application of the figures to it. But we are still an expanding agency. As an example, the implementation of the Clean Air Act of 1967 calls for 400 or 500 new positions in the present budget before you. We would have to slow down on the expansion of this.

Mr. SMITH. There are certain groups making speeches about cutting 3 percent in all agencies of the Government. I want to know the estimated impact.

Mr. CARDWELL. If I could make one point, we have already directed that a cut be taken this fiscal year of 639 jobs to come to a total of 45,360.

Mr. SMITH. Keep these figures in mind and put in the record what the consequences would be.

Dr. STEWART. We certainly will.

Mr. SMITH. You are aksing for 47,927. You are authorized 45,360.

Mr. CARDWELL. That is correct.

Mr. SMITH. Make the figure whatever is proper. You have on board 43,521.

Dr. STEWART. That is correct.

Mr. SMITH. Tell us what would happen and where the cuts would be and what the results would be in services if that was cut back to 42,200.

Dr. STEWART. Yes, sir. It depends on our judgment as to where we would take the cut.

Mr. SMITH. So the American people will know what the consequences are and what the alternatives are if they follow that route.

Dr. STEWART. Yes.

(The information follows:)

ESTIMATED IMPACT OF 3-PERCENT REDUCTION IN PHS EMPLOYMENT AS OF JANUARY 31, 1968

The total part- and full-time employment in the Public Health Service on January 31, 1968, excluding 169 commissioned officers on detail to the Food and Drug Administration, was 43,352. A 3-percent reduction (1,300 employees) would reduce PHS employment to 42,052:

Three-percent reduction in PHS employment

1.	Employment, Jan. 31, 1968	43,352
2.	3-percent reduction	1,300
3.	Employment level after reduction	42,052

However, if the reduced level of 42,052 represented a ceiling which could not be exceeded during the remainder of fiscal year 1968, then the total decrease in the number of employees would exceed 1,300. At the time the data contained in this report were prepared, approximately 183 new employees had been hired in PHS since January 31, 1968. Thus, in order to achieve the ceiling of 42,052, it would be necessary to reduce employment by a total of 1,483.

Total estimated reduction in employment

1. Employment, Jan. 31, 1968	43,352
2. New employees after Jan. 31, 1968	183
3. Total employment Feb. 29, 1968	43,535
4. Employment ceiling after 3-percent reduction	42,052
5. Total actual reduction	1,483

In assessing the implications of such a cut on PHS employment, we have particularly considered its impact on (1) patient care, (2) new and expanding programs under recently enacted legislation, (3) current programs, and (4) the employees involved.

Patient care

Almost half of the total employees in the Public Health Service are engaged in activities associated with the provision of patient care in PHS hospitals, Indian hospitals, St. Elizabeths Hospital, the Mental Health Clinical Research Centers at Fort Worth, Tex., and Lexington, Ky., and the Clinical Center of the National Institutes of Health. Since any reductions in these areas would jeopardize the quality of patient care provided, it was decided that the 3-percent reduction could not be applied to them. In order to compensate for this exclusion, it was necessary to apply a 5.6-percent cut against all remaining nonpatient care employment in the Public Health Service.

5.6-percent reduction in nonpatient care employment in PHS

1. Employment, Jan. 31, 1968	43,352
2. Less: Patient care activities	20,340
3. Employment subject to reduction	23,012
4. 5.6-percent reduction	1,300
5. Employment level after reduction	42,052

Effect on new legislation

A 5.6-percent reduction in employment of nonpatient care activities would have the following impact on programs initiated or expanded under recently enacted legislation.

COMPREHENSIVE HEALTH PLANNING AND SERVICES

The Office of Comprehensive Health Planning was established to administer the Comprehensive Health Planning and Services Act of 1967. In addition to administering each year nearly 1,000 health service and planning grants to States and localities throughout the country, the Office is charged with responsibility for (1) stimulating and advising on the creation of State and areawide health planning agencies, (2) coordinating PHS activities on core city problems with those of the Department of Housing and Urban Development and Office of Equal Opportunity, particularly in the establishment of community health service centers, and (3) launching a major program to appraise and evaluate the health service activities associated with these programs.

Because the program is just gaining momentum, and the more innovative project grants are only now being reviewed, the workload between April 1 and June 30 will be the heaviest of the entire year. A forced reduction of 5.6 percent from the January 31, 1968, employment level would result in actual employment 25 percent below the minimum required to effectively launch this new program and would seriously impair its ability to achieve the goals of the legislation.

AIR POLLUTION CONTROL

The Air Quality Act of 1967 contains statutory deadlines for designation of air quality control regions, a comprehensive study of the economic impact of the act, and a study of and report on manpower requirements. Work is now underway in the negotiation of large-scale contracts for research on oxides of sulfur in fuel from stationary sources and on emissions from automotive fuels. Protocols for registration of fuel additives, including development of data handling and analysis systems are in process. Any reductions in personnel at this time would make the meeting of these statutory deadlines very difficult, and would retard progress being made in implementing the new authorities of the Air Quality Act.

NARCOTIC ADDICT REHABILITATION PROGRAM

The Narcotic Addict Rehabilitation Act, signed into law on November 8, 1966, established a new policy whereby persons addicted to narcotic drugs are offered treatment and rehabilitation for their disease rather than punishment. To administer this program for the Surgeon General, the National Institute of Mental Health has proposed establishment of a Narcotic Addict Rehabilitation Branch which will require the recruitment of experienced senior professionals who can function effectively within the mainstream of the legal structure and forcefully develop and direct a massive program effort. The program itself is already underway. A number of narcotic addicts have been committed to the Fort Worth and Lexington Clinical Research Centers under the inpatient phase of this program. The National Institute of Mental Health must have an adequate staff on duty to keep pace with this increasing number of patients, and plans will have to be made for the aftercare phase of the program. A reduction in the personnel ceiling would not permit the Institute to carry out its responsibilities under the NARA program.

Effect on current programs

Because of employment cutbacks associated with the cost reduction program required by Public Law 90–218, regular PHS programs are already under severe constraints, and personnel and funding adjustments between programs have been made to the maximum degree possible in order to maintain current program levels. Following are examples of programs which would severely be affected by a 5.6-percent employment reduction:

In the Bureau of Health Manpower there would be major delays in the review of allied health construction grant applications and curriculum development grants and in processing institutional grants for graduate traineeships in the allied and public health fields. This could mean that many students would be unable to obtain necessary funds to enroll for the fall term.

In the Bureau of Disease Prevention and Environmental Control planned expansion of the clinical laboratory improvement program, the need for which has been emphasized by the Congress in the partnership for health amendments enacted in December 1967, and of venereal disease control activities would be curtailed. Services to States and communities in technical assistance, training of health personnel, and inspection under the food and water quality programs would be reduced. The progress which has been made in the electronic products X-radiation program would be halted.

In the Bureau of Health Services, restrictions on employment would be detrimental to programs that are deeply involved in seeking solutions to problems in such areas as nursing homes services, home health, multiphasic screening, and migrant health services. The impact of the employment cutback on the Hill-Burton hospital construction program would reduce that program's ability to provide essential architectural and engineering consultation and technical assistance in the design and construction of needed health facilities. A cutback in the Division of Health Mobilization would also necessitate an immediate curtailment of program goals.

The National Institutes of Health would have to curtail expansion of such important areas as the artificial heart-myocardial infarction program, transplantation immunology, and the population control center. Many ongoing programs would have to be cut back. For example, laboratory and clinical research would be reduced below the 1967 level; the further development of the intramural research programs of the Environmental Health Sciences Center would be halted; the Middle America Research Unit would be closed; and the setback to the United States-Japan cooperative medical science program would be felt for several years.

In the National Institute of Mental Health, in addition to the Narcotic Addict Rehabilitation program mentioned earlier the proposed reduction would severely hamper developmental progress of the recently established National Centers on Alcoholism, Suicide, and Urban Mental Health which are focusing on some of the fundamental problems of contemporary life.

The National Center for Health Statistics would experience a large backlog in the processing of vital statistics data, and the quality of data produced would deteriorate. The Center's medical classification program, started in 1968, would have to be abandoned.

Across-the-board reductions would be necessary in the Office of the Surgeon General and the National Library of Medicine and would increase backlogs and handling time of voluminous workloads which are already suffering from current employment shortages.

Effect on employees

The imposition of a cut in employment would make it necessary to suspend additional hiring, would force cancellation of commitments already made, and, most important, would require a reduction in force, in addition to the normal attrition through retirement, resignations, and transfers. The effects of a reduction in force would be felt in a loss of morale among employees, and would make very difficult the retention of scientific personnel, many of whom would probably return to academic institutions. Future recruitment of professionals would be made even more difficult. Our best judgment of the number and manner in which the reductions would occur is given below.

Number and manner in which reductions would occur

1. Normal attrition	371
2. Reductions in force	929
Subtotal	1,300
3. Reductions in force related to new employment since Jan. 31, 1968	183
4. Total employment reduction	1,483

Mr. NATCHER. Mr. Hull.

Mr. HULL. Mr. Chairman, I regret I was not here earlier.

HEALTH MANPOWER REQUIREMENTS

Dr. Stewart, last year this committee noted that there is no question that there is a very serious shortage of health manpower and it would reach emergency proportions if we did not do something about it.

The committee approved increases in the budget for educational grants, scholarships, and the like. We also increased funds for the construction of health educational facilities. Has this enabled you to make any progress in relieving this shortage of health manpower?

Dr. STEWART. Mr. Hull, we have made progress in developing the resources which will produce more manpower into the pool. Obviously the increased money of last year which goes into construction of a dental school does not have any result on the manpower pool for a period of time. The shortage will be partially relieved by the efforts in this program. In fact, I think we would be in very desperate shape if this program had not been implemented by the Congress in 1963.

Mr. HULL. Would this provide additional relief of this critical situation?

Dr. STEWART. Yes, it will. It will increase the supply of manpower. The construction that has occurred so far under the Health Professions Educational Assistance Act has resulted in some 3,000 or 4,000 new student places so far, and we will continue that.

Mr. HULL. It has been charged, Doctor, that the Federal Government has placed too much emphasis on research and not enough on medical service. Some say that the NIH loose management of funds encourages people of mediocre scientific talent to pursue careers as researchers instead of going into the care of the sick. If this is true, NIH policy contributes to the shortage of health personnel. Are we spending too much for research and not enough for medical services?

Dr. STEWART. We are not spending too much for research. We are not spending enough in the education side. The NIH programs which developed over the 1950's and 1960's were aimed at developing the research effort in the country. Since the research worker or the man who is head of a department in a medical school or something else also teaches, it has provided an overshoot of building the educational programs as far as it could go. Since the purpose of the program was never education, there was a lag of the educational effort behind the research development in the medical schools. I think it is wrong to say that the increase of research and the research effort caused this. If anything, it kept it from happening earlier than it would have happened in the United States. I would challenge the statement on the loose handling of grants at NIH. I think we have had sufficient review by various groups who feel that our review mechanism is very high caliber and assures us that we are supporting good research.

AIR POLLUTION

Mr. HULL. Last year we provided around $64 million for work in the area of health problems caused by air pollution. Has there been any improvement in this very serious situation?

Dr. STEWART. There has been improvement because we have had the 1968 automobiles with air pollution devices on and they are putting out less air pollution. It will take time, because the devices are required only on the 1968 cars and thereafter. Secondly, we have had abatement actions—nine abatement actions—which have led to changes in practices of fuels or the use of fuels in major cities, which is going to cut down the amount of sulfur oxides in the air. We have had a Clean Air Act.

Mr. HULL. Such as steel mills?

Dr. STEWART. Yes. Mostly powerplants, though, in this instance, that use fuel oil, and coal. There are problems in the country and there are areas in the country where low sulfur fuels are not readily available. We have recognized that the technology of removing sulfur from fuels so they can be used is way behind. There was a directive in the Clean Air Act of 1967 to increase our research particularly along the line of removal of sulfur from fuels. We had a supplemental on this, and we do have an increase in the budget in here. So there is a major movement in attempts to do something about air pollution.

Mr. HULL. What diseases, specifically, do you attribute or have reason to believe may be attributable to air pollution?

Dr. STEWART. We think that air pollution is a contributing factor in the chronic respiratory disease area. This is air pollution in the general environment, Mr. Hull. I am not talking about air pollution in a factory where you may be using beryllium or something like this. It is

a contributing factor. I use the word contributing factor because we recognize in these chronic diseases that there are multiple causes, and that air pollution may not be the sole cause of these. We also have asthma which has been demonstrated in Japan, in New Orleans, in London, but this also is characterized within the respiratory diseases.

Mr. HULL. Could you estimate what percentage of the total annual number of incidents of each such diseases is caused by air pollution?

Dr. STEWART. No; you cannot. All you can say is that the chronic respiratory disease incidence and deaths are increasing very rapidly in the country. We do know we have these acute episodes where there is an increased mortality over what you would expect. There is clinical and epidemiological evidence, and some laboratory evidence on this which leads to this contributing factor. One can look at this evidence and lead to this contributing factor. I cannot quantitate it at the present time. I think from the public health standpoint one has to take what action is necessary, since we recognize these pollutants are increasing. This action obviously has to be shaded with what is technically feasible and what won't destroy the economy. So one has to balance the actions that are taken against this, pursuing our knowledge as rapidly as we can.

GEOGRAPHICAL DISTRIBUTION OF CANCER AND DENTAL RESEARCH CENTERS

Mr. HULL. Doctor, we have noted in the past that there is a need for better geographical distribution of cancer institutes or centers. Most of these institutes or centers are located in the northern part of the country.

To make the attack on cancer a truly national endeavor what centers have been established over the last year and where are they located?

Dr. STEWART. Mr. Hull, that came up in the hearings last year, and there has been some action taken. It is in the justification under Cancer Institute and you will be hearing about it from Dr. Endicott or I can get the justification out.

There are two new institutes that are coming into being and they are taking into account the geographic distribution as was recognized by this committee last year.

Mr. HULL. Following along the same line, four new dental research centers were in the planning stage during these hearings last year.

Dr. STEWART. Yes.

Mr. HULL. They were to be geographically dispersed in all parts of the country.

Dr. STEWART. That is described in the justification for the National Institutes of Dental Research and you will be hearing about that when they come up before your committee, as to where the locations are.

SMOKING AND HEALTH

IDENTIFICATION OF CONSTITUENTS IN CIGARETTE SMOKE WHICH CAUSE DISEASE

Mr. HULL. I will now get into another field, Dr. Stewart. I am sure you share my concern and the concern of the members of this subcommittee with respect to the increasing pressures on the Federal Treasury. You would agree, I feel certain, that we have a joint obligation to de-

mand that we get a dollar's value for each dollar spent by Federal agencies. Following along with this thought, last year I asked you if any constituent had been identified in cigarette smoke since the Surgeon General's report of 1964, that had been found to be responsible for any human disease and you said you didn't know. My question is: Now that you have spent another $7 million in the field of biomedical research, can you illuminate us as to any constituent which can be identified as being responsible for any human disease?

Dr. STEWART. Mr. Hull, at the present time, what we are doing is trying to identify all the constituents in cigarette smoke and in the gaseous phase which are carcinogenic. We have a long list of those which are potential causes of carcinoma in human beings, and which are cytotoxic and produce changes in cells and in animals which are compatible with being carcinogenic. We have not identified the item in cigarette smoke or in the gaseous phase. I would like also to point out that we are beginning to think that there may be some potentiation of items in the cigarette smoke and items in the environment which lead to it rather than being a single item. It may be a multiplicity of items. I think we will spend a lot more money before we have identified the specific elements of cigarette smoke or the gaseous part of the cigarette smoke as the etiological substance which causes lung cancer in human beings.

Mr. HULL. That leads me on to this question. Last year I inquired if there were any specific agents in cigarette smoke which could be pointed to as the cause of lung cancer and you said there was not. Presumably you have spent a great deal of money over the past year in pursuit of this elusive—if existent—agent and I ask you, Can you report that you have finally located such an agent?

Dr. STEWART. No; but I think that the question is not quite what the answer was. I think we have many agents in cigarette smoke which are highly probable as being the etiological agents of lung cancer. But I cannot say this specific item is it.

NICOTINE

Mr. HULL. The 1964 Surgeon General's report on smoking stated, at page 32, that nicotine was not an important health hazard and, at page 75, stated that nicotine probably does not represent a significant health problem. Last year when you were asked about this to determine whether there had been any change in scientific thought about nicotine, you indicated that there was a review being conducted by the PHS of the current research and that the review would be issued when it was completed. Has the review been completed and can you now tell us if you can give us some concrete information along this line?

Dr. STEWART. Yes. The review is the report that was sent to the Congress as required by law last year, which brings up to date the scientific evidence that has developed since the 1964 review. There is one interesting study reported in there which lends one to have some concern about nicotine. It has not been confirmed to my knowledge in the scientific literature at the present time but it is an interesting lead. There is one study that reports that the nicotine increases the oxygen demand of heart muscle. This is a very interesting

finding, if this is so, because it could possibly link nicotine to cardiovascular diseases. Again, I say this is just an addition. We also know that some of the properties that cause physiological dependence on cigarettes are in the nicotine area. There has also been some research done on the enzymes which handle the nicotine in the body, and the ability to characterize smokers and nonsmokers as having different enzymes. There has been some progress made on nicotine since the 1964 report. I think the conclusion of the 1964 report was correct with the evidence that was available. But I think we need to pursue it a lot further in the scientific realm before we could draw any other conclusion than what was in the 1964 report.

Mr. HULL. In other words, we will spend probably several million in an effort to establish nicotine as a health hazard notwithstanding the 1964 report?

Dr. STEWART. I think what we are doing is we are spending several millions to find what it is that makes cigarettes hazardous to health. In exploring this we will be looking at the hydrocarbons, the gases, the tars, and the nicotine. We are looking at all avenues. It seems to me with the 55,000 lung cancer deaths and a rising rate of lung cancer deaths——

Mr. HULL. Do you attribute that to smoking?

Dr. STEWART. I think we attribute very much of it to smoking cigarettes.

Mr. HULL. How much?

Dr. STEWART. One cannot say, but it looks, as if, from the data we have, it is the major contributing factor to the cause of lung cancer. The conclusion of the 1964 report was that it was a cause-and-effect relationship between cigarette smoking and lung cancer.

SURVEYS ON SMOKING

Mr. HULL. Dr. Stewart, last year we had information to the effect that the National Clearinghouse had awarded contracts totaling over half a million dollars sending people around to try to determine what people think about smoking. Similar surveys have been conducted since last year's hearings. Assuming that such questions can be a productive or useful field of inquiry, which I do not, can you now tell us if the PHS has discovered how people feel about smoking?

Dr. STEWART. Yes, we have had some additional information about how people feel about smoking, what was the reason for the rise in filter cigarettes. Also, much more important, and we have concentrated much more on this as to why people smoke cigarettes. We have found that there are a variety of types of smokers: some who are addicted, some who are psychologically dependent, some who are in a social environment where this is a social part of the picture, some who are physiologically dependent. We did not know this before. We thought all cigarette smokers were more or less alike. The later information has broad implications on trying to develop programs to help cigarette smokers become nonsmokers.

Mr. HULL. Dr. Stewart, you have been spending all this money trying to find out what people think about smoking and what makes them smoke or not smoke and you have been spending a great deal of money trying to get the American people to see things your way.

Recently, on August 3, 1967, on "The Today Show," you said that you had no evidence to show that your various programs have had very much success in persuading people to stop smoking.

My question is, How many years and how many millions of dollars do you anticipate will be required to brainwash the American people?

Dr. STEWART. First, let me say I am not doing this to persuade people to my way of thinking.

Mr. HULL. Apparently you are.

Dr. STEWART. It is to tell people that the weight of scientific evidence is that this is a health hazard and that the information should be conveyed to the people so they could protect their public health. As far as "The Today Show" is concerned, I have said I was discouraged that we did not have real evidence of a net decline in cigarette smoking. We have had some very interesting changes within the pattern of smoking. One can look at the per capita consumption of cigarette smoking.

Mr. HULL. It has gone up and up.

Dr. STEWART. It has gone up. If one projects the curve prior to 1964, it would have gone much higher. Whether the report itself had that effect or not I do not think anyone knows.

Mr. HULL. The reason I used this term "brainwash," because it seems very evident that the PHS is seeking to make decisions on smoking for Americans rather than just informing them of alleged dangers and then letting them make their own decisions. What is your feeling about that?

Dr. STEWART. The PHS is trying to make sure that the people of the United States are informed of a health hazard which they themselves can do something about. We do the same thing for other things.

SAN DIEGO COMMUNITY LABORATORY

Mr. HULL. In an effort to set the record straight, let me ask you about a subject we touched upon last year. At that time, I asked you about the activities of the San Diego Community Laboratory in connection with subliminal articles placed in the news media. I would like to quote briefly from the record of the hearings. I asked you at that time:

> Dr. Stewart, the Public Health Service extended a grant to the tune of $166,570 to the San Diego Community Laboratory, which, according to its own statement, placed subliminal articles in the various media which don't identify the project as such, but which we hope will over 5 years provide a constant barrage of smoking and antismoking propaganda for the community.

Do you think it is proper, I ask you, for the PHS to authorize and direct these sneak attacks against the minds of American citizens?

Dr. STEWART. Let me say that the San Diego Laboratory is sponsored by the San Diego County Medical Society and we are financing this program and working with them on it. The purpose of this San Diego Laboratory was first to serve as a base to get information on why people smoke, and to try out different methods of informing people and helping smokers who wish to become non-smokers. I think it is a legitimate attempt to try to improve the health of the American people.

Mr. HULL. You answered: "I am not familiar with the study being conducted."

Dr. STEWART. At that time the San Diego Clinic was just being formed and I was not familiar with it at that time. I believe we supplied a complete rundown on it for the record at that time. We have a second clinic in Syracuse, N.Y., which is just getting underway.

Mr. HULL. You then supplied for the record the following information. The San Diego Inter-Agency Council on Smoking and Health has informed the Surgeon General that all material emanating from its program is identified as to its sponsorship. This report is an exact reading of the record from last year.

Dr. Arnold Flick is the man listed by the National Clearinghouse as the person in charge of a grant to the San Diego Medical Society, No. PH–108–66–46, and identified as the San Diego Community Laboratory. He delivered a speech a few months before you testified in which he said, and I quote:

"We have now potentially hired a public relations firm, not this one, to give us an 'image.'" And we have started placing kind of subliminal articles in the various media which do not identify the project as such, but which we hope will over 5 years provide a constant barrage of smoking and antismoking propaganda for the community.

This speech was given by Dr. Flick at the American Public Health Association's annual meeting in San Francisco, Calif., on November 3, 1966. Dr. Horn on your staff introduced Dr. Flick.

Now, Dr. Stewart, what is the straight of it?

Dr. STEWART. We have a contract with the San Diego Medical Society to support the San Diego Laboratory which is trying to find out different ways to help cigarette smokers stop smoking. Dr. Flick is the representative of the medical society for the project. Certainly public relations is a way of informing the public. There are tools and methods which are used rather well in persuading the public to smoke cigarettes. It seemed to us that this was a way of getting across the message, a way to inform people about cigarette hazards. The activities of the laboratory in specifics I would have to provide for you.

Mr. HULL. He says they were putting in these sublimal articles which I call a sneak attack against the minds of American citizens, and then a few months later the PHS tells this subcommittee that such articles were identified as to sponsorship. If you do not personally know, could you have supplied for the record just what the truth of the matter is?

Dr. STEWART. Certainly.

(The information follows:)

The information given the subcommittee on this question last year was accurate at that time and remains valid still.

Mr. HULL. I have a news story here dated January 21, 1968, that quotes the project coordinator on the San Diego project—a million dollar operation, incidentally—as saying, and I quote:

How much actual effect the project has had—if any—is anyone's guess. But we have a constant feeling of movement.

Here we have a program which admittedly may or may not be having some effect—even the project coordinator does not know—and it is held up as a virtuous undertaking because there are some slight stirrings, in what direction no one can say.

My question is, how many similar projects do you now have in progress, where no one can really say with any precision what effect it may be having but one can detect some type of movement or motion or something?

Dr. STEWART. If the objective of the San Diego laboratory was to show results in the decrease in the amount of cigarette smoking, I am not surprised if they have not yet seen any firm results. It is a very difficult thing to accomplish. I would imagine we have many projects which are aimed at tough objectives which show they are not getting anywhere during their first early stages.

Mr. HULL. This is the quote from the project coordinator.

Dr. STEWART. But much of this is in the realm of experimentation. I think this is true in all experimentation.

Mr. HULL. Here we have a program which admittedly may or may not be having some effect. Even the project coordinator does not know and it is held up as a virtuous undertaking because there are some slight stirrings.

BAN ON FREE CIGARETTES TO SERVICEMEN

Last year, Doctor, you said that you were against the ban on free cigarettes for veterans or wounded GI's in Government hospitals. This reportedly came about because of the insistence of the Department of Health, Education, and Welfare. Could you tell us what actions, if any, you have taken to relieve or lift this ban?

Dr. STEWART. I had nothing to do with the ban.

NATIONAL CLEARINGHOUSE FOR SMOKING AND HEALTH

Mr. HULL. The justification submitted this year in support of the funds requested for the National Clearinghouse for Smoking and Health shows an increase in positions of five and an increase in amount of funds of half a million dollars.

Dr. STEWART. That is correct.

Mr. HULL. The justification uses some ominous language. It states that one use of the half million dollars increase requested would be to develop "better methods to assist adults who need to give up smoking cigarettes."

Who is the Public Health Service to issue mandates on who needs to quit smoking?

Dr. STEWART. I think we have an obligation and a mandate to inform the public who are cigarette smokers that there is a real danger, and that you have a choice of cutting down the hazard by moderating your smoking, by not smoking the cigarette as much, or by really protecting your health by giving up cigarette smoking. Many people who are informed by their personal physicians that they need to give up smoking find it difficult to accomplish and we are trying to find ways of helping these people.

Mr. HULL. I think I am responsible for my own health and what I do.

Dr. STEWART. I think I have a mandate to inform the public about health hazards.

Mr. HULL. To me that language clearly suggests that the clearinghouse wants to gratuitously force this assistance on people if the clear-

inghouse of Dr. Horn theorizes the people need it, regardless of whether the assistance is requested. I thought the idea you expressed last year was to let people make up their own minds. Do you still subscribe to this, to let the people be fully informed and then let the chips fall where they may?

Dr. STEWART. I think that is correct. But we get many letters from people who do want to give up and can't. How do I do it? What do I do? I would like to give up cigarette smoking, is there any way I can do it? I think it is part of our job to assist people who want to give up cigarette smoking.

Mr. HULL. Do you go into their drinking habits?

Dr. STEWART. Yes; we have a National Center for Alcoholism which tries very hard to work with alcoholics to give up alcoholism and the effects of it. We try to assist people. We are trying to establish clinics for alcoholics so they won't have this problem, which is ruining their health.

Mr. HULL. You are a nosey bunch of people, aren't you?

SMOKING AND HEALTH PROGRAMS IN SCHOOLS

The justification goes on to say that the clearinghouse is developing, and I quote: "Better ways to carry out smoking and health programs in schools. Schools 'everywhere are busy with teacher training' and 'curriculum revisions' to 'educate young people to the hazards of smoking.' " I question to what extent the Federal Government should indulge in the business of curriculum revision or curriculum fixing. Do you, Mr. Surgeon General, approve of this curriculum revision?

Dr. STEWART. The schools and the edcators themselves carry out the curriculum revision. But we and many others play a large role in providing information which they would use in the curriculum. Health education is a normal part of all school curriculums. We are working with the Parents and Teachers Associations, the National Education Association, and many, many school districts who wish to provide good health information in their health education programs in the schools. This is not solely limited to the hazards of cigarette smoking. This gets into other fields of physical fitness, sex education, other things.

Mr. HULL. Has your agency suggested curriculum revision to warn our young people about the dangers of smoking "pot" or taking LSD trips?

Dr. STEWART. We provide information——

Mr. HULL. The same as you do for cigarette smoking or tobacco use?

Dr. STEWART. On the use of drugs, yes; we do. Materials information that would be incorporated into a good health education curriculum in the school system; yes.

Mr. HULL. Has your agency suggested curriculum revision to admonish young people about the sniffing of glue?

Dr. STEWART. Yes; we would identify this as a hazard. If you are talking about how you protect your health, this is certainly one of the things on which we would provide information if the school system wanted to incorporate it into their curriculum.

Mr. HULL. If they wanted to.

Dr. STEWART. Yes. They decide on the curriculum. We do not decide on that.

PROHIBITION ON SMOKING

Mr. HULL. Don't you really believe, Doctor, that there is a substantial number of people in the American Cancer Society and conceivably in your own Public Health Service who would love to see a Volstead Act for tobacco or, failing to achieve that, at least a social climate or emotional climate created which would approve cigarette prohibition?

Is that what you are getting to?

Dr. STEWART. I cannot speak for the Cancer Society, but as far as I am aware of, nobody in the PHS is talking that way.

LUNG CANCER TASK FORCE

Mr. HULL. Isn't it true that when you formed your lung cancer task force the people who favored prohibition strongly recommended that educational methods aimed at preparing the mental climate in this country for cigarette prohibition be supported in advance?

Dr. STEWART. The lung cancer task force has come up with a program of three avenues toward the problem of lung cancer. One is to mount a research program on etiology of cancer, lung cancer. This would be a level where it would cover occupational exposures and other exposures to lung cancer. The second avenue is to improve the diagnosis and treatment and the third is to pursue a less hazardous cigarette. We have now formed work groups around the three avenues and the work group on the less hazardous cigarette is meeting on March 11.

Mr. HULL. In connection with the emotional climate you and your associates are trying to produce in this country, I would like to turn to the subject of several pamphlets which the Public Health Service has sponsored recently.

REPORT ON "CIGARETTE SMOKING AND HEALTH CHARACTERISTICS"

First, let me ask you about a report called "Cigarette Smoking and Health Characteristics." You are, of course, familiar with it?

Dr. STEWART. Yes; I am.

Mr. HULL. Is this the publication you referred to in a March 29, 1966, speech as a report "soon to be published" which would show the relationship of cigarette smoking to morbidity, disability, and bed-disability days?

Dr. STEWART. That is right.

Mr. HULL. When was this report actually published?

Dr. STEWART. I have to get that for you.

Mr. HULL. May 1967. In this speech, which I believe was delivered on your behalf by Dr. Guthrie, you referred to such figures as 12 mil-

lion more chronic conditions, 300,000 extra coronary attacks, more than 1 million extra cases of peptic ulcers, et cetera; isn't that right?

Dr. STEWART. That is right.

Mr. HULL. Isn't it correct that you said in that speech that while you could not say with certainty how many of the conditions represented a cause-and-effect relationship subject to reduction by reducing cigarette smoking, the probability is that the reductions would be tremendous.

Dr. STEWART. That is right.

Mr. HULL. Was the information collected in connection with the study then in completed form, Dr. Stewart?

Dr. STEWART. I would have to find out. I don't know.

Mr. HULL. Will you put that in the record?

Dr. STEWART. Yes.

(The information follows:)

The tabular analysis was completed at the time of the speech, but because of manpower and other problems it was another year before the report was published.

STATISTICAL ASSOCIATION BETWEEN CIGARETTE SMOKING AND VARIOUS HEALTH CHARACTERISTICS

Mr. HULL. Am I correct in stating that when the report actually did appear it contained the following statement:

The most these data can do is to demonstrate the lack of or the existence of a relationship between cigarette smoking and various health characteristics; it cannot establish any existing relationship as a causal one?

Dr. STEWART. That is right.

Mr. HULL. I take it what that statement means, Doctor, is that statistical associations do not amount to proof of cause and effect—is that right?

Dr. STEWART. Not without supporting data.

Mr. HULL. The Public Health Service later published a pamphlet entitled "Smoking and Illness" supposed to be based on this study; did it not?

Dr. STEWART. I think so; yes.

Mr. HULL. Did the statement which I have just read appear anywhere in that pamphlet?

Dr. STEWART. I don't know.

Mr. HULL. It does not.

Wouldn't you say, Dr. Stewart, that both your speech and the pamphlet, which was put out by the National Clearinghouse for Smoking and Health, are designed to lead a person hearing the speech or reading the pamphlet to believe that the statistical association does amount to proof of cause and effect?

Dr. STEWART. No; I do not think it was trying to do that at all. It was saying that if you are a cigarette smoker these are your health characteristics. If you are not a cigarette smoker these are your health characteristics. In fact, the pamphlet states: "The Public Health Service's new study is not concerned with the medical and other reasons why cigarette smokers are ill more often than nonsmokers; it simply establishes the fact."

Mr. HULL. Now, Dr. Stewart, with respect to the study conducted by the National Center for Health Statistics—and which states very plainly the statistical associations do not establish a causal relationship—I'd like to ask you the following questions:

1. Is it not a fact that 60 percent of the information about men who had ever smoked was obtained from other people? Isn't that a quaint way of obtaining information?

Dr. STEWART. I don't see the relationship, 60 percent of the information about men.

Mr. HULL. Pardon?

Dr. STEWART. Is the question, Where did we get the information about men never smoking?

Mr. HULL. Yes.

Dr. STEWART. There has been a multiplicity of studies.

Mr. HULL. Going to other people rather than going to the people that smoke.

Dr. STEWART. You mean going to nonsmokers?

Mr. HULL. Yes.

Dr. STEWART. How would we go to nonsmokers to find out?

Mr. HULL. I don't know but you would find a way.

Dr. STEWART. I just don't understand your question.

Mr. HULL. Isn't it also a fact that the person being interviewed was not only charged with interpreting smoking patterns but also forced to make a diagnosis with respect to such illnesses as sinusitis, emphysema, heart trouble, liver trouble, hypertension without heart involvement, et cetera?

Dr. STEWART. Now you are back to the National Health Survey.

Mr. Hull, I would be glad to provide you a series of scientific documents on the sampling technique, the error in sampling. These have been reviewed by all the sample survey designers in the United States since 1955.

Mr. HULL. If you will.

(The information follows:)

Full details of the statistical design of the Health Household-Interview Survey and a full discussion of methodology used in the Cigarette Smoking and Health Characteristics study are found in PHS Publication 584–A2 and 1000–Series 10, No. 34.

Dr. STEWART. It is true we asked people questions. What the National Health Survey gives you is those people that people can tell you about. We know the accuracy of whether they can tell you this or not. This is all published in the back of every report.

We have added to this in order to get the health characteristics of smokers. We used the normal health survey and added questions which found out whether people were cigarette smokers or not. The rest was all a national health survey.

Mr. HULL. The next question I was going to ask, Have you checked to see how accurate such methods are? If so, what did you find?

Dr. STEWART. There is a whole series of publications on the methodology that is used in the National Health Survey which I will be glad to supply to you. I am not competent to judge on sampling designs.

Mr. HULL. Is it correct that former smokers had higher rates than present smokers for most of the conditions reported on?

Dr. STEWART. I would have to get the data out. I think that is correct, but I am not sure.

Mr. HULL. If so, wouldn't that show statistically that it is not safe to give up smoking?

Dr. STEWART. No; I do not think it shows that at all.

Mr. HULL. Didn't the report show that people smoking up to one pack a day, and I understand that represents well over half of the smoking population, had no more "all chronic conditions" than persons who never smoked?

Dr. STEWART. This is correct, Mr. Hull. This confirms other evidence we have that the amount you smoke is related to the consequences. That is why we feel if people would moderate their smoking it would have a major effect on the health problem.

Mr. HULL. Did you report in your pamphlet or in your speech that one-pack-a-day smokers were found to spend fewer days ill in bed than people who had never smoked?

Dr. STEWART. I doubt it. I don't know.

Mr. HULL. Doesn't the report, by singling out smoking, ignore the fact that people differ in many ways without regard for whether they smoke or not?

Dr. STEWART. Which report; are you on the pamphlet?

Mr. HULL. Yes. Doesn't the report, by singling out smoking, ignore the fact that people differ in many ways without regard to whether they smoke or not?

Dr. STEWART. We know that people differ in many ways regardless of whether they smoke or not. When you characterize people on whether they do smoke or do not smoke you have one set of health characteristics among the smokers and one set of health characteristics among the nonsmokers. That is what it says.

Mr. HULL. Doesn't the report also say that the present smokers who smoke up to a pack a day had a rate of heart condition about the same as those who never smoked?

Dr. STEWART. That is what it said. This is our whole idea of how the moderation might have an effect on the health consequences of cigarette smoking.

AMOUNT OF DISABILITY FROM CIGARETTE SMOKING

Mr. HULL. Now, Doctor, I note in your Clearinghouse pamphlet on smoking and illness, based on the report which I have been asking you about, you refer to 77 million excess lost workdays associated with cigarette smoking each year. Does that figure appear in the report?

Dr. STEWART. The figure was based on the ratio in the report, but the figure appears only in the pamphlet.

Mr. HULL. How was that figure arrived at?

Dr. STEWART. In the National Health Survey routinely, as I said, when we ask people if they have a chronic condition or an acute condition, we also want to know the disabling consequences of it. The only measures that we can use which were responsive enough is how many days did you lose from work, how many days did you have to spend in bed. We call this days of disability. In our characterization of cigarette smokers and noncigarette smokers, we found this difference in days of disability among cigarette smokers and noncigarette smok-

ers. When these rates are applied to the total population in the work force, age specifically, total estimates can be derived.

Mr. HULL. You really mean that the figure is an estimate prepared by the Clearinghouse based on this report?

Dr. STEWART. The figure is based on the report and the report itself states the standard deviation around the estimate which was done by the national health survey itself.

Mr. HULL. Doctor, isn't it true that the same type of statistics judgment has been employed in preparing the justification for the Clearinghouse request?

Dr. STEWART. I do not understand the question.

Mr. HULL. By what figure did you have to multiply each smoker represented in the study included in the 60 percent that were never interviewed to arrive at the figure?

Dr. STEWART. I would have to know what survey you are talking about, Mr. Hull. I have a hunch you are referring to survey methodology and sampling survey techniques, on which I assure you there is a great body of literature as to how it is done.

Mr. HULL. Smoking and illness.

Dr. STEWART. Is that the national health survey?

Mr. HULL. In health characteristics.

Dr. STEWART. This would be the sampling of the population of the United States, the interviewing techniques under the national health survey. I will get you the methodology which has been published on that and the techniques.

Mr. HULL. I would like it.

(See information provided on p. 73.)

I note in the justification of the Clearinghouse that whoever wrote it could not resist the temptation to follow the Clearinghouse's traditional method of exaggerating in an apparent attempt to mislead the reader. For example, you talk about this report issued by the National Center for Health Statistics which is said to show higher rates of disability among cigarette smokers. The justification then states:

> They account for 10 percent of the 853 million bed days spent each year by those aged 17 and over; 13 percent of the 2,379,000 days of restricted activity, and 19 percent of the 399 million workdays lost per year.

Now, Doctor, I got the report and looked at it. I could not find a single one of those figures in it.

Dr. STEWART. Yes. That is the difference between the figures of total bed disabilities and those of noncigarette smokers and cigarette smokers.

Mr. HULL. My point is this: I don't think the Clearinghouse has played fair in these justifications by trying to make it appear that its position is supported by the National Center for Health Statistics, and by using figures that are based on a study which admittedly doesn't prove any cause and effect relationship between cigarette smoking and disability. I would like for you to take a look at the justification and tell me whether or not you believe it is misleading.

Dr. STEWART. I don't think it is misleading at all, Mr. Hull. The statement in the second paragraph of the justification is a statement of fact, that there is an associated large amount of disability from cigarette smoking among the citizens of the United States and they

give the figures which give the amount. One has to remember this justification is based on some 4,000 reports, not necessarily on this particular one. Any one statistical association does not lead to a conclusion as to cause and effect by itself, as we have talked about. But when you have many, all showing the same association, then you begin to wonder as to whether there might not be a cause, and, effect association. I think also in terms of protecting the public's health, I do not think we wait until we have every "i" dotted on all of the etiological agents before we move. We have a long history of movement against cholera, of movement against malaria, small pox, a movement against every other disease before we had all the facts in, with results.

Mr. HULL. That is a different situation than this situation.

NUMBER OF SMOKERS IN THIS COUNTRY

Doctor, I have been confused about the Public Health Service's version of exactly or even approximately how many smokers there are in this country, a figure which would seem to have some bearing on the dimensions of your task, the appropriate size of your agency, and the amount of appropriations for your antitobacco crusade.

Last year, when asked by Mr. Natcher if there were about 70 million smokers, you said: "That is close enough."

In the 1967 HEW report to the Congress, the figure of 49 million was used.

In a press conference on August 17, 1967, Dr. Endicott estimated that about 75 million Americans smoke cigarettes.

If you cannot come within 25 million of how many Americans do smoke, how can you tell how many, if any, die because of smoking as you have been doing in speeches and literature this past year? Or how many people get sick?

Isn't it a fact that this is pure guesstimate?

Dr. STEWART. No, it is not. The report on deaths is a well-developed mechanism in the United States which came into effect around the 1900's. I do not think there is much error in reporting lung cancer deaths. We do have studies which show the amount of error rate in reporting deaths.

As far as estimating the number of cigarette smokers, there are multiple sources of how many cigarette smokers there are. The Department of Agriculture puts out a report on this. The tobacco industry puts out figures. We get figures from that type of survey. There is variation depending on how the surveys are carried out. The 70 million figure was used in the 1964 Surgeon General's report and includes both adults and teenagers, and cigar and pipe smokers as well as cigarette smokers.

PAMPHLET ON "THE FACTS ABOUT SMOKING AND HEALTH"

Mr. HULL. Doctor, I am sure you are familiar with the pamphlet entitled "The Facts About Smoking and Health" published by the National Clearinghouse for Smoking and Health.

Dr. STEWART. Yes.

Mr. HULL. How much did this publication cost?

Dr. STEWART. I will have to get that for you.

GOVERNMENT PRINTING COSTS ON SMOKING AND HEALTH

Mr. HULL. Will you get us cost figures also on all of the publications paid for with Government funds relating to smoking and health over the past 3 years?

Dr. STEWART. Certainly.

(The information follows:)

Cost of publication, "The Facts About Smoking and Health," $2,000. (Cost is an estimate—Government Printing Office has not yet billed finally).

Cost of all Government-produced smoking and health publications in the past 3 years, $215,535.

Other costs are firm except where (est.) appears which means estimated cost. Where more than one figure appears after an item, it indicates reprinting.

Public Health Service reprints and purchases

Title	Cost
"Smoking and Health in the Classroom" (reprint)	$235
"Smoking and Health in the Classroom" (insert)	22,194
"To the Cigarette Makers; Just the Facts, Please"	18
"Consumers Union Report on Smoking and the Public Interest"	1,436
"It's Not Too Late To Stop Smoking" (public affairs pamphlet)	75
"Supplement on Smoking and Health" (APHA supplement)	9,860
"It's Not Too Late To Stop Smoking Cigarettes"	10
"Smoking and Heart Disease" (AHA—reprint)	95
"Cigarette Smoking, the Facts" (NTA)	115
"Chronic Bronchitis, the Facts" (NTA)	95
"Emphysema, the Facts" (NTA)	95
"How To Break the Smoking Habit" (reprint—Army Times)	500
California school health—special issue—"Cigarette Smoking"	1,500
Total	36,228

PUBLICATIONS ON SMOKING AND HEALTH PAID FOR WITH GOVERNMENT FUNDS DURING PAST 3 YEARS

PHSP No.	Title	Cost
1665	Directory of On-Going Research in Smoking and Health	$3,518.62 1,158.40
1124	Bibliography on Smoking and Health	1,699.31
1712	The Facts About Smoking and Health	[1] 2,000.00
1711	What We Know About Children and Smoking	3,107.55
1638	Library Services of the National Clearinghouse for Smoking and Health	398.82
1103-F (revised)	Cigarette Smoking, Chronic Bronchitis, and Emphysema	1,786.03
1662	Smoking and Illness	3,345.47 [1] 1,500.00
1707	What's New On Smoking In Films	1,203.89 2,453.29
1710	What's New On Smoking in Print	1,585.26
1411	How To Keep Your Child From Smoking	5,710.93 [1] 5,000.00
1588	Highlights—The National Interagency Conference on Smoking and Health	1,026.84
1696	Health Consequences of Smoking	[1] 11,000.00 [1] 51,000.00
1732	Smoking and Health (center publication)	[1] 1,000.00
1455	Have You Seen This?	2,644.22
1000—Series 10, No. 34	Cigarette Smoking and Health Characteristics, United States, July 1964–June 1965.	2,747.15 847.50
1000—Series 20, No. 4	Mortality From Diseases Associated With Smoking: United States, 1950–64	3,010.47 354.75
	Smoking and Health Bibliography (monthly—3 years)	[1] 7,000.00
	Smoking and Health Newsletter (reprints—8 issues)	[1] 2,800.00
1173 (reprint)	Cancer of the Lung	[1] 500.00
Total		118,398.50

[1] Estimated.

CHILDREN'S BUREAU PUBLICATIONS

	Number	Cost
Fiscal year 1966:		
"You Can Quit Smoking"	360,000	$9,606.28
"Why Nick the Cigarette is Nobody's Friend"	450,000	10,029.40
"A Light on the Subject of Smoking"	400,000	11,579.16
Fiscal year 1967:		
"Your Teenage Children and Smoking"	100,000	2,225.64
"Smoking Health and You"	75,000	3,112.00
The kit of 5 publications:		
"No Smoking"	50,000	10,781.12
Notice about the kit	1,000,000	4,077.95
"Young People Who Smoke"	[1] 40,000	[1] 2,500.00
Fiscal year 1968:		
The kit of 5 publications: "No Smoking"	[1] 25,000	[1] 7,000.00
Total		60,911.55

[1] Estimate.

"THE HEALTH CONSEQUENCES OF SMOKING"

Mr. HULL. This is supposed to be a summary of the information in another PHS publication, "The Health Consequences of Smoking." Do you feel this pamphlet is an accurate summary of that larger publication?

Dr. STEWART. I think so, yes.

Mr. HULL. Do you think the larger publication is an accurate appraisal of the current state of knowledge on smoking and health?

Dr. STEWART. I do not think there is any question about it.

Mr. HULL. Who actually did the review of research presented in "The Health Consequences of Smoking," Dr. Stewart?

Dr. STEWART. This was done by our staff.

First let me give the history behind this. When the Labeling Act was passed for cigarettes there was a requirement that the Secretary of HEW report to Congress on the scientific studies that have been done since the 1964 report, and the health consequences was this report.

The articles were put in summary form and reviewed by the staff and then reviewed by a number of experts, including some of the members of the 1964 expert committee that produced the 1964 report. All the members of the 1964 committee reviewed the draft of the report that went to Congress, and all agreed that it was a continuation in a sense of the 1964 report, bringing it up to date.

Mr. HULL. How active were the members of the 1964 Surgeon General's Advisory Committee on Smoking and Health? Did they actually participate in the review of the papers you cite in this publication?

Dr. STEWART. That I cannot say. I don't know. I know they all reviewed the report.

Mr. HULL. Would you put it in the record?

Dr. STEWART. Certainly.

(The information follows:)

Some of the members of the 1964 expert committee participated in parts of the 1967 review, one participated in the entire review, and all reviewed the draft of the report before it went to Congress.

Mr. HULL. Would you say the final responsibility was for the National Clearinghouse for Smoking and Health?

Did they actually participate in the review of the papers you cite in this publication?

Dr. STEWART. That I did not say. I don't know. I know they reviewed the report itself.

Mr. HULL. Would you put it in the record?

Dr. STEWART. Certainly.

(The information follows:)

Members of the staff of the Clearinghouse participated in the review.

Mr. HULL. Would you say the final responsibility was for the National Clearinghouse for Smoking and Health?

Dr. STEWART. That is where it was charged; yes.

Mr. HULL. Doctor, I would like to ask you some questions about this so-called factual pamphlet.

Would you agree, first of all, that the pamphlet ignores a number of studies which do not support the official PHS position on smoking and disease?

Dr. STEWART. No; it does not ignore studies.

Mr. HULL. Is it not also a fact, Doctor, that you have selected portions of certain studies to report on the pamphlet and collected other conclusions not in accord with your theories contained in the same studies?

Dr. STEWART. We have selected, but not on the basis that you are stating.

Mr. HULL. I refer specifically to the Swedish studies of smoking and nonsmoking twins which conclude that constitutional factors rather than smoking practices account for coronary heart disease patterns in the twins.

Dr. STEWART. Mr. Hull, we have never said there was definitive proof of a cause-and-effect relationship between coronary heart disease and cigarette smoking. We said there is statistical association and other evidence that warrant Public Health action on cigarettes. I will be glad to have a scientific review of that Swedish study and our reaction to it.

(The information follows:)

As stated in "The Health Consequences of Smoking": "One study of a small population of twins in Sweden, as reported by Lundman, suggests that smoking monozygotic twins tend to have lower cholesterol levels than their nonsmoking control twins, although the differences are not statistically significant."

Mr. HULL. I would continue, is it not a fact that you made no reference in your pamphlet to the coronary heart disease findings although the studies are mentioned in connection with respiratory diseases?

Dr. STEWART. We did not make reference in the pamphlet but it was referred to in detail in the full document, "The Health Consequences of Smoking," which reflects our scientific judgment on that article.

Mr. HULL. Is it not also a fact that even on relying on material previously published by the PHS you have carefully omitted any qualifying material—as you did in references to the illness and disability report issued in May 1967?

Dr. STEWART. No; we haven't.

SMOKING AND EMPHYSEMA

Mr. HULL. Let me give you another example of omitting language which is not in accord with theories you are pushing. In this you refer to smoking and emphysema. Let me ask you whether or not you would

say it has been scientifically proved that cigarette smoking is the cause of pulmonary emphysema?

Dr. STEWART. Did you say scientifically proved, to be the cause of emphysema?

Mr. HULL. That is what you are trying to prove with these others.

Dr. STEWART. I am saying the scientists reviewed all the scientific literature in 1964 and came up with a cause-and-effect relationship between cigarette smoking and lung cancer. They had a variety of diseases, emphysema included, peptic ulcer, urinary cancer, and other things in which they said there was a strong association or relationship which they could not identify as cause-and-effect relationship. Their total conclusion was that if you add all this together including the cause and effect, that this is a public health problem of sufficient magnitude, and that prompt remedial action is required.

Mr. HULL. Is it not a fact in the study referred to in this pamphlet on the health consequences of smoking, the flat statement is made that until some mechanism showing that smoking causes emphysema is discovered, it cannot be said that smoking is the cause?

Dr. STEWART. Yes, I just finished saying that.

Mr. HULL. I wanted you to say it again.

Dr. STEWART. I said we have not been able to establish an absolute cause and effect.

Mr. HULL. You use it, though; don't you?

Dr. STEWART. I thought I was saying just what you said.

CAUSE AND EFFECT RELATIONSHIP BETWEEN CIGARETTE SMOKING AND DISEASE

Mr. HULL. You say in the pamphlet that there are no longer any questions being asked about whether cigarette smoking causes disease; is that correct?

Dr. STEWART. I think that is true.

Mr. HULL. Does this mean there is no research going on in this Government to determine the cause or causes of diseases that you have linked with cigarette smoking?

Dr. STEWART. It does not. I am saying that the debate over whether cigarettes are hazardous to health or not has been settled. How much of a hazard and what is causing it requires a great deal of research.

Mr. HULL. Doctor, isn't it true that there are scientific people asking questions and that they are asking if cigarettes cause disease?

Dr. STEWART. There are some people who raise that question, yes.

Mr. HULL. The statement in this leaflet is just not true, yes.

Dr. STEWART. I do not know what you are saying about the statement.

Mr. HULL. About the scientific people asking questions.

Dr. STEWART. There are always some people who raise questions.

Mr. HULL. You seem to say there are still questions with respect to the manner in which cigarettes cause or speed the cause of disease. Does that mean that you have concluded that cigarette smoking causes disease but you do not know how?

Dr. STEWART. I am saying that there is a cause-and-effect relationship between cigarette smoking and lung cancer. If one decreases the amount of cigarette smoking in a population group, the amount of

lung cancer decreases. I am saying that we can take action through just stopping smoking cigarettes and decrease the amount of lung cancer. I am not saying that we know what it is within the constituent smoke.

Mr. HULL. How do you know it will stop lung cancer, if you were to quit smoking?

Dr. STEWART. I would be very happy to provide the study of British physicians. In fact, this was one of the most interesting new findings in the 1967 report.

Mr. HULL. In other words, you say that a question remains as to the amount of death and disability which could be prevented if people had not smoked or if they gave it up?

Dr. STEWART. That is correct.

Mr. HULL. Does that mean that you have concluded that smoking does cause death and disability but that you don't know how much?

Dr. STEWART. I do not think there is any question that cigarette smoking causes lung cancer which is 95 percent fatal. I think it is a major portion of it but not all of it. We know that some nonsmokers get lung cancer and we know many heavy smokers never get lung cancer.

Mr. HULL. You are looking at one. Aren't we left with this, you don't know how the disease is caused?

Dr. STEWART. No, sir.

Mr. HULL. You do not know how much disease is being caused but you still say that the question being asked today no longer includes whether or not cigarettes cause disease?

Dr. STEWART. I do not think there is any question that cigarette smoking is causing adverse health reactions in people, and is causing lung cancer. I think the other questions which are researchable questions are unrelated to whether one takes action to protect the public's health.

Mr. HULL. At the bottom of page 1 you say the cigarette smokers tend to die at earlier ages and experience more days of disability than comparable nonsmokers?

Dr. STEWART. That is correct.

Mr. HULL. How can you be sure that a cigarette smoker is comparable to a nonsmoker in all respects except his cigarette smoking?

Dr. STEWART. That was not the purpose of this report. This report says that in people who are characterized by whether they do or do not smoke cigarettes——

Mr. HULL. You are comparing them; aren't you?

Dr. STEWART. No, sir. We are reporting what we found in these two population groups.

Mr. HULL. By the very nature you are comparing them.

Dr. STEWART. The only question around the facts is the range of error around the fact itself.

We have said that in cigarette smokers here are the health characteristics and in noncigarette smokers here are the health characteristics. These are the facts.

Mr. HULL. Are you not familiar with the following statement which appears in the study on cigarette smoking and health characteristics in discussing possible explanations for a statistical relationship: "Some third factor, possibly psychologic or biologic, is causing both the condition and the smoking habit"?

Dr. STEWART. Pardon, some third factor is causing?

Mr. HULL. Possible psychologic or biologic condition other than the smoking habit. Doesn't that say in fact that smokers may not be comparable to nonsmokers in all respects?

Dr. STEWART. Except those things which separate cigarette smokers from nonsmokers may be separating more susceptible people to less susceptible people. We know some cigarette smokers do not get lung cancer. This is not peculiar to disease in this particular agent. This is true in all disease.

Mr. HULL. On page 2 of the pamphlet there is this statement, "If it were not for cigarette smoking a portion of the earlier deaths of cardiovascular origin would not have occurred." What does that statement mean, Doctor?

Dr. STEWART. We are saying that those who are cigarette smokers have a large increased risk to cardiovascular disease. If they were non-cigarette-smokers they would have less risk to cardiovascular disease. We cannot quantify how much there would be.

CIGARETTE SMOKING AND CARDIOVASCULAR DISEASE

Mr. HULL. Does this mean that cigarette smoking causes or in some way is essential to the development of cardiovascular disease?

Dr. STEWART. No, sir. Among cigarette smokers the risk of death from cardiovascular disease is greater than if you are a non-cigarette-smoker.

Mr. HULL. On page 10 there is this statement:

> In 1967 additional evidence pointed even more strongly toward cigarette smoking as a cause of death from coronary heart disease.

Why, Doctor, is this so phrased?

Dr. STEWART. The studies that have been reviewed from the 1964 to the 1967 report strengthen, I think, the feeling that there is a relationship, but it still does not provide us with cause and effect, as I was saying. If you have one epidemiological study and you have as association, you cannot make any cause-and-effect relationships on that one study. But if you can repetitively have studies, if there is not an association one would think through random distribution you would eventually get a distribution in the other direction and you do not get it. This is a phenomenon in epidemiology called convergence.

Mr. HULL. Why say evidence pointed more strongly to cigarette smoking as a cause? Why not say "Evidence proved that smoking causes," if that is your position?

Dr. STEWART. The added data, because of studies that had been going on among veterans, the studies in Canada, the studies in England, some of the data on nicotine and the heart oxygen demand, and a few other studies, all fit into a pattern of it being a cause and effect, but not enough yet.

Mr. HULL. Isn't it a fact that if the evidence justified a statement of direct causality, you would have made an unequivocal statement of causality?

Dr. STEWART. Certainly.

Mr. HULL. Isn't it a fact that the evidence is too inconclusive at this point that you cannot say "caused," and are forced to use uncertain phrases?

Dr. STEWART. Mr. Hull, we have never said cause and effect to the initiation of cardiovascular disease, never once since 1955 when the reports started. We have said that the evidence keeps accumulating that makes the association stronger and stronger. Someday we will get the key evidence. All the evidence points toward it, but I do not think one can make the statement that the scientific evidence supports it. We never have.

CAUSE-AND-EFFECT RELATIONSHIP BETWEEN CIGARETTE SMOKING AND DISEASE

Mr. HULL. What is the difference between these two phrases: (1) "Cigarette smoking is a major cause of * * *"; (2) "Cigarette smoking * * * greatly increases the risk of dying from * * *"?

Dr. STEWART. Cigarette smoking, a cause-and-effect relationship, says that this process of cigarette smoking is causally related to a disease, lung cancer. Now to move to another picture, if you divide people into cigarette smokers and non-cigarette-smokers, I can say that among cigarette smokers the risks from having cardiovascular disease is x number times higher than among nonsmokers. They are two different statements.

Mr. HULL. Doctor, what does this mean: "Cigarette-smoking-related disease"?

Dr. STEWART. That is the association.

Mr. HULL. Does this mean that disease is caused by cigarette smoking?

Dr. STEWART. No; we are saying the risk of this disease is higher among cigarette smokers than nonsmokers.

Mr. HULL. How about "An association exists between cigarette smoking and . . ."? Does this mean "caused"?

Dr. STEWART. No, it does not mean cause and effect. It means it is highly associated and the risk of having this disease if you are a cigarette smoker is much higher than if you are a nonsmoker.

Mr. HULL. How about "diseases strongly linking with cigarette smoking," does this mean caused?

Dr. STEWART. No; this means that the risk is much higher than those that are cigarette smokers and we have more and more evidence which is moving toward possible cause.

Mr. HULL. "The relationship between cigarette smoking and"—does this mean caused?

Dr. STEWART. No; this means that the risk from these diseases is higher among cigarette smokers than noncigarette smokers. If you are a cigarette smoker, you carry this risk.

Mr. HULL. So in fact, Dr. Stewart, we should assume you mean "caused" only when you actually say "caused," isn't that correct?

Dr. STEWART. That is correct.

Mr. HULL. Dr. Stewart, on page 2 of this pamphlet you describe a great increase in the per capita consumption of cigarettes since 1900?

Dr. STEWART. That is correct.

RESPIRATORY DISEASES

Mr. HULL. You then refer to a substantial increase in certain respiratory diseases?

Dr. STEWART. That is correct.

Mr. HULL. Is it not a fact that respiratory diseases as a whole have declined substantially since 1900?

Dr. STEWART. Certainly.

Mr. HULL. Would you put some figure in the record on the total number of deaths from respiratory diseases in 1900 per 100,000 as compared with the most recent year for which figures are available to you? Can you do that?

Dr. STEWART. I will provide you with the death rates for 1900 and 1965.

(The information follows:)

DEATH RATES PER 100,000 POPULATION, DEATH REGISTRATION STATES*

Cause of death	1900 [1]	1965 [2]
Tuberculosis of the respiratory system	174.5	3.8
Diseases of the respiratory system, including influenza and excluding asthma and diseases of the thyroid	271.5	61.2

[1] Federal Security Agency. U.S. Public Health Service. National Office of Vital Statistics. Vital statistics rates in the United States 1900-40, Washington, Government Printing Office, 1947.

[2] U.S. Public Health Service. Vital statistics of the United States 1965, v. II, Washington, Government Printing Office, 1967.

*Because of changes in definitions and coding procedures it is impossible to quantify the exact degree of comparability of these categories.

LUNG CANCER

Mr. HULL. You refer to an increase in lung cancer. I would appreciate your furnishing us information showing the relationship between the number of lung cancers in men in 1930 as compared to women, and also information with regard to smoking practices between men and women in 1930.

Dr. STEWART. Certainly.

(The information follows:)

There are no data available that give the detailed statistics distinguishing the smoking habits of men and women in 1930.

Mr. HULL. I understand that the ratio of lung cancer in males to females was 1.5 to 1 in 1930 and that it has been reported as steadily increasing to about 6 to 1 today—is that your understanding?

Dr. STEWART. Yes. I would like to point out, though, that the rate of lung cancer among women has gone up 50 percent.

Mr. HULL. Also I have the impression that the ratio of male to female smokers has been going the other way; that is, a greater proportion of women have smoked in each decade since 1930 than smoked at that time.

Dr. STEWART. That is correct.

Mr. HULL. You might include a short explanation, unless you care to give it now, concerning the apparent inconsistency in the smoking and lung cancer theory?

Dr. STEWART. We don't think there is any inconsistency. Relatively few women in the age group which dies of lung cancer have been smoking cigarettes heavily enough or long enough to be affected in the large numbers that men are.

Mr. HULL. Wouldn't you agree that a good deal of the increase in lung cancer is due to improved diagnosis and aging population and increase in population?

Dr. STEWART. No, sir. I think we have known how to diagnose lung cancer since 1950 and yet we have had two and a half times increase in lung cancer. I do not think aging of the population has anything to do with it. The population boom occurred in 1946, which means that wave is 22 years of age. Yet we have had a consistent increase of lung cancer since 1950. I think I can get you the age specific rates which would neutralize the age population.

(The information follows:)

MORTALITY FROM DISEASES CAUSALLY RELATED TO SMOKING

From the combined results of the studies reviewed by its members, the Advisory Committee concluded that tobacco usage is causally related to the following four diseases: cancer of the lung, cancer of the larynx, cancer of the lip, and chronic bronchitis. The epidemiologic method coupled with clinical and laboratory observations provided the basis for these four conclusions.

CANCER OF THE LUNG

Cigarette smoking is causally related to lung cancer in men; the magnitude of the effect of cigarette smoking far outweighs all other factors. The data for women, though less extensive, point in the same direction.[1]

Total mortality trend.—The death rate for cancer of the lung (international list numbers 162 and 163) almost doubled between 1950 (12.2 deaths per 100,000 population) and 1964 (24) deaths per 100,000). Not much of this rise could be attributed to the changing age composition of the population. The corresponding age-adjusted rate likewise almost doubled (11.1 deaths per 100,000 for 1950 and 20.7 deaths for 1964, table 2). The annual number of deaths from lung cancer rose from 18,313 deaths in 1950 to 45,838 in 1964. In this 15-year period deaths from lung cancer totaled approximately a half million (467,442 deaths).

[1] Public Health Service: "Smoking and Health," report of the Advisory Committee to the Surgeon General of the Public Health Service. PHS Pub. No. 1103, Washington, U.S. Government Printing Office, 1964, p. 31.

TABLE 2.—DEATH RATES FOR MALIGNANT NEOPLASM OF BRONCHUS AND TRACHEA, AND OF LUNG SPECIFIED AS PRIMARY, AND MALIGNANT NEOPLASM OF LUNG, UNSPECIFIED AS TO WHETHER PRIMARY OR SECONDARY, BY AGE, SEX, AND COLOR; AND CORRESPONDING AGE-ADJUSTED RATES: UNITED STATES, 1950-64

[Deaths are those attributed to category numbers 162 and 163 of the 7th revision of the international lists, 1955. Deaths are classified according to the 6th revision for 1950-57 and to the 7th revision for 1958-64. Rate per 100,000 population.]

Sex, year, and color	All ages [1]	25 to 34 years	35 to 44 years	45 to 54 years	55 to 64 years	65 to 74 years	75 to 84 years	85 years and over	Age-adjusted rates
White, both sexes:									
1964	24.8	0.9	7.8	32.6	86.1	131.9	115.6	76.2	20.6
1963 [2]	23.6	1.0	7.3	31.3	81.9	126.6	107.2	82.0	19.7
1962 [2]	22.8	.9	7.1	31.0	80.8	120.4	102.8	74.6	19.1
1961	22.0	1.0	6.8	29.4	77.7	116.5	98.7	75.6	18.4
1960	20.9	.9	6.4	28.8	75.1	109.6	92.5	66.2	17.6
1959	20.1	1.0	6.0	27.4	73.8	104.4	87.6	63.7	16.9
1958	19.3	.9	5.9	26.9	70.9	99.8	85.4	59.9	16.3
1957	18.7	.9	5.7	25.8	69.7	96.3	82.6	59.2	15.9
1956	18.1	.8	5.6	25.6	67.4	92.4	79.9	55.2	15.4
1955	17.0	.9	5.2	24.6	62.9	85.6	77.7	50.4	14.5
1954	16.0	.8	5.1	23.4	59.9	80.7	70.5	51.4	13.7
1953	15.4	.8	5.1	23.2	59.3	75.2	67.7	47.3	13.3
1952	14.4	.7	4.9	21.5	55.6	71.2	63.7	47.6	12.5
1951	13.4	.7	4.5	21.4	51.0	65.4	59.0	44.8	11.7
1950	12.7	.7	4.5	20.3	49.6	61.1	57.5	44.9	11.2
White, male:									
1964	42.7	1.3	11.6	54.3	157.8	257.7	220.9	136.0	37.6
1963 [2]	40.6	1.4	10.9	51.8	149.8	245.8	203.8	141.6	35.7
1962 [2]	39.5	1.3	10.8	52.5	148.3	231.7	191.2	126.0	34.7
1961	38.0	1.6	10.3	50.0	142.9	222.6	179.7	130.4	33.3
1960	36.4	1.3	9.7	49.2	139.2	207.5	170.4	109.4	31.9
1959	34.9	1.4	9.4	47.1	136.3	196.4	155.7	112.6	30.6
1958	33.4	1.4	9.0	46.5	131.4	185.2	147.9	93.4	29.3
1957	32.4	1.3	8.9	44.9	128.5	177.5	142.9	92.0	28.4
1956	31.2	1.2	9.0	44.6	122.8	168.4	137.1	88.1	27.4
1955	29.2	1.2	8.2	43.3	114.4	154.0	131.3	76.9	25.6
1954	27.4	1.2	8.2	41.0	108.2	144.2	113.6	77.0	24.1
1953	26.3	1.2	8.2	40.5	106.8	131.4	109.2	70.9	23.2
1952	24.2	1.0	7.8	37.1	98.0	121.9	98.8	71.5	21.3
1951	22.3	1.0	7.2	36.8	89.4	111.7	88.3	63.3	19.8
1950	20.8	1.0	7.1	35.1	85.4	101.5	85.5	67.4	18.8
White female:									
1964	7.4	.6	4.1	11.8	20.1	28.7	38.5	40.0	5.8
1963 [2]	7.0	.6	3.9	11.6	19.1	27.6	35.5	45.1	5.6
1962 [2]	6.6	.5	3.4	10.3	18.1	26.6	36.2	42.4	5.3
1961	6.4	.5	3.4	9.5	17.0	26.0	37.2	40.9	5.1
1960	5.9	.5	3.2	9.0	15.1	24.8	32.7	39.1	4.7
1959	5.7	.6	2.8	8.2	15.1	24.2	35.0	32.1	4.6
1958	5.6	.5	2.8	7.9	13.9	24.8	36.8	37.9	4.5
1957	5.4	.5	2.5	7.2	13.9	24.3	35.3	37.0	4.3
1956	5.3	.5	2.4	7.0	14.6	24.6	34.7	32.3	4.3
1955	5.1	.5	2.3	6.3	13.6	24.0	34.9	31.6	4.1
1954	4.9	.4	2.1	6.2	13.2	23.2	35.8	33.1	4.0
1953	4.9	.4	2.2	6.1	13.0	24.0	34.0	30.2	4.0
1952	5.0	.4	2.0	6.1	14.0	24.9	34.9	30.4	4.1
1951	4.7	.4	2.0	6.1	12.9	22.8	34.7	31.6	3.9
1950	4.7	.4	1.9	5.7	13.7	23.7	34.0	29.3	4.0
Both sexes:									
1964	24.0	1.0	8.4	33.6	86.6	130.3	112.7	75.0	20.7
1963	23.1	1.1	8.0	32.6	82.7	126.9	106.5	80.7	20.0
1962	22.3	1.0	7.5	31.9	81.4	120.2	101.8	73.0	19.3
1961	21.3	1.1	7.2	30.1	77.9	114.9	96.3	74.0	18.4
1960	20.3	1.0	6.8	29.6	75.3	108.1	91.5	65.6	17.7
1959	19.4	1.0	6.4	28.0	73.8	102.5	86.1	62.8	16.9
1958	18.6	1.0	6.3	27.5	70.3	97.9	83.2	58.5	16.3
1957	18.1	.9	5.8	26.5	69.5	94.4	80.6	56.9	15.8
1956	17.4	.9	5.8	26.1	67.2	90.1	78.1	53.2	15.3
1955	16.3	.9	5.4	25.1	62.4	83.2	75.5	48.4	14.4
1954	15.4	.9	5.2	23.9	59.3	78.4	68.6	49.8	13.6
1953	14.9	.8	5.3	23.6	58.9	72.9	65.9	46.0	13.2
1952	13.9	.7	5.1	21.7	55.0	69.1	61.8	46.5	12.4
1951	12.9	.7	4.6	21.5	50.7	63.6	57.1	43.0	11.6
1950	12.2	.8	4.5	20.4	48.7	59.7	55.8	42.3	11.1
Male:									
1964	41.4	1.4	12.8	56.4	158.1	254.0	213.7	132.9	37.7
1963	39.9	1.6	12.0	54.5	150.7	245.7	202.2	139.7	36.3
1962	38.7	1.5	11.6	54.2	148.8	231.6	189.1	124.2	35.0
1961	36.9	1.6	11.1	51.4	142.8	218.9	175.1	127.7	33.3
1960	35.4	1.4	10.5	50.6	139.3	204.3	167.1	107.7	31.9
1959	33.7	1.4	10.1	48.0	135.8	192.1	152.2	111.5	30.5
1958	32.2	1.5	9.8	47.5	129.7	181.1	143.2	91.3	29.2
1957	31.3	1.3	9.1	46.0	127.9	173.4	138.8	89.6	28.3
1956	30.1	1.3	9.3	45.5	122.0	163.7	133.3	85.0	27.2
1955	28.0	1.3	8.5	44.0	113.0	148.9	126.9	73.9	25.3

See footnotes at end of table.

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Sex, year, and color	All ages[1]	25 to 34 years	35 to 44 years	45 to 54 years	55 to 64 years	65 to 74 years	75 to 84 years	85 years and over	Age-adjusted rates
Male—Continued									
1954	26.3	1.3	8.4	41.5	107.2	139.6	110.5	75.0	23.8
1953	25.3	1.2	8.4	41.0	105.9	127.1	106.2	69.2	22.9
1952	23.2	1.1	8.1	37.3	96.7	117.6	95.6	71.1	21.1
1951	21.4	1.0	7.1	36.9	86.8	108.4	85.2	60.5	19.6
1950	19.9	1.1	7.1	35.0	83.8	98.7	82.6	62.5	18.5
Female:									
1964	7.1	.6	4.2	11.9	20.5	28.6	37.8	39.4	5.9
1963	6.9	.6	4.1	11.7	19.6	28.0	34.7	43.9	5.7
1962	6.4	.5	3.6	10.5	18.6	26.1	35.5	40.6	5.3
1961	6.2	.5	3.4	9.6	17.3	25.9	35.8	39.6	5.1
1960	5.7	.5	3.2	9.2	15.4	24.4	32.8	38.8	4.7
1959	5.5	.6	2.9	8.6	15.4	24.2	34.4	30.9	4.6
1958	5.4	.5	2.9	8.0	14.2	24.6	36.0	36.4	4.5
1957	5.2	.5	2.6	7.3	14.0	24.2	34.3	34.6	4.3
1956	5.1	.5	2.5	7.1	14.8	24.1	33.9	31.1	4.3
1955	5.0	.5	2.4	6.6	13.8	23.9	34.0	30.3	4.2
1954	4.7	.5	2.2	6.6	12.9	22.9	34.5	31.8	4.0
1953	4.7	.5	2.3	6.3	13.1	23.4	32.8	29.4	4.0
1952	4.8	.4	2.1	6.3	13.9	24.5	33.8	28.9	4.1
1951	4.5	.4	2.1	6.4	13.0	22.1	33.6	30.6	3.9
1950	4.5	.5	1.9	5.8	13.6	23.3	32.9	28.2	3.9
Nonwhite, both sexes:									
1964	17.9	1.3	13.4	43.3	91.0	112.1	75.1	62.1	21.4
1963[2]	18.2	1.8	13.6	42.9	85.0	119.1	86.3	65.4	21.5
1962[2]	16.4	1.7	11.0	38.3	80.1	102.4	76.2	51.4	19.2
1961	15.7	1.4	10.3	37.0	80.1	96.5	64.5	54.2	18.4
1960	15.6	1.3	10.0	37.0	77.9	90.4	77.2	58.6	18.1
1959	14.2	1.2	9.9	33.5	73.2	79.6	64.6	51.5	16.5
1958	13.1	1.3	9.9	33.0	63.7	74.8	52.1	39.4	15.2
1957	12.7	.9	6.5	32.5	67.3	72.4	51.8	28.1	14.8
1956	12.0	1.2	7.7	30.2	64.8	62.1	52.2	29.5	14.0
1955	10.8	1.2	6.9	29.8	56.8	54.3	44.5	24.1	12.7
1954	10.2	1.4	6.4	28.2	52.4	50.5	41.4	29.1	11.9
1953	9.9	1.1	6.7	27.4	54.7	45.1	39.3	30.8	11.7
1952	8.9	1.0	6.8	23.6	47.7	43.2	33.6	32.7	10.5
1951	8.3	.7	4.7	23.2	47.8	41.2	29.5	21.3	10.0
1950	7.4	1.3	4.5	20.8	38.7	40.3	29.0	11.2	8.9
Nonwhite, male:									
1964	31.4	2.3	22.8	76.9	161.1	211.5	130.1	102.7	38.4
1963[2]	31.9	2.7	22.2	76.9	151.0	220.3	155.2	112.1	38.4
1962[2]	28.7	2.9	18.2	66.7	140.1	195.3	135.1	96.8	34.2
1961	29.7	2.2	17.6	64.9	141.9	177.0	119.0	96.8	32.8
1960	27.5	2.3	17.7	64.2	140.2	167.2	125.4	89.3	32.2
1959	24.5	1.7	16.8	56.5	130.5	140.9	107.6	100.0	28.7
1958	22.7	2.3	16.4	58.0	112.3	132.6	83.5	70.4	26.6
1957	22.1	.8	10.5	57.1	121.3	126.6	85.9	61.5	25.9
1956	20.8	1.8	12.2	53.9	113.4	109.4	83.8	48.0	24.4
1955	18.3	2.0	11.3	50.7	97.2	88.7	69.6	37.5	21.3
1954	17.5	2.2	10.0	46.5	95.0	85.2	68.9	50.0	20.4
1953	17.0	1.3	10.5	46.5	94.4	75.9	65.8	47.6	19.7
1952	15.0	1.7	11.3	39.8	80.9	68.1	51.8	65.0	17.4
1951	13.8	.9	6.7	37.7	79.5	70.0	43.4	26.3	16.2
1950	12.2	1.6	7.4	34.1	64.8	62.6	42.6	5.4	14.4
Nonwhite female:									
1964	5.3	.5	5.2	12.8	24.4	26.8	27.9	32.0	6.2
1963[2]	5.3	1.1	6.1	11.6	21.7	30.7	26.1	31.1	6.2
1962[2]	4.7	.7	4.7	11.8	22.2	20.5	23.7	19.0	5.4
1961	4.4	.8	3.8	10.8	20.4	24.1	15.8	22.0	5.1
1960	4.3	.5	3.0	11.1	17.6	20.1	34.0	34.8	4.9
1959	4.5	.6	3.6	11.8	18.2	24.0	26.1	15.4	5.1
1958	4.0	.4	3.9	9.3	16.9	22.1	23.5	18.4	4.6
1957	3.8	1.1	2.9	9.0	14.7	22.9	20.0	5.4	4.3
1956	3.6	.7	3.5	7.4	17.1	18.5	22.5	16.7	4.2
1955	3.8	.5	2.7	9.5	16.7	22.6	20.5	14.7	4.4
1954	3.2	.7	3.1	10.3	9.9	18.4	15.1	15.6	3.8
1953	3.3	.9	3.3	8.7	14.3	16.3	14.0	19.4	3.9
1952	3.2	.4	2.5	7.6	13.6	19.9	16.4	10.3	3.7
1951	3.1	.5	2.9	8.7	14.8	13.9	16.2	17.9	3.7
1950	2.8	1.0	1.9	7.4	11.9	17.9	15.6	15.3	3.5

[1] Figures for age not stated included in "All ages," but not distributed among age groups.
[2] Figures by color exclude data for New Jersey, see p. 6–9, sec. 6, vol. II, "Vital Statistics of the United States, 1963."

Mortality differentials by sex and color.—Lung cancer mortality in the male population increased from 19.9 deaths per 100,000 population in 1950 to 41.4 deaths in 1964. The corresponding increase in the female population was from 4.5 to 7.1 deaths per 100,000. Until 1960 the ratio of the death rate in the male population for this cause to the corresponding death rate in the female population continued upward. But after 1960 this ratio leveled off, reflecting the greater relative rise in mortality from lung cancer in the female population.

Year	Ratio of male to female death rates for—	
	Total death rate	Age-adjusted death rate
1964	5.8	6.4
1963	5.8	6.4
1962	6.0	6.6
1961	6.0	6.5
1960	6.2	6.8
1959	6.1	6.6
1958	6.0	6.5
1957	6.0	6.6
1956	5.9	6.3
1955	5.6	6.0
1954	5.6	6.0
1953	5.4	5.7
1952	4.8	5.1
1951	4.8	5.0
1950	4.4	4.7

In 1964 the death rate for lung cancer, unadjusted for changing age composition, was about 40 percent higher for the white population (24.8 deaths per 100,000) than for the nonwhite population (17.9 deaths per 100,000). This differential by color was lower for 1964, however, than for 1950, owing to the greater relative increase in lung cancer mortality in the nonwhite population during 1950–64.

Year	Ratio of white to nonwhite death rates for—	
	Total death rate	Age-adjusted death rate
1964	1.4	1.0
1963	1.3	.9
1962	1.4	1.0
1961	1.4	1.0
1960	1.3	1.0
1959	1.4	1.0
1958	1.5	1.1
1957	1.5	1.1
1956	1.5	1.1
1955	1.6	1.1
1954	1.6	1.2
1953	1.6	1.1
1952	1.6	1.2
1951	1.6	1.2
1950	1.7	1.3

Mortality from lung cancer rose faster during 1950–64 in the nonwhite male population than in the other color-sex groups.

Color and sex	Ratio of 1964 to 1950 death rates for—	
	Total death rate	Age-adjusted death rate
Total	2.0	1.9
Male	2.1	2.0
Female	1.6	1.5
White	2.0	1.8
Male	2.1	2.0
Female	1.6	1.5
Nonwhite	2.4	2.4
Male	2.6	2.7
Female	1.9	1.8

Mortality trends in the male population by color and age.—For 1964, as for each year of the period 1950–64, the death rate for cancer of the lung for the white male population was higher for each succeeding age group from 25–34 years through 65–74 years but was lower for the age groups 75 years and over (fig. 1). Similarly the death rate for the nonwhite male population for this cause increased with advance in age from 25–34 years through 65–74 years for most of the years during 1950–64 and declined at ages over 74 years. As pointed out by the Advisory Committee, however, there actually was no decline in the risk of dying from cancer of the lung with advance in age.[2] As shown in figure 2, within each cohort (a group of persons born during the same 5-year period) the death rates for cancer of the lung increased steadily to the end of the life span. Thus the mortality curve for cohort J (males born in 1880–84) shows the death rates for cancer of the lung within the cohort first for 1949, when its members were 65–69 years of age; then in 1954, when they were 70–74 years of age; in 1959, when they were 75–79 years of age; and in 1964, when they were 80–84 years of age. The death rates for cancer of the lung within cohort J continued to increase with each of these 5-year advances in age, rising from 87.9 deaths per 100,000 at ages 65–69 years to 174.6 deaths per 100,000 at ages 80–84 years. Similarly for each of the other 11 cohorts in figure 2, mortality from lung cancer increased almost steadily throughout that part of the life span lived by the cohort during 1949–64.

The mortality experience of the individual male cohorts during 1949–64 shows that for every 5-year age group beginning with 25–29 years the risk of dying from lung cancer was almost always higher for successively younger cohorts than for their predecessors. The increasing steepness of the mortality curves indicates that mortality from lung cancer rose more rapidly within recently born male cohorts.

[2] Ibid., pp. 138 and 139.

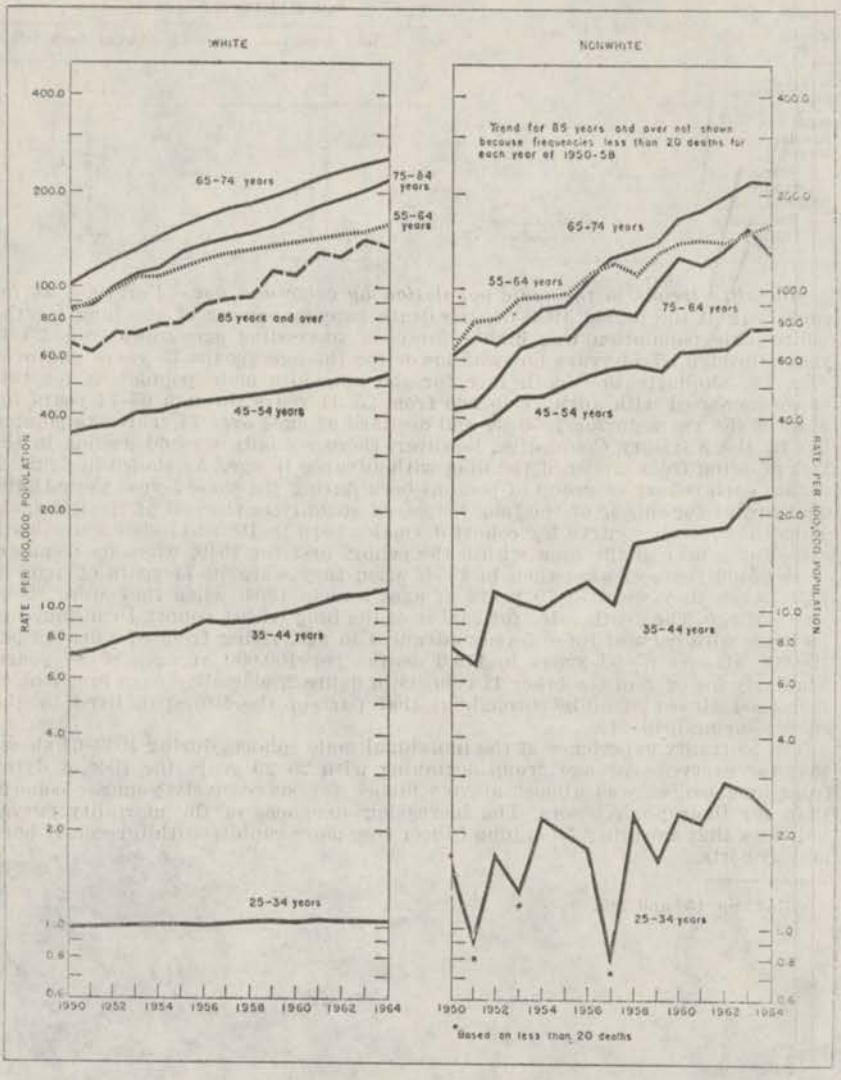


FIGURE 1.—Death rates among men for cancer of the lung, by color and specified age groups: 1950–64.

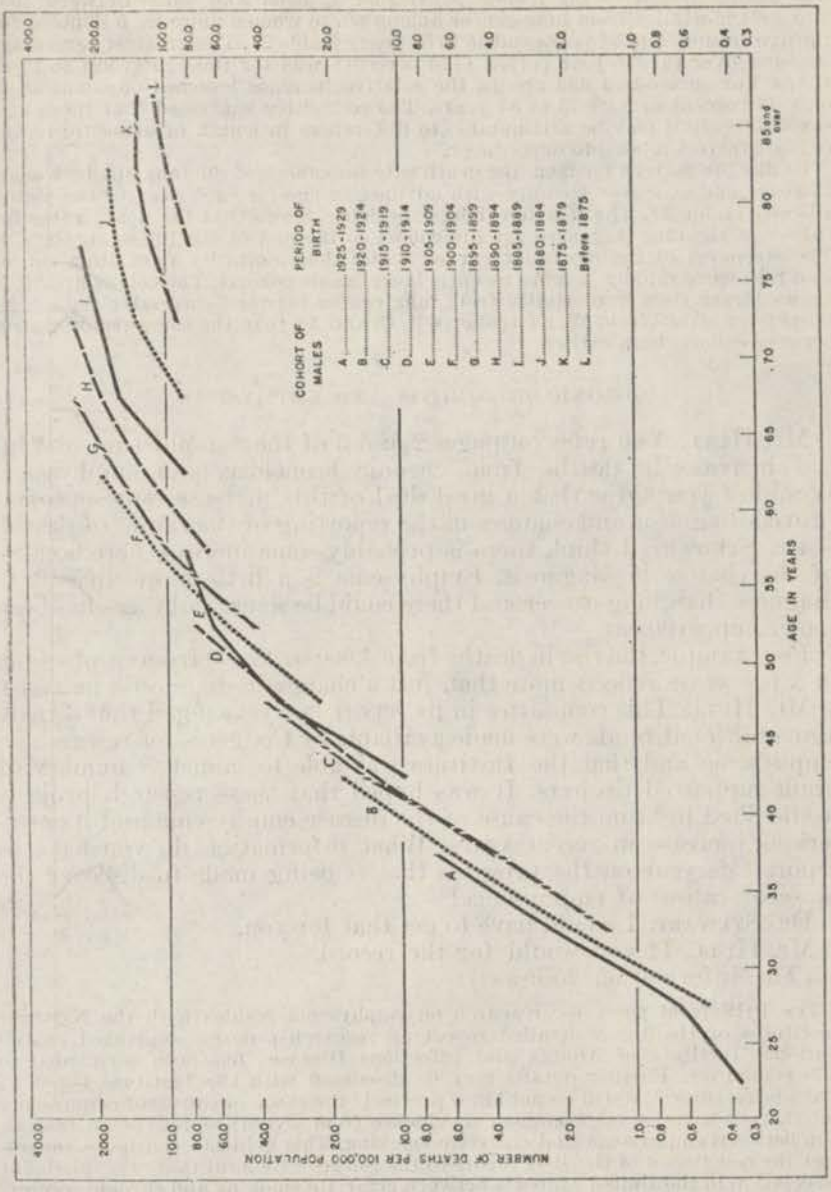


FIGURE 2.—Cancer of the lung among men, by birth cohort and age at death: 1949, 1954, 1959, and 1964.

Mortality trends in the female population by color and age.—Between 1950 and 1964 mortality from lung cancer among white women more than doubled for the age groups 35 to 44 years and 45 to 54 years (table 2). The greatest percentage increase over this 15-year period (116 percent) was for the age group 35 to 44 years. For succeeding age groups the relative increase lessened—amounting to only 13 percent at ages 75 to 84 years. The committee suggested that these age-sex differentials may be attributable to differences in length of exposure to one or more factors related to lung cancer.

Unlike the pattern for men, the death rate for cancer of the lung among women 25 years and over rose steadily with advance in age for each year of the period 1950–64 (table 2). The female cohort experience shows that the death rates for cancer of the lung increased for the cohort to the end of the life span (fig. 3). The steepness of the mortality curves shows that mortality from lung cancer also rose more rapidly in more recently born female cohorts. The cohort approach shows larger rises in mortality from lung cancer between successive female cohorts born after World War I (cohorts B, C, and A) than the corresponding rises between cohorts born earlier.

CHRONIC BRONCHITIS AND EMPHYSEMA

Mr. HULL. You refer on pages 2 and 3 of the pamphlet to substantial increase in deaths from chronic bronchitis and emphysema. Wouldn't you agree that a good deal of this increase represents improved diagnosis and changes in the reporting of the causes of death?

Dr. STEWART. I think there is probably some increase here because of the change in diagnosis. Emphysema is a little more difficult to diagnose than lung cancer and there could be some, and there has been some, improvement.

For example, the rise in deaths from 4,000 to 23,000 from emphysema in a few years reflects more than just a change in diagnostic patterns.

Mr. HULL. This committee in its report last year noted that 3 years ago additional funds were made available by Congress for research on emphysema and that the Institute was able to launch a number of grant-supported projects. It was hoped that these research projects would shed light on the cause of the disease emphysema and its mysterious increase in recent years. What information do you have to report this year on the progress that is being made to discover the cause or causes of emphysema?

Dr. STEWART. I would have to get that for you.

Mr. HULL. If you would for the record.

(The information follows:)

The PHS focal point for research on emphysema resides with the National Institutes of Health. A detailed report on research progress supported by the National Institute of Allergy and Infectious Diseases has been forwarded to this committee. Further details may be discussed with the Institute Director, when he testifies. We still do not know precisely the cause or causes of emphysema but there is a major epidemiological evidence from several sources of an association between emphysema and cigarette smoking. This evidence continues to support the conclusion of the 1964 report to the Surgeon General that "the dominant association in the United States is between cigarette smoking and chronic respiratory diseases." This includes emphysema. As stated in the 1967 report on "The Health Consequences of Cigarette Smoking": "The observation that other probable causes of pulmonary emphysema may exist should not detract from the strong relationship that has been shown to exist between cigarette smoking and emphysema."

ANIMAL STUDIES IN CONNECTION WITH SMOKING

Mr. HULL. On page 3 of the pamphlet there is a section titled "Animal Experiments."

Dr. STEWART. That is correct.

Mr. HULL. In that you refer to animals having been exposed to tobacco smoke and chemical compounds contained in smoke. Are you actually speaking there of inhalation studies or are these the mouse-painting experiments?

Dr. STEWART. These are several different kinds of studies including inhalation studies and skin-painting studies.

Mr. HULL. When you refer to compounds being cancer producing, aren't you really saying that certain compounds painted on the backs of mice have caused cancer?

Dr. STEWART. They cause cancer in animals.

It could be through painting, it could be through ingestion, it could be through a new movement in carcinogenesis, the cytotoxic nature in the cells.

Mr. HULL. You are familiar with the French study by Lazar and others indicating that one of the compounds to which I am sure you refer, Benzpyrene, is not present in sufficient amounts to account for the tumors in animals?

Dr. STEWART. I would have to get the judgment on that. I just don't know.

Mr. HULL. Would you agree that most investigators put rather limited reliance on the skin-painting experiments?

Dr. STEWART. I will have to get with the carcinogenic people.

Mr. HULL. Isn't it true that in the report, "The Health Consequences of Smoking," the report refers to the failure to produce human-type lung cancer in animals by inhalation?

Dr. STEWART. That is right.

Mr. HULL. Why don't you say anything about this in the pamphlet?

Dr. STEWART. A pamphlet for people. What do they know about that?

Mr. HULL. What do they know about anything in connection with these studies—only what you tell them.

Dr. STEWART. This is producing lung cancer in animals. This is a very difficult scientific problem.

Mr. HULL. I am satisfied it is.

Dr. STEWART. If you would like us to add an addendum to the pamphlet on all the problems involved in this, I will be glad to do it. That makes the pamphlet 400 pages long.

Mr. HULL. With respect to the section on "Clinical and Autopsy Studies," are you relying for the most part on the work of Dr. Oscar Auerbach?

Dr. STEWART. I haven't any idea.

Mr. HULL. Why have you not included any reference to the work of those persons whose studies are in disagreement?

Dr. STEWART. I can give you the bibliography that was used.

Mr. HULL. If you will, please.

(The information follows:)

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Mr. HULL. You are familiar with the testimony of Drs. Carnes and Moran during the 1965 cigarette labeling hearing?

Dr. STEWART. I recall their testimony, yes.

EPIDEMIOLOGICAL STUDIES

Mr. HULL. Your third section on page 3 refers to "epidemiological studies."

Doctor, there you are referring to statistical studies, are you not?

Dr. STEWART. We were referring to studies that use statistics as their language, yes.

Mr. HULL. When you say that much of our knowledge comes from such sources, aren't you really saying that practically all of it, such as it is, comes from those studies?

Dr. STEWART. No. sir.

Mr. HULL. You call them, I believe, population studies?

Dr. STEWART. We call them epidemiological studies or population studies.

Mr. HULL. Wouldn't you agree with the statement in the 1964 Surgeon General's report that none of the populations studies are representative of the U.S. population as a whole?

Dr. STEWART. That is probably correct. I do not know. These questions have been raised before, there is extensive discussion of this, and I will be glad to get this for you.

(The information follows:)

EVALUATION OF SOURCES OF DATA

THE STUDY POPULATIONS

Various reasons dictated the particular choices made of the seven study populations, considerations of feasibility playing an important role. None of the populations was designed, in particular, to be representative of the U.S. male population. Any answer to the question "to what general populations of men can the results be applied?", must involve an element of unverifiable judgment. However, three of the studies have populations with widespread geographic distribution within the United States, as do the British and Canadian studies within their respective countries. Taken as a whole, the seven populations offer a substantial breadth of sampling of the type of men and environmental exposures to be found in North America and Britain, as well as providing some variation in methodological approach, although the basic plan was similar in all studies.

The seven studies differ considerably in size. They vary also in the extent to which they are free from methodological weakness. The studies of men in 9 States and men in 25 States, for instance, suffer from the difficulties that the populations studied are hard to define, that the smokers and nonsmokers were recruited by a large number of volunteer workers, and that completeness in the reporting of deaths was hard to achieve, since this depends on reports from the volunteers. On the other hand these studies have the advantage of being large and of having a broad geographic representation of the U.S. male population, while the second study is the only one that attempts to investigate many other relevant variables in which smokers and nonsmokers may differ. In the California occupational study the focus of interest is occupational differences in lung cancer mortality, smoking history being recorded primarily in order to be able to adjust comparisons among different occupational groups for differences in amount smoked. In the analysis we have not attempted to rate the studies as to overall quality or to assign differential weights to their results, except that in the smaller studies it is recognized that mortality ratios are subject to larger sampling errors. Our attitude is to attach importance only to results that appear to be generally confirmed by the studies.

Some idea of the relative death rates in these studies as compared with the 1960 white male population of the United States is given in table 15, which shows the age-adjusted death rates for ages 35 and over, using the age distribution of the U.S. white male population as a standard. (The choice of 1960 for the comparison is arbitrary, but the white male rate changed little between 1955 and 1960.)

TABLE 15.—AGE-ADJUSTED DEATH RATES PER 1,000 MAN-YEARS FOR CURRENT SMOKERS OF CIGARETTES ONLY (AGED 35 AND OVER), BY AMOUNT SMOKED, IN 7 STUDIES AND FOR U.S. WHITE MALES

Study	Non-smokers	Current smokers of cigarettes only		U.S. white males, 1960
		Less than 1 pack	1 pack or more	
British doctors	15.8	19.2	23.2	22.9
Men in 9 States	[1] 14.4	[1] 22.4	[1] 27.1	[1] 22.6
U.S. veterans	12.0	18.1	23.9	22.9
California occupational	[1] 10.5	[1] 14.2	[1] 18.0	[1] 22.6
California legion	11.3	16.4	16.3	22.9
Canadian veterans	14.1	22.1	24.2	22.9
Men in 25 States	[2] 12.8	[2] 18.5	[2] 19.2	22.9

[1] Ages 50–69.
[2] These figures may be too low by about 1.7 percent, since the person-years used in the computation included some contribution by men who had not been fully traced.

In all studies the death rates for nonsmokers are markedly below those of U.S. white males in 1960. Even the smokers of one pack of cigarettes or more daily have death rates that average slightly below the U.S. white male figure. To some extent this is to be expected, since hospitalized and other seriously ill persons are not recruited in such studies. The sizes of the differences, appear, however, surprising for the studies with U.S. populations. Hammond and Horn (10), in a special investigation on this question, concluded that the discrepancy in their study was due to the screening out of sick persons in recruiting plus probably a selection towards men of higher economic levels. They point out that their death rates are substantially above those for males who had held ordinary life insurance policies for from 5 to 15 years. The U.S. veterans' study population also came mainly from the middle and upper socioeconomic classes (6).

Another reason might be a failure to trace all deaths. In mass studies it is almost impossible to devise infallible provisions for recording every death. The study directors were, however, experienced in handling this problem and it seems unlikely that more than, say, 5 percent of the deaths would be missed. (Moreover, in the studies of veterans it is to the family's advantage to report the death.)

Another contribution probably came from the failure to obtain data for some members of the population. Evidence on this point is available from the British doctors and the U.S. veterans' studies in which death rates for the complete population (respondents and nonrespondents) are available. In these studies the death rate for the whole population exceeded that in the respondents, but by only 5 to 10 percent, so that nonresponse appears unlikely to be a major cause of the discrepancy.

So far as interpretation of results is concerned, the discrepancy raises two points. It is clear that the seven prospective studies involve populations which are healthier than U.S. males as a whole. Secondly, the low death rates for nonsmokers suggest the possibility that the studies recruited unusually healthy groups of nonsmokers. In the case of the five studies which had clearly defined populations, this selection would arise only if the nonsmokers who refused to enter the study had death rates much higher than those who were enrolled. This point is discussed in the next section.

NONRESPONSE BIAS

In all five studies that had a clearly defined target population, sizable proportions of the population were omitted. The major reason was failure to answer the questionnaire; in addition, certain replies were rejected as too incomplete. The percentages of the populations for which usable replies were obtained were approximately as shown in table 16.

TABLE 16.—PERCENTAGES OF USABLE REPLIES IN 5 STUDIES

British doctors	U.S. veterans	California occupational	California Legion	Canadian veterans
68	68, 85	85	56	57

In the U.S. veterans study, 68 percent replies were obtained from the 1954 questionnaire. A second questionnaire, sent in 1957, enrolled an additional 17 percent, for whom data are available during the period 1957–60. In the two American Cancer Society studies it is not possible to present meaningful percentages, since each research volunteer selected but one small part of the study population from among her acquaintances.

The possible effects of these amounts of non-response on the mortality ratios have received little discussion. Some pieces of information about the non-respondents are available in two studies. From a recent sample, Doll (4) states that (a) the death rate of non-respondents in the British doctors study is higher than that of respondents; (b) consequently the death rate for respondents is lower than that of British doctors as a whole, perhaps by as much as 5 percent to 10 percent; (c) there are relatively more smokers among the non-respondents than among the respondents. In the U.S. veterans' study, the death rate for the whole study population exceeded that for the original 68 percent responders by 7 percent in 1958 and 5 percent in 1959. From this study one can also calculate mortality ratios separately, during 1957–60, for the 1954 respondents and the 1957 respondents. The results for smokers of cigarettes are as follows:

	1954 respondents (68 percent)	1957 respondents (17 percent)	Nonrespondents (15 percent)
Current cigarettes only	1.87	1.71	?
Current cigarettes and other	1.56	1.33	?

Those who did not respond in 1954 did respond in 1957 show lower mortality ratios than the original set of men giving usable replies. By making guesses about the mortality ratios in the 15 percent of nonresponders, one can compare the resulting mortality ratio in the while population with that found in the original 68 percent. To consider how much of an overestimate the ratios of 1.87 and 1.56 might be, we might suppose, to illustrate the method, that the mortality ratio is unity for the nonrespondents. The mortality ratio for the whole population then turns out to be 1.71 for cigarettes only and 1.44 for cigarettes and other. Thus, with a nonresponse rate of 30 percent, the computed mortality ratio might overestimate by 0.1 or 0.2.

Berkson (1) produced a set of assumptions under which, with a mortality ratio of 1 in the whole population and a response rate of 71 percent, the mortality ratio in the respondents is found to be 1.5. Nonrespondents are assumed to be of two types. One group, destined to have a high death rate, refuses because they don't feel well. This group has a high refusal rate (50 percent) for both smokers and nonsmokers, since the reason for refusal is illness and not smoking. In the remainder of the nonrespondents, the refusal rate is higher among smokers than nonsmokers. Qualitatively, these assumptions are not unreasonable and agree in direction with results quoted previously for the British doctors and U.S. veterans' studies. Korteweg (15) worked further examples of Berkson's model as applied to individual causes of death in the first report of the study of men in nine States. He concluded that the response bias in the mortality ratio might be as high as 0.3. Both Berkson and Korteweg, had, of course, to make some arbitrary assumptions about the sizes of biases from different sources.

Further discussion of the nonresponse bias and computations as to its magnitude are given in appendix I. The computations indicate that reported mortality ratios lying between 1 and 2 might overestimate by as much as 0.3, a mortality ratio of 5.0 might overestimate by 1.0, and one of 10.0 might overestimate by 3.0. Thus, under assumptions that are rather extreme, although consistent with the available data about nonrespondents, the mortality ratios of cigarette smokers would still remain substantially higher than unity after adjustments for these amounts of overestimation.

Mr. HULL. Thank you.

DEATHS RATES FOR SMOKERS

Wasn't it a fact that even the death rates found in those special studies showed lower rates for cigarette smokers than were found in the total population as a whole?

Dr. STEWART. That will also be covered by the insert I just offered to get for the record.

Mr. HULL. On page 5 you have a discussion on mortality.

Dr. STEWART. This is page 5 of the 1964 report?

Mr. HULL. Yes.

I am sure you are familiar with the suggestion of Dr. Joseph Berkson, who has been called the dean of American medical statisticians, to the effect that the overall mortality rates which have appeared showing nonsmokers to be healthier than smokers with respect to a variety of diseases, actually indicates that nonsmokers may be a very special—and generally healthier—population group, not because they are nonsmokers, but because they are generally very self-protective.

I am sure you will agree, will you not, that not all smokers live shorter lives than all nonsmokers? You will agree to that?

Dr. STEWART. I will agree to that.

Mr. HULL. As a matter of fact, some older smoking groups have lower death rates, do they not, than those in the same age group who do not smoke?

Dr. STEWART. That is right.

Mr. HULL. On page 6 you say that if a person stops smoking he reduces his risk?

Dr. STEWART. That is correct.

Mr. HULL. Isn't that inconsistent with the finding of the National Center for Health Statistics in their report of the relationship between cigarette smoking and illness issued in May 1967? I noticed that the section discussing that study does not say anything about the higher rates of disease found among persons who have stopped smoking. Is this just an observation you make when its fits your theory?

Dr. STEWART. I think we reported the characterization of people into two groups, cigarette smokers and nonsmokers. We divided the cigarette smokers as to the amount they smoked and we characterized their health characteristics. That is what is reported in the report.

Mr. HULL. Incidentally, I note also with regard to the illness and disability section of this pamphlet, pages 6 and 7, that as in other pamphlets, you have omitted that portion of the original report which said that statistics do not prove cause and effect. You would agree, would you not, that the wording which you have used would lead a person to believe just the opposite?

Dr. STEWART. No, I do not believe that.

CANCER OF THE LARYNX

Mr. HULL. On page 8 you refer to great increases in lung cancer. You say that cigarette smoking is a significant factor in the causation of cancer of the larynx in the male.

Dr. STEWART. That is right.

Mr. HULL. Will you tell me how much increase there has been in cancer of the larynx adjusted for age and increase in population since 1930 for each decade? Put it in the record.

Dr. STEWART. Yes.

(The information follows:)

Age adjusted incidence rates in males for cancer of the larynx in Connecticut (1935–1962) [1]

	Male		Male
1935	3.9	Average, 1945 to 1949	5.7
1936	3.0	1950	5.5
1937	4.5	1951	6.2
1938	4.1	1952	6.2
1939	3.8	1953	6.0
Average, 1935 to 1939	3.8	1954	5.7
1940	4.6	Average, 1950 to 1954	5.9
1941	5.5	1955	5.7
1942	3.7	1956	6.7
1943	3.8	1957	5.2
1944	4.7	1958	5.2
Average, 1940 to 1944	4.4	1959	8.0
1945	5.6	Average, 1955 to 1959	6.1
1946	5.6	1960	7.3
1947	5.6	1961	8.8
1948	5.6	1962	9.0
1949	6.2	Average, 1960 to 1962	8.3

[1] Cancer in Connecticut, Incidence and Rates, 1935–62 (1966), published by Connecticut State Department of Health.

U.S. death rates per 100,000 males—Cancer of the larynx—Age adjusted, 1950 to 1964 [2]

	Male		Male
1950	2.2	1958	2.4
1951	2.2	1959	2.3
1952	2.2	1960	2.5
1953	2.3	1961	2.4
1954	2.2	1962	2.4
1955	2.4	1963	2.5
1956	2.3	1964	2.4
1957	2.3		

[2] Mortality From Diseases Associated With Smoking: United States, 1950–64, PHS Publication No. 1000—Series 20—No. 4.

Mr. HULL. Isn't it a fact that there has not been anywhere near the increase in larynx cancer that you tell us has occurred with lung cancer?

Dr. STEWART. I will have to get that.

Mr. HULL. If cigarette smoking is the cause of both of them, should there not have been a great increase in larynx cancer?

Dr. STEWART. Yes, I have an answer for the record.

(The information follows:)

The incidence of laryngeal cancer has increased appreciably although the death rate from that cause has increased only slightly during the same period. One study shows age adjusted death rates for U.S. males rising from 1.9 in 1930 to 2.5 in 1955.[1] The incidence rate in males over the past 20 years has increased between 50 and 90 percent. This is a tribute to the medical profession in that laryngeal cancer, if diagnosed early, is a relatively curable disease, whereas lung cancer at the present time is a relatively incurable disease at any time of diagnosis. Furthermore, laryngeal cancer is associated with pipe and cigar smoking as well as with cigarette smoking and the change in smoking habits among men has been in the proportion of cigarette users, along with a decline in cigar and pipe users over the past 50 years.

[1] End Results and Mortality Trends in Cancer, National Cancer Institute Monograph No. 6, September 1961.

SMOKING AND CORONARY HEART DISEASE

Mr. HULL. With regard to cardiovascular disease, discussed on pages 9 and 10 of the pamphlet, you have selected portions of the 1964 Surgeon General's report and then said, "By 1967, additional evidence pointed even more strongly toward cigarette smoking as a cause of death from coronary heart disease." Isn't it a fact that in 1964, the Advisory Committee did not find that cigarette smoking was the cause of coronary heart disease? Isn't it also a fact that there is considerable disagreement in this area?

Dr. STEWART. That is right.

We have never said it was a cause. I do not think there is any disagreement.

Mr. HULL. Doctor, let me read you the opening three paragraphs from a Harvard University Press release in an article which appeared recently:

> A scientist in the department of nutrition of the Harvard School of Public Health challenges the statements of the U.S. Public Health Service, the American Heart Association and others who claim cigarette smoking is causally linked to increased deaths from coronary heart disease.
>
> Dr. Carl C. Seltzer, research association in physical anthropology, in an article in the current issue of the Journal of the American Medical Association, revealed that he based his disagreements on a review of the "epidemiological evidence" in the recent medical literature concerned with relationships between coronary heart disease and cigarette smoking.
>
> It is * * * difficult to see from the new epidemiological data how valid causal inferences can be drawn that cigarette smoking is linked to excess coronary heart disease deaths or that excess coronary heart disease deaths are "caused by" cigarette smoking. We do not know whether or not there is a causal connection between cigarette smoking and increased deaths from coronary heart disease.

Wasn't Dr. Seltzer a contributor to the 1964 Smoking and Health Report to the Surgeon General?

Dr. STEWART. Yes, he was. I would like to point out, however, that he was inaccurate in his statement in the JAMA article. We have never said there was a causal relationship.

Mr. HULL. Hasn't he also written that there are significant differences between smokers and nonsmokers such as body build, that are not the result of smoking?

Dr. STEWART. Certainly.

Mr. HULL. Have you read the article?

Dr. STEWART. Yes.

Mr. HULL. Do you agree or disagree with Dr. Seltzer?

Dr. STEWART. On the fact that we cannot establish cause and effect between cigarette smoking and coronary disease, I think we agree.

FUNDING FOR ALL SMOKING AND HEALTH PROJECTS

Mr. HULL. Now, Dr. Stewart, I would like for you to furnish this subcommittee for the record complete information on all smoking and health projects being supported in any way by this Government, including a description of the project and the period of time covered and the cost and the division or institute having control.

Is it correct that at this time funds for project grants formerly under clearinghouse control are handled by the Office of the Surgeon General?

If so, please describe these and you can give that to us.

Are any smoking and health projects funded as cancer control project grants or project grants in any other areas, such as heart disease control or respiratory control? If so, please include them.

(The information follows:)

NATIONAL INSTITUTES OF HEALTH

ACTIVE RESEARCH GRANTS CONCERNED WITH SMOKING AND HEALTH, FISCAL YEAR 1968

Principal investigator and institution	Title	Active dates	Amount
NATIONAL CANCER INSTITUTE			
I. Primary emphasis on experimental induction of cancer by tobacco smoke and tobacco byproducts:			
Holland, R. H., University of Texas South West Medical School	Arsenic carcinogenesis and lung cancer	Apr. 1, 1967 to Mar. 31, 1968	$8,779
Chapman, W. H., University of Washington (Seattle)	Experimental bladder tumors	Mar. 1, 1967 to Feb. 29, 1968	25,512
Sunderman, F. W., University of Florida College of Medicine	Pulmonary carcinogenesis with nickel and benzpyrene	Sept. 1, 1967 to Aug. 31, 1968	21,991
II. Epidemiology; study of multiple factors including tobacco smoking:			
Clemmesen, J., the Danish Cancer Registry	Danish and international cancer review	Jan. 1, 1966 to Dec. 31, 1967	12,800
Breslow, L., State of California Department of Public Health	California cancer field research	Jan. 1, 1967 to Dec. 31, 1937	750,839
MacMahon, B., Harvard School of Public Health	Epidemiologic studies of cancer	Sept. 1, 1967 to Aug. 31, 1968	61,608
Terris, M., New York Medical College	Relation of alcohol to cancer of selected sites	Feb. 1, 1967 to Jan. 31, 1968	49,548
Rotkin, I. D., Kaiser Foundation Research Institute	Genetic and environmental studies in cervical cancer	Jan. 1, 1967 to Dec. 31, 1967	45,600
III. Primary emphasis on cancer causation; multiple environmental factors including tobacco smoking and tobacco byproducts:			
Dobson, R. L., University of Oregon Medical School	Precancer in rat skin	do	19,390
Weinhouse, S., Temple University	Biochemical aspects of carcinogenesis	May 1, 1967 to Apr. 30, 1968	167,996
Laskowski, D. E., Case Western Reserve University	Charge transfer complexes of carcinogens	May 1, 1966 to April 30, 1968	27,502
Morton, J. F., University of Miami	Search for possible plant causes of Esophageal cancer	June 1, 1967 to May 31, 1968	26,574
Troll, W., New York University Medical Center	Identification and metabolism of bladder carcinogens	do	58,507
Homburger, F., Bio-Research Institute, Inc	Chemical carcinogenesis in inbred Syrian hamsters	Apr. 1, 1967 to Mar. 31, 1968	91,803
Friedell, G. H., New England Deaconess Hospital	The pathogenesis of human bladder cancer	do	36,659
IV. Large multipurpose grants; one aspect of which is related to effects of tobacco smoke:			
Haddow, A., Chester Beatty Research Institute	Cancer chemotherapy and carcinogenesis	Jan. 1, 1967 to Dec. 31, 1967	100,000
Curreri, A. R., University of Wisconsin	Cancer Research Center	do	485,562
Horsfall, F. L., Jr., Sloan Kettering Institute for Cancer Research	Research program of SKI	do	{(4,116,365) [1] 200,000
Weinhouse, S., Temple University	Multidisciplinary study of carcinogenesis	Sept. 1, 1967 to Aug. 31, 1968	205,534
Total			2,396,204
NATIONAL HEART INSTITUTE			
Kershbaum, Alfred, M.D., Philadelphia General Hospital	Effect of nicotine on experimental atherosclerosis	Sept. 1, 1967 to Aug. 31, 1968	26,448
DIVISION OF ENVIRONMENTAL HEALTH			
Cliffton, Eugene E., Environmental Health Foundation	Effect of smoking on blood coagulation and FFA	June 1, 1968 to May 31, 1969	40,375
Bock, Fred G., Health Research, Inc	Cigarette design and smoke properties	Mar. 1, 1968 to Feb. 28, 1969	41,625
Whittenberger, James	Occupational and environmental health	Nov. 1, 1967 to Oct. 31, 1968	65,000
Nelson, Norton, New York University Medical School	Research in environmental health and cancer	Jan. 1, 1968 to Dec. 31, 1968	100,000
Total			247,000

[1] Estimated amount used for this purpose.

NATIONAL CLEARINGHOUSE FOR SMOKING AND HEALTH

GRANTS

Institution	Description	Active dates	Amount
Philadelphia Health Research Fund	To determine the effectiveness of appealing to adults as parents and exemplars to their children in obtaining changes in their smoking attitudes and behavior.	July 1, 1964 to Dec. 31, 1967	$144,993
Research Foundation of the State University of New York	To inform grades 7 through 12 in public, private, and parochial schools, about the health dangers of cigarette smoking, and to involve them in smoking control programs.	July 1, 1965 to June 30, 1968	96,856
Idaho Department of Health	To design, organize, develop, and coordinate a Statewide health education program by the Idaho Interagency Committee on Smoking and Health.	July 1, 1966 to June 30, 1968	36,759
Mississippi State Board of Health	To provide support to the Mississippi Interagency Council on Smoking and Health to develop and coordinate effective smoking and health programs in the State of Mississippi.	July 1, 1966 to Sept. 30, 1968	27,915
District of Columbia Department of Health	Coordination of interagency planning for smoking control activities	Nov. 1, 1965 to Oct. 31, 1968	82,667
American Public Health Association	Support of publication "Medical Bulletin on Tobacco."	Jan. 1, 1964 to Dec. 31, 1968	215,805
Institute for Social and Personal Relations	To develop effective techniques for helping individuals to stop smoking; to indentify the dynamics underlying the smoking habit and thus try to diagnose types of smokers and prescribe appropriate treatment.	July 1, 1964 to Apr. 30, 1968	240,068
University of California, Santa Barbara	To study early signs of living pathology in smoking college students	July 1, 1966 to June 30, 1968	8,982
Los Angeles branch, American Cancer Society	To develop and coordinate effective smoking and health programs in the metropolitan area of Los Angeles.	Nov. 1, 1966 to Oct. 31, 1968	43,600
Maine Department of Health Welfare	To plan for a statewide approach to smoking control programs	July 1, 1965 to June 30, 1968	6,000
Florida Committee on Smoking and Health	To provide support to smoking and health programs, with particular emphasis on yough groups.	July 1, 1966 to June 30, 1968	34,468
Tuberculosis Association of Greater New Orleans	Support of efforts of voluntary and official agencies in education against threats of smoking and health.	Mar. 1, 1967 to Feb. 28, 1968	12,497
Michigan Health Council	To develop and coordinate effective smoking and health programs in Michigan	June 1, 1966 to June 30, 1968	43,688
Missouri State Board of Health	To develop more effective smoking and health programs	Apr. 1, 1967 to Mar. 31, 1968	13,340
Methodist Hospital, Indianapolis, Ind	To help inpatients in a general hospital to stop smoking by offering a smoking withdrawal clinic.	Nov. 1, 1964 to Oct. 31, 1967	69,263
New York State Department of Health	To develop coordinated, effective smoking and health programs throughout the State.	do	37,838
University of Oregon Medical School	To test and demonstrate the hypotheses that (1) a smoking education program can be developed in schools without major shifts in basic curriculum; (2) questionnaire methods can obtain information on the variables of attitude, knowledge, and practice regarding smoking; (3) a well-developed education program in schools will offer the variables in and lead to a reduction in smoking, and (4) knowledge and attitude about smoking are predictive of smoking behavior.	July 1, 1966 to June 30, 1968	46,478
Ohio Department of Health	To develop and coordinate effective smoking and health programs in Ohio	do	44,436
American Cancer Society	Sponsorship of World Conference on Smoking and Health held in New York City, Sept. 11–13, 1967.	Jan. 1, 1967 to Dec. 31, 1968	75,000
Pennsylvania Committee on Smoking and Health of Youth	To develop and coordinate effective smoking and health programs	July 1, 1966 to Aug. 31, 1968	50,283

Institution	Description	Active dates	Amount
Colorado State Department of Health	To develop and coordinate effective smoking and health programs	July 1, 1966 to Aug. 31, 1968	$41,663
Montana State Board of Health	Support of State interagency council for smoking and health	July 1, 1967 to June 30, 1968	20,607
University of Wisconsin	To investigate relationship of changes in smoking attitudes and behavior, among students, to social and psychological factors.	July 1, 1965 to July 30, 1968	73,493
Do	Support for third conference on the behavioral aspects of smoking	Nov. 1, 1966 to Oct. 30, 1967	25,725
Beaver College, Glenside, Pa	To study role-playing as a technique in the control of smoking	Jan. 1, 1967 to Dec. 31, 1968	46,822
Washington State Department of Health	To develop and coordinate effective smoking and health programs	July 1, 1965 to Dec. 31, 1967	38,162
Medical Society of the County of Oneida, N.Y	To demonstrate the effectiveness of authoritative person-to-person contact by physicians and dentists in influencing smoking patterns in their patients.	Jan. 3, 1968 to Jan. 2, 1969	22,365
Kern County Interagency Council, California	Study of junior and senior high school peer group influences on smoking behavior.	Feb. 1, 1968 to Jan. 31, 1969	25,350
Kansas State Department of Health	To develop and coordinate effective smoking and health programs	do	21,000
Utah State Department of Health	do	do	20,677

CONTRACTS

American Association for Health, Physical Education, and Recreation	To plan and conduct a nationwide professional education leadership development program to achieve more effective smoking and health programs in schools.	June 30, 1966 to Dec. 15, 1968	$155,585
American College Health Association	Conduct survey of smoking attitudes, beliefs, and behavior of college students. Beginning in 1968 intervention programs will be attempted in slected colleges.	June 24, 1966 to Dec. 23, 1968	136,982
American Dental Association	To develop and conduct a program to sensitize and involve the professional membership in an educational program to present health problems associated with smoking.	June 30, 1967 to June 29, 1968	89,659
Anti-smoking Clinic, Central Middlesex Hospital, Park Royal, London, England.	To obtain data from studies conducted by the clinic	Mar. 30, 1967 to Mar. 30, 1968	2,436
Board of Regents of the Universities and State College of Arizona	Smoking among high school students, study of a number of psychosocial factors.	Aug. 6, 1964 to Aug. 5, 1968	162,791
California State Department of Education	To analyze and describe pertinent State education systems and services in smoking and health, develop plans for improvement and for access to education materials.	June 1, 1966 to Apr. 30, 1968	30,000
Herner & Co., Washington, D.C	Update information contained in the national clearinghouse for smoking and health library.	June 30, 1966 to Mar. 15, 1969	293,678
Do	To design a prototype resource reference system for use by State interagency councils on smoking and health and other such groups.	Apr. 7, 1967 to Nov. 7, 1967	2,430
Indiana University Research Foundation	Under this contract, the university oversees and controls production and distribution of TV spots and half hour programs on smoking and health. Programs are produced by various educational TV stations throughout the country.	Apr. 16, 1967, to Apr. 15, 1968	126,847

National Congress of Parents & Teachers	Dissemination of information to parents of 7th- and 8th-grade students about this age group smoking.	June 13, 1966 to June 12, 1968	289,528
National Opinion Research Center, University of Chicago	Surveys of attitudes, beliefs, and behavior regarding smoking and health among specific groups of professional health workers	June 13, 1966 to May 31, 1968	141,656
National 4-H Foundation	Study of voluntary youth-serving organization activities in reference to what is being done about smoking and health, what resources are available to do a more effective education job, and to develop and make better use of existing community resources.	June 19, 1967 to June 18, 1968	89,044
Research Foundation, State University of New York	Plan Onondaga County 5-year smoking educational program	Mar. 28, 1966 to Nov. 30, 1968	154,160
San Diego County Medical Society	Plan and carry out 5-year educational program	Jan. 24, 1966 to Aug. 23, 1968	317,283
San Fernando Valley State College Foundation	Verify findings of tests which will be used to develop methods and materials for education around immediate effects of smoking rather than long-range effects.	June 27, 1966 to June 26, 1968	406,659
San Ramon Valley Unified School Districts	Develop and evaluate planned classroom instruction programs in smoking and health.	June 30, 1966, to June 29, 1969	153,366
University of Illinois	Develop educational materials and methods to reach the junior high school student.	May 15, 1966, to Aug. 31, 1969	185,335
University of Nebraska	Evaluate peer group approach to smoking and health behavior	June 30, 1966, to June 29, 1968	52,644
University of Toledo	Pretest of questionnaire for data on smoking behavior, attitudes, and beliefs from a college population.	Nov. 21, 1966, to Nov. 21, 1967	15,343
University of West Virginia	Study and analysis of role of teachers preparation institution in the area of smoking and health.	June 28, 1966, to May 27, 1968	28,688
National Education Association	Prepare final copy and insert article in NEA journals on problem of children smoking.	Oct. 1–Dec. 31, 1967	22,194
Chilton Research Services	Pretest interview designed to determine teenage smoking habits and related factors.	Nov. 1, 1967, to Oct. 31, 1968	106,493
Galfas Productions, Inc	Film production for TV spot announcements	Nov. 29, 1967, to Feb. 10, 1968	16,498

VARIANCE IN LUNG CANCER FROM COUNTRY TO COUNTRY

Mr. HULL. I have heard that the rate of lung cancer varies a great deal from country to country and without any particular relationship to the number of cigarettes smoked. Is that right?

Dr. STEWART. I do not know about the latter piece that you say. It does vary from country to country. I will be glad to look into it for you.

Mr. HULL. At this point I will put in the record a chart submitted last year by Dr. Endicott, part 5, page 274.

(The information follows:)

TABLE 4.—CANCER AROUND THE WORLD: AGE-ADJUSTED DEATH RATES PER 100,000 POPULATION FOR SELECTED CANCER SITES FOR 24 COUNTRIES, 1960–61

[Figures in parentheses are order of rates within site and sex group]

	All sites		Oral		Skin		Colon and rectum	
	Male	Female	Male	Female	Male	Female	Male	Female
United States	141 (14)	107 (18)	4.17 (8)	1.27 (10)	2.35 (5)	1.46 (11)	18.7 (11)	16.9 (10)
Australia	133 (20)	96 (22)	3.08 (14)	1.06 (13)	4.17 (2)	2.21 (3)	17.8 (13)	17.1 (9)
Austria	193 (1)	134 (3)	2.98 (16)	.80 (20)	1.72 (13)	1.45 (12)	18.7 (10)	13.2 (14)
Belgium	169 (5)	122 (6)	3.01 (15)	.79 (21)	1.47 (19)	1.16 (18)	21.7 (4)	18.3 (5)
Canada	137 (16)	110 (13)	4.16 (9)	1.29 (8)	1.75 (12)	1.24 (15)	20.4 (6)	19.8 (3)
Chile	156 (12)	145 (1)	2.00 (20)	1.10 (12)	.82 (24)	.86 (23)	5.8 (24)	7.4 (23)
Denmark	157 (11)	140 (2)	2.08 (19)	.91 (15)	1.79 (11)	1.95 (5)	24.7 (2)	20.5 (2)
England and Wales	175 (4)	113 (10)	3.58 (11)	1.57 (5)	1.47 (20)	1.14 (19)	22.0 (3)	17.9 (7)
Finland	187 (3)	110 (14)	3.51 (12)	1.50 (6)	2.05 (8)	1.09 (21)	9.8 (21)	9.5 (21)
France	168 (6)	105 (19)	8.32 (1)	.72 (22)	1.85 (10)	1.60 (8)	19.0 (9)	14.9 (12)
Germany (Federal Republic of)	163 (8)	126 (4)	1.70 (22)	.62 (23)	1.65 (14)	1.47 (10)	15.6 (16)	11.9 (17)
Ireland	133 (19)	109 (15)	5.44 (4)	1.65 (3)	3.04 (3)	1.79 (6)	19.0 (8)	17.6 (8)
Israel	121 (23)	115 (9)	1.85 (21)	.83 (18)	1.42 (21)	1.68 (7)	9.8 (22)	9.0 (22)
Italy	139 (15)	98 (21)	5.40 (5)	.92 (14)	1.52 (17)	1.13 (20)	12.1 (19)	10.1 (20)
Japan	135 (18)	96 (23)	1.32 (24)	.59 (24)	.83 (23)	.65 (24)	7.1 (23)	6.3 (24)
Netherlands	160 (10)	119 (7)	1.68 (23)	.83 (17)	1.59 (15)	1.19 (17)	16.7 (14)	15.7 (11)
New Zealand	136 (17)	108 (17)	3.37 (13)	1.34 (7)	2.64 (4)	2.59 (1)	19.8 (7)	18.3 (6)
Northern Ireland	147 (13)	109 (16)	4.60 (7)	1.88 (1)	1.57 (16)	1.38 (13)	21.5 (5)	18.9 (4)
Norway	125 (22)	103 (20)	2.63 (17)	1.28 (9)	1.52 (18)	1.27 (14)	12.5 (18)	10.2 (19)
Portugal	104 (24)	79 (24)	4.68 (6)	1.15 (11)	1.26 (22)	1.05 (22)	10.6 (20)	10.6 (18)
Scotland	188 (2)	126 (5)	4.12 (10)	1.83 (2)	2.16 (6)	1.53 (9)	25.6 (1)	21.5 (1)
Sweden	128 (21)	110 (12)	2.25 (18)	1.63 (4)	1.87 (9)	1.23 (16)	16.7 (15)	13.0 (15)
Switzerland	162 (9)	113 (11)	6.24 (2)	.89 (16)	2.07 (7)	1.98 (4)	18.5 (12)	12.4 (16)
Union of South Africa	165 (7)	117 (8)	5.76 (3)	.82 (19)	4.56 (1)	2.48 (2)	15.3 (17)	13.8 (13)

TABLE 4.—CANCER AROUND THE WORLD: AGE-ADJUSTED DEATH RATES PER 100,000 POPULATION FOR SELECTED CANCER SITES FOR 24 COUNTRIES, 1960–61—Continued

	Lung		Breast, female	Uterus	Prostate	Stomach		Leukemia	
	Male	Female				Male	Female	Male	Female
United States	31.3 (10)	4.7 (10)	21.2 (10)	13.2 (8)	13.9 (9)	12.5 (24)	6.2 (24)	7.5 (3)	4.9 (7)
Australia	27.7 (14)	3.5 (18)	19.0 (14)	9.4 (21)	14.7 (6)	18.4 (23)	9.7 (21)	6.3 (10)	4.4 (13)
Austria	48.9 (4)	5.6 (6)	16.0 (18)	20.4 (2)	13.4 (11)	45.6 (3)	26.5 (3)	6.2 (12)	4.1 (18)
Belgium	37.9 (6)	3.9 (13)	20.3 (11)	13.9 (6)	14.2 (7)	31.4 (7)	18.1 (7)	6.6 (7)	4.2 (17)
Canada	25.4 (16)	3.6 (17)	23.1 (6)	11.3 (16)	13.4 (10)	19.5 (21)	9.6 (22)	6.5 (9)	4.5 (11)
Chile	13.6 (21)	5.0 (9)	9.7 (23)	20.6 (1)	9.7 (19)	71.0 (1)	45.8 (1)	3.7 (23)	3.4 (21)
Denmark	29.8 (12)	5.5 (7)	23.7 (3)	19.3 (3)	13.9 (8)	26.0 (16)	16.3 (14)	8.2 (2)	5.2 (5)
England and Wales	62.2 (2)	8.1 (2)	23.5 (4)	10.6 (17)	11.9 (15)	25.4 (17)	13.3 (19)	5.6 (20)	3.9 (19)
Finland	56.0 (3)	3.3 (21)	13.3 (21)	11.3 (15)	11.3 (18)	45.2 (4)	26.1 (4)	6.2 (11)	4.8 (8)
France	22.2 (17)	3.4 (20)	15.4 (19)	12.5 (12)	15.3 (4)	25.4 (18)	12.7 (20)	6.2 (14)	4.4 (12)
Germany (Federal Republic of)	34.7 (8)	4.5 (11)	16.2 (17)	16.2 (11)	11.7 (16)	40.0 (5)	23.2 (5)	6.0 (17)	4.4 (14)
Ireland	26.1 (15)	5.8 (5)	19.2 (13)	7.7 (23)	9.6 (21)	23.8 (19)	16.7 (11)	5.7 (19)	3.3 (22)
Israel	19.1 (19)	6.6 (3)	21.5 (8)	5.7 (24)	8.1 (23)	22.3 (20)	15.0 (17)	9.3 (1)	5.4 (1)
Italy	21.5 (18)	3.9 (14)	14.5 (20)	13.2 (9)	8.4 (22)	34.6 (6)	18.5 (6)	5.9 (18)	4.3 (16)
Japan	10.0 (23)	3.7 (16)	3.8 (24)	15.5 (4)	1.4 (24)	69.5 (2)	36.8 (2)	3.4 (24)	2.6 (24)
Netherlands	42.3 (5)	3.4 (19)	24.2 (1)	10.4 (18)	13.3 (12)	31.1 (9)	16.5 (12)	6.6 (8)	5.0 (6)
New Zealand	28.5 (13)	4.4 (12)	22.0 (7)	10.0 (19)	13.1 (13)	19.0 (22)	9.2 (23)	6.0 (16)	5.3 (3)
Northern Ireland	36.2 (7)	5.2 (8)	18.3 (15)	9.6 (20)	11.3 (17)	27.9 (13)	16.4 (13)	6.1 (15)	4.5 (10)
Norway	12.3 (22)	2.5 (23)	17.4 (16)	9.1 (22)	15.7 (3)	29.1 (11)	17.5 (9)	7.1 (5)	5.3 (4)
Portugal	8.7 (24)	2.4 (24)	11.4 (22)	14.1 (5)	9.6 (20)	31.3 (8)	17.4 (10)	4.5 (22)	3.2 (23)
Scotland	66.1 (1)	8.7 (1)	24.2 (2)	11.9 (13)	12.1 (14)	26.8 (14)	16.1 (15)	5.2 (21)	3.6 (20)
Sweden	14.5 (20)	3.7 (15)	19.6 (12)	11.4 (14)	17.1 (2)	26.1 (15)	14.3 (18)	7.1 (4)	5.3 (2)
Switzerland	30.3 (11)	3.0 (22)	21.3 (9)	12.7 (10)	14.8 (5)	30.4 (10)	17.6 (8)	6.2 (13)	4.4 (15)
Union of South Africa	32.5 (9)	6.2 (4)	23.3 (5)	13.9 (7)	19.7 (1)	28.6 (12)	15.8 (16)	7.0 (6)	4.6 (9)

Mr. HULL. I note that Finland has about five times more lung cancer deaths per 100,000 men than Norway. Do you claim cigarette smoking accounts for that?

Dr. STEWART. I would have to find out.

(The information follows:)

In response to Mr. Hull's question with respect to the explanation for the fivefold greater risk to lung cancer attributed to Finnish males in relation to Norwegian males, it can only be stated that at this time the Public Health Service does not have a definitive explanation. It is true that the mortality rates reported for lung cancer in males, by Finland and Norway, are 64.5 per 100,000 and 14.2 per 100,000, respectively.

The National Cancer Institute has been very much concerned about the problems associated with differing practices in the collection of mortality and incidence data, both internationally and within nations, for the past 15 years or so. The different practices may account for the difference in the mortality rates reported by Finland and Norway, but it is improbable that the disparity can be dismissed entirely on that basis. Any attempt to invoke an explanation based upon genetic differences would have to account for a known remarkable similarity of lung cancer mortality rates between the Finnish and the Norwegian women. There is the very great probability that the differences can be explained, at least in part, on differences in environmental conditions, including personal habits and smoking practices.

Mr. HULL. Would you agree in discussing this question of there being a difference in populations, that people who smoke may constitute a very different kind of population or group than people who do not smoke?

Dr. STEWART. I am not sure of that, whether that is so or not, whether the cigarette smoking habit itself differentiates people into different groups or whether they are different themselves and that is why they take up cigarette smoking and others do not. But I do not think that has anything to do with it.

Mr. HULL. Are you making any studies?

Dr. STEWART. Yes. What we are interested in is the host factor. As I mentioned earlier there are heavy smokers who do not get lung cancer, and there are people who are not smokers who do get lung cancer. We are interested in whether there is some factor within the person himself which is preventive or selective.

Mr. HULL. Isn't it true that many doctors think it comes from a cell?

Dr. STEWART. No; I think most doctors think it comes from cigarette smoking.

Mr. HULL. Where do the youngsters, and we have thousands of youngsters that die every year with cancer or leukemia——

Dr. STEWART. Not lung cancer.

Mr. HULL. Leukemia or some other.

Dr. STEWART. Cancer is a generic name for many diseases which may have a multiplicity of etiologies. Virus is one we are exploring very rapidly now.

Mr. HULL. In some material submitted to this committee last year, dealing with a so-called safer cigarette program, the statement is made that a prospective clinical trial to determine whether smokers differed from non-smokers in important ways other than their smoking habits should be inaugurated. No other form of study eliminates what the author, I assume someone in the Public Health Service, calls the constitutional hypothesis and avoids the selfselection of smokers and nonsmokers.

What does that mean?

Dr. STEWART. It is the same thing we were just talking about.

Mr. HULL. That is why I am confused about some of these.

Dr. STEWART. This is a difficult one because you are getting into the genetic patterns and possible inborn resistance or susceptibility which may be factors which select people out.

Mr. HULL. Is anything of this sort being done in the Public Health service?

It is important, isn't it?

HOST FACTOR IN LUNG CANCER

Dr. STEWART. Yes; it is. Actually this was one of the avenues of pursuit of research that the lung cancer task force has come up with, the host factor. Are there constitutional factors that separate people? The leads on research are not tremendous but Dr. Endicott seems to think these are ways of doing it. This would be host factor in relation to lung cancer itself.

Mr. HULL. This is in Public Health.

Dr. STEWART. That is correct. The research projects may be carried out in universities or within the Public Health Service supported by grants or contracts.

Mr. HULL. Isn't it important if smoking cigarettes may only reflect persons more likely to get a disease that studies which might demonstrate this be supported?

Dr. STEWART. I think that is right, but I would like to point out that I think this avenue has to be pursued quite thoroughly. But I do not want it to imply that there is some selection factor unrelated to cigarettes in the lung cancer. I think the study that Doll and Hill did in Great Britain indicate that the removal of the cigarette caused a drop in lung cancer rates.

Mr. HULL. Of course, I realize there would be a lot of red faces over at the PHS if this is the case. On the other hand, perhaps the anxiety which many people feel about their smoking would be eased and children exposed to some of the anticigarette propaganda would stop worrying about every time Dad lit a cigarette. Isn't there some research which has been recommended that you intentionally avoid in talking about so-called safer cigarettes?

Dr. STEWART. No, sir; we are not neglecting any areas except for the limitation of funds and knowledge to do it.

Mr. HULL. Mr. Michel.

REORGANIZATION

Mr. MICHEL. Dr. Stewart, do you favor the reorganization of HEW?

Dr. STEWART. Yes, I am fully supportive of the proposal put forward by Secretary Gardner.

Mr. MICHEL. Dr. Stewart, I have a clipping from the Wall Street Journal of January 11, 1968, with your comments on the reorganization of HEW. You are quoted as saying, "Most of the reorganization can be put into effect without the lawmakers' approval, but Secretary Gardner hasn't yet decided how much to ignore congressional concern. Some changes might be made quietly while Congress is out of town. Or, the legislators could be given a chance to hold public hear-

ings in advance of any final HEW action." Would you mind telling the committee which method of reorganization you favor—making the changes quietly while Congress is out of town, or giving Congress a chance to hold public hearings before a final decision is reached?

Dr. STEWART. In fact, Mr. Michel, the comments cited in that quotation were not mine. I can understand the confusion because I am quoted in the previous paragraph and the separation between my comments and your citation is not a clear one. As to your question, Reorganization Plan No. 3 of 1966 does give the Secretary of HEW the authority to reorganize the functions of the Department in the manner contained in his recent proposal. The only new legislation which would be required would pertain to the establishment of the positions of Deputy Secretary and Under Secretary for Health. However, I feel quite strongly that a major reorganization of this type should not be decided upon without prior consultation with the concerned committees of the Congress, whether or not this consultation is required by law. I feel that Secretary Gardner would concur in this opinion.

FOUNTAIN COMMITTEE REPORT

Mr. MICHEL. In the light of the conclusion of the Fountain Committee on Governmental Operations that—and I quote—"the available evidence, however, indicates that the Agency is supporting research of less than good quality." That justifies the "excessive diversion of scarce professional personnel from teaching and medical practice to federally supported research?"

Dr. STEWART. As you may be aware, Mr. Michel, the Department's response to the report's conclusion about the quality of research supported indicates that the grants which we have funded have all been judged worthy of the investment of Federal funds. I would suggest, therefore, that any diversion of personnel is not the consequence of the support of poor quality research. I would also point out that there are serious professional personnel shortages in the research field just as there are in availability for medical practice. As you also are probably aware, large numbers of the individuals doing research also teach and many conduct research, do teaching, and provide patient care.

Mr. MICHEL. What steps are being taken to counteract this diversion?

Dr. STEWART. My first point in answer to that question would be to reaffirm our position that only research considered meritorious is engaging such individuals with our funds. Second, we have the problem of insufficient numbers in all of these areas and are taking steps to increase the output of physicians, dentists, and other health professionals.

Mr. MICHEL. Is there any practical counteraction except the abandonment by PHS of its support of research of less than good quality?

Dr. STEWART. I would reiterate the position in the Department's response to the report that the research is of sufficient quality to merit support. If indeed that were not the case, I would certainly concur that we should terminate such support and not solely because of the scarcity of personnel.

Mr. MICHEL. The Fountain report indicates real concern that the PHS now supports most of the biomedical research in the United

States. It says, "There is also a disposition on the part of academic investigators to avoid any criticism which might in any way jeopardize the flow of research money. . . ."

Does this mean that we are promoting conformity in an area where the greatest strides have been the result of independence of thought and approach. I believe that great discoveries in anesthesia and obstetrics were disclosed to a hostile and unreceptive scientific community. If the researchers in these areas had been hampered by a fear that their professional futures were being jeopardized by their imaginativeness and independence, who knows how long their discoveries would have been delayed.

Would you tell us what effort, if any, you are making to foster a climate of intellectual independence? How are you avoiding an atmosphere of conformity?

Dr. STEWART. I am not as concerned as the report as to the extent of PHS support nor am I aware of any evidence that there is a disposition on the part of academic investigators to avoid criticisms of our programs and their operation because of a possible threat to the flow of research money or their support. Therefore, while the problem of conformity is with us just as in other aspects of our national life, I do not see this as unusually serious in terms of PHS research grants. One major change which I believe will encourage intellectual independence involves placing greater responsibility for decisionmaking within the academic and scientific communities. For example, we are making conscientious efforts, where the capability exists, to return to the institutional scene decisions of a day-to-day nature on their research and research training. Also, more reasonable proportions of our funds are going out in the form of institutionally oriented grants so that related decisions as to the use of their funds, such as with respect to the conduct of the research, are made within the local scene.

HEALTH SCIENCES ADVANCEMENT AWARDS

Mr. MICHEL. What is the function and purpose of the Health Sciences Advancement Awards and how does it differ from grants made by the National Science Foundation?

Dr. STEWART. The purpose of the Health Sciences Advancement Awards is to enable institutions with potential for major contributions in biomedical research to attain new levels of diversity and excellence in that area. This purpose is served by the provision of time-limited grants selected in national competition. In general terms, our program concerns itself with the sciences directly related to health; the National Science Foundation program is broader in scope but tends to concentrate on other scientific areas. I am uncertain as to the specific ways in which they differ from generally similar grants provided by the National Science Foundation. However, I am aware that there have been periodic discussions between members of our staff and the staff of the Science Foundation with respect to these programs. The differing purposes as well as these discussions have led to arrangements which avoid duplication. I would suggest that, perhaps to be more specific, you may wish something inserted for the record providing greater detail.

Mr. MICHEL. Aren't these programs duplicative at least in the manner in which they have, in some instances, been applied?

Dr. STEWART. Again I would point out that there has been examination of the purposes and the operational considerations of the two programs by staffs of both agencies. Furthermore, the continuing liaison provides assurance that they are not duplicative. I believe it would be helpful for you if I were to provide for the record more specific information as to the nature of awards made in each of the programs. I would be glad to provide this in a subsequent document.

Mr. MICHEL. Yes, I would like you to insert for the record more detailed information on both of these matters we have just discussed.

(The information follows:)

DISCUSSION OF HEALTH SCIENCES ADVANCEMENT AWARD PROGRAM AND UNIVERSITY SCIENCE DEVELOPMENT PROGRAM

The function and purpose of the health sciences advancement award (HSAA) program is described in the HSAA general policy and information statement. This is an administrative document revised and reissued in July 1967 by the Division of Research Facilities and Resources, National Institutes of Health;

"The long-range goal of the health sciences advancement award program is to expand the national capability for research in the health sciences by increasing the number of truly distinguished biomedical research and research training centers within the Nation. The program is intended for institutions that presently have substantial biomedical strength on which to build and that have the potential for becoming outstanding centers within a limited time span and with catalytic amounts of additional support.

"The health sciences advancement award program is designed to assist eligible academic institutions to strengthen significantly their activities in biomedical research and research training. Specifically, the objectives of the program include assistance (1) to accelerate the advancement of existing capabilities in biomedical research and related graduate research training activities within institutions; (2) to encourage the development of biomedical science components of institutions that presently possess considerable strength in related fields of science; (3) to support the advancement of new biomedical research and training endeavors in those institutions that possess an appropriate base for such advancement; and (4) to increase the number of well-trained biomedical scientists."

A copy of this document has been submitted to the Committee.

The major objective and primary purpose of the university science development program of the National Science Foundation (NSF) are stated in the descriptive NSF document "University Science Development Program—Suggestions for Submission of Proposals" as follows:

"The major objective of the university science development program has been and continues to be to assist in increasing the number of institutions of recognized excellence in research and education in the sciences. The "sciences," as used in this announcement, include biological, physical, mathematical, engineering, and social sciences, and interdisciplinary areas formed by the overlapping of two or more of these fields.

"The university science development program is designed to assist academic institutions in strengthening significantly their research and education programs in science and engineering. It is not intended to replace established programs of support or to consolidate grants for administrative convenience. This program's primary purpose is to accelerate improvement in science through the provision of funds to be expended in accordance with carefully developed plans designed to produce significant upgrading in the quality of science activities of the institution. Grants are made to institutions, already possessing considerable strength, that are judged to have the greatest possibility of moving to a significantly higher level of scientific quality and to have sound plans for maintaining this quality."

A copy of this document has been submitted to the committee.

Although the broad objectives and purposes of the two programs are similar, the university science development program is supportive of the total spectrum of the sciences—including engineering—whereas the health sciences advancement award program is coupled closely to the health mission of the NIH. Under the

university science development program, education as well as research in any of the sciences is eligible for support, whereas the HSAA program is limited to the support of research and research training in the health sciences. A detailed comparison of the somewhat different policies and procedures governing the two programs is shown in table I which follows.

TABLE I.—COMPARISON OF POLICIES OF HEALTH SCIENCES ADVANCEMENT AWARD PROGRAM WITH THOSE OF THE UNIVERSITY SCIENCE DEVELOPMENT PROGRAM

Item	University science development grant	Health sciences advancement award
1. Primary purpose of grant	"* * * to accelerate improvement in science * * *".	Accelerate improvement in the health sciences.
2. Institutions restricted	"* * * those already recognized as being outstanding in science * * *".	No firm restriction, but outstanding institutions must clearly demonstrate need for HSAA.
3. Uses of grant	"* * * Strengthening a single academic science activity, a group of related science activities or the entire science program of the institution * * *".	Strengthening health sciences within an institution but beyond the level of a single department; generally multidisciplinary, interschool/college or across entire program of health professional school or university.
4. Information requested	Quite similar for both NSF, and HSAA grant proposals.	Quite similar for both NSF and HSAA grant proposals.
5. Funding:		
(a) Maximum size of grant	None, but not expected to exceed $5,000,000.	None stated. Awards approximate $2,500,000/5-year period.
(b) Grant period	5 years	Maximum of 5 years; nonrenewable.
(c) Initial period of requested support	3 years	5 years (detailed 3-year budget, plus summary budget for additional 2 years).
(d) Supplementary grants	Possible for last 2 years	No supplement for first 2 years; or unitil after site visit occurs.
(e) Indirect costs	Not allowed	Not allowed.
(f) Costs of (a) construction and (b) renovation allowed?	Yes	(a), no; (b), yes, but not to exceed $50,000.

As shown in table II below, the seven health sciences advancement award programs provide support for research and research training in the basic fields of biomedical science such as biochemistry, physiology, microbiology, genetics, developmental biology, neurobiology, biomathematics, and bioengineering. All of these fields are essential to the development of excellence in the health sciences and thus to the provision of fully satisfactory health care for the Nation. The university science development grants, on the other hand, support almost exclusively the development of institutional strength through research and education in the basic mathematical, physical, chemical, and engineering sciences and some fields of biology, e.g., zoology, supportive of but not directly involved in the biomedical programs of health science institutions.

TABLE II.—COMPARISON OF FIELDS OF SCIENCE SUPPORTED BY UNIVERSITY SCIENCE DEVELOPMENT GRANTS AND HEALTH SCIENCES ADVANCEMENT AWARDS

Health sciences advancement award		University science development grant	
Grantee	Fields of science	Grantee	Fields of science
University of Virginia School of Medicine	Basic medical sciences: anatomy, physiology, biochemistry, microbiology, pharmacoloey.	University of Virginia	Physics, chemistry, biology (nonmedical), and astronomy; materials science.
Cornell University Division of Biological Sciences	Rebuilding and consolidating basic biology with main concentration on biochemistry, genetics, and ecology.	Cornell University	No award.
University of Oregon College of Arts and Sciences, graduate school.	Neurobiology, developmental biology, macromolecular chemistry.	University of Oregon	Physics, chemistry, biology, and mathematics.
Vanderbilt University School of Medicine	Cell structure and function, molecular structure, genetics, and cell differentiation.	Vanderbilt University	Chemistry, physics.
University of Colorado—School of Medicine, College of Arts and Sciences.	Cellular and molecular biology, physical biochemistry, chemistry of macromolecules, ultrastructure and function, developmental biology, molecular genetics, biomathematics.	University of Colorado	Physics, chemistry, mathematics, psychology.
Purdue University—departments of biological sciences, entomology, psychology, electrical engineering.	Neurobiology—perception, memory regulation, and integration of nervous activity into behavior.	Purdue University	Chemistry; completion of life sciences facility.
Washington University School of Medicine, 7 basic science departments, schools of engineering, electrical engineering, chemical engineering, computer sciences, graduate school of arts and sciences.	Molecular biology in basic medical sciences, bio-ultrastructure, biomathemiatcs, and bio-engineering in medical biology.	Washington University	Chemistry, physics, chemical engineering, zoology, other engineering.

The National Science Foundation has extended University Science Development Awards to 27 institutions and the National Institutes of Health has tendered Health Sciences Advancement Awards to seven; six institutions have received awards from both agencies.

While the NIH and the NSF have maintained close liaison in the administration of their respective programs, all applications have been processed independently. However, during the review of these applications the program element proposed for support by each university has been examined for overlap, and during the course of site visits the staff and the consultants have assured themselves that no activity was proposed for funding by both agencies. The NIH staff, in its postaward administration of these grants, has maintained continuous surveillance to avoid duplicate funding of identical programs.

In point of fact, the program activities supported by the NIH and the NSF in the six institutions receiving awards from both agencies are not only distinct and separate but also complementary to each other (see table II). Clearly, advancement to a new level of excellence in established institutions requires broad enhancement of educational and research performance on a wide front, usually encompassing science programs in all fields, including mathematics, physics, chemistry, and biology as well as in the health sciences.

It is not surprising that institutions which have engaged in careful self-assessment and which have developed detailed plans for self-improvement have been able from such comprehensive plans to present each of the Federal agencies with convincing evidence of their capability and determination to accomplish their stated goals. The convergence by both agencies—as well as, in several instances, by a number of private foundations—in the selection of institutions for receipt of awards of this character advances the national interest by the complementary and potentiating impact of the awards upon the recipient institutions.

TABLE III.—UNIVERSITY SCIENCE DEVELOPMENT GRANTS

University	Date of grant	Grant amount	Sciences included
1. Case Institute of Technology, Cleveland, Ohio	May 1965	$3,500,000	Physics, chemistry, materials center.
2. University of Oregon, Eugene, Oreg	....do	4,000,000	Physics, chemistry, biology, mathematics.
3. Washington University, St. Louis, Mo	....do	3,919,000	Chemical engineering, physics, chemistry, zoology, other engineering.
4. Western Reserve, Cleveland, Ohio	....do	3,500,000	Physics, chemistry, interdisciplinary centers in liquid and solid states.
5. Rice University, Houston, Tex	July 1965	2,390,000	Chemical engineering interdisciplinary systems research.
6. University of Arizona, Tucson, Ariz	....do	4,045,000	Physics, chemistry, astronomy, mathematics.
7. University of Colorado, Boulder, Colo	....do	3,755,000	Physics, chemistry, mathematics, psychology.
8. University of Florida, Gainesville, Fla	....do	4,240,000	Chemical engineering, chemistry, mathematics, physics.
9. University of Rochester, Rochester, N.Y	....do	2,550,000	Chemistry.
	May 1966	1,950,000	Biology (supplementary grant).
10. University of Virginia, Charlottesville, Va	July 1965	3,780,000	Physics, chemistry, mathematics, materials science, biology, astronomy.
11. Louisiana State University, Baton Rouge, La	November 1965	3,787,000	Physics, chemistry, mathematics, geology.
12. Polytechnic Institute of Brooklyn, Brooklyn, N.Y	....do	3,332,000	Chemical engineering, chemistry, electronics.
13. University of Southern California, Los Angeles	....do	4,473,000	Physics, chemistry, geology, aerospace.
14. North Carolina State University, Raleigh, N.C	May 1966	3,555,000	Chemical engineering, biomathematics.
15. Purdue University, Lafayette, Ind	....do	3,600,000	Chemistry, life sciences facility.
16. Rutgers University, New Brunswick, N.J	....do	3,708,000	Physics, chemistry, mathematics.
17. Tulane University, New Orleans, La	....do	3,685,000	Chemistry, biology, mathematics, psychology.
18. Carnegie-Mellon University, Pittsburgh, Pa	May 1967	4,339,000	Chemistry, mathematics, physics.
19. Duke University, Durham, N.C	December 1966	2,527,000	Botany, chemistry, engineering, mathematics, physics, zoology.
20. University of Notre Dame, Notre Dame, Ind	May 1967	4,766,000	Biology and microbiology, chemistry, mathematics, physics.
21. Vanderbilt University, Nashville, Tenn	....do	4,053,000	Chemistry, molecular biology, physics, astronomy, science library.
22. Indiana University, Bloomington, Ind	December 1966	3,786,000	Physics, chemistry, chemical physics, computer sciences.
23. University of Maryland, College Park, Md	May 1967	3,703,000	Physics, astronomy, mathematics, chemical sciences, institute for fluid dynamics and applied science, computer science center, central computer facility.
24. University of North Carolina at Chapel Hill, Chapel Hill, N.C	....do	4,995,000	Chemistry, city and regional planning.
25. University of Texas, Austin, Tex	December 1967	5,000,000	Molecular sciences, behavioral genetics, relativity-plasmas, communications sciences.
26. University of Georgia, Athens, Ga	August 1967	3,719,000	Bacteriology, biochemistry, biopsychology, botony, entomology, zoology.
27. University of Iowa, Iowa City, Iowa	....do	5,101,000	Anatomy, biochemistry, botany, microbiology, pharmacology, physiology, psychology, zoology.
Total		105,758,000	

SLOAN-KETTERING GRANT

Mr. MICHEL. The Public Health Service Act at section 301(i) states that the Surgeon General may "adopt * * * such additional means as he deems necessary or appropriate to carry out the purposes of this section."

You are, I am sure, aware of the recommendation of the Fountain report, because of the abuse of this section in the making of an unprecedented grant of $21 million over a 5-year period to Sloan-Kettering Institute, that this provision be amended to clarify and limit the authority it contains.

Do you believe any clarification is necessary?

Dr. STEWART. Again I would refer to the Department's response to the committee's report. It is our feeling that this particular authority was not abused in making the award to Sloan-Kettering Institute and that the type of imaginative, responsive, and, therefore, productive program essential to the effective use of Federal funds would be greately hampered by limiting this authority. You will note that we intended to formalize to a greater extent the circumstances in which this authority is actually employed.

GOVERNMENT ROLE IN ADVISING CONSUMERS

Mr. MICHEL. An area of intensive concern for me personally and, I am sure for many other members of this committee and of the Congress, is the effort which is currently being made under the guise of public health efforts to place the Government in the role of an adviser on consumer products.

A current example is the ever-increasing involvement of the Government in the cigarette industry. While I am not a smoker, I do realize that the cigarette industry is important to many millions of Americans in an economic manner and to many Americans from the apparent pleasure derived from the use of cigarettes.

I understand that not only has the Government involved itself in the identification and seeming promotion of certain brands or types of cigarettes having low tar or nicotine, but suggestions have also been made by certain Government officials that lengths of the cigarettes manufactured in this country be controlled.

It seems to me, as an observer, that agencies of the Government may properly be concerned with what they feel is an important national health problem and may properly advise the public of scientifically established facts. When, however, the Government—on what I am advised is less than scientific evidence—proceeds to publicize product comparisons—particularly comparisons which may be misleading—I have serious reservations about where such a precedent may lead us.

Dr. STEWART. The Congressmen are probably referring to the action of the Federal Trade Commission in testing cigarettes for the tar and nicotine levels of their smoke and in publicizing these results.

The Public Health Service supports the Commission in its concern about the tar and nicotine levels of cigarette smoke and feels, in the words of a report of 2 years ago, that "the preponderance of scientific evidence strongly suggests that the lower the 'tar' and nicotine content of cigarette smoke, the less harmful are the effects." The Service be-

lieves that the consumer is entitled to know what levels of tar and nicotine are in his cigarette.

Mr. MICHEL. That is all, Mr. Chairman.

Mr. FLOOD. Thank you, Dr. Stewart.

SPECIAL STATEMENTS

We will place the special statements we requested on certain diseases where significant activities are being carried on by two or more divisions in the Public Health Service.

(The statements referred to follow:)

KIDNEY DISEASE

Diseases of the kidneys, and diseases affecting these organs, rank among the major ailments which undermine, or destroy good health. Between July 1964, and June 1965, 7,847,000 Americans suffered from diseases affecting the kidneys, of which 58,788 died. These figures include nearly 20,000 deaths attributed to hypertensive renal cardiovascular diseases. These statistics place deaths from kidney diseases in fourth place among deaths resulting from the chronic diseases. Additionally, kidney disease patients were confined to bed 63,494,000 days, and were able to participate in only limited activity 139,939,000 days.

A significant number of Americans who harbor infectious organisms in their urinary tract will have no warning of their disease until kidney damage is so severe that they cannot survive. Unlike the majority of chronic diseases, these diseases are particularly likely to cause death in patients in the middle, productive years. The social and economic impact of kidney diseases, therefore, is far out of proportion to what one would expect from simple analysis of the bare statistics.

The importance of the kidneys can be judged in part by the fact that they receive about one-quarter to one-fifth of the blood volume pumped by the heart. By selective excretion of certain substances and reabsorption of others, the kidneys play an extremely important role in regulating the composition of blood and other body fluids. They continually process blood to eliminate detrimental waste products of metabolism. The kidneys help to regulate the chemical environment of the body cells by regulating the concentration and composition of salts and the amount of water in the blood and tissues. The kidneys also produce substances which are important in regulating blood pressure and in stimulating the bone marrow to produce blood cells.

The term "kidney disease" encompasses a number of conditions of varying causation which attack the kidneys. Among the leading causes of kidney diseases are:

1. Hypersensitivity diseases in which kidney tissue is destroyed by an immune reaction initiated by any of a number of causes, including streptococcal infection.
2. Infections in which kidney tissue is attacked and destroyed by microorganisms.
3. Circulatory diseases in which the kidney is affected as a result of disease of the blood vessels or the blood itself.
4. Metabolic diseases in which the kidney is secondarily affected, such as in diabetes or gout.
5. Developmental disorders in which kidneys fail to develop, or develop in an abnormal fashion.
6. Obstructive conditions in which urine flow is blocked with resultant pressure damage to the kidney and repeated infections.

During the last five years, diseases of the kidney, and especially end-stage kidney disease, have come to the forefront of attention for both Federal and non-Federal research and service efforts. Much of the impetus for this increasing interest in kidney diseases has come from the development of two dramatic yet expensive therapeutic approaches to end-stage disease - chronic hemodialysis (repeated treatment with an artificial kidney machine) and kidney transplantation. The successes of both techniques, coupled with other research advances leading to a better understanding of kidney diseases, have led to a proliferation of activities directed toward reducing the morbidity and mortality of those afflicted with chronic renal disease.

The magnitude of the kidney disease problem, made increasingly apparent by the dramatic advent of artificial kidney therapy, is underscored by the latest available estimates from the National Center for Health Statistics of the Public Health Service indicating that about 50,000 Americans die each year of irreversible kidney failure. Of these, only from 6,500 to about 9,000 may be currently considered suitable candidates for the two modes of treatment mentioned above.

Existing hemodialysis facilities in hospital centers and in patients' homes treat less than 1,000 patients with end-stage kidney disease. If in the next two years the facilities for institutional and home hemodialysis were to double in capacity, the majority of patients with end-stage renal disease would still die for lack of treatment facilities.

As of the end of 1967, approximately 60 centers, in 27 metropolitan locations were reported as performing kidney transplantations. They were performed rather sporadically during the 1950's, and only reached a one-year total of 12 transplantations performed in 1960. In 1965, the last year for which full-year data are available, 215 kidney transplantations were reported.

Information available from reports to the Human Kidney Transplant Registry through November 30, 1966, indicates that the overall one year survival for kidney transplants from living related donors is 65-70%. The second year survival is 5% less. Principally as a result of these improved survival statistics, the status of renal transplantation from related donors has changed from that of a research procedure to that of accepted treatment for end-stage kidney disease. A reprint of the Fifth Report of the Transplant Registry indicates an estimated 39% survival at one year for cadaveric grafts.

The registry survival statistics are a representation of world-wide experience and include figures from centers that report their results with initial efforts in renal transplantation. Recent reports from the University of Colorado, Denver, transplantation center, which has used antilymphocyte globulin in addition to standard prednisone and azothioprine immunosuppressive therapy, indicate an early high survival rate for transplants from blood relatives. Nineteen of 20

patients are alive with functioning grafts 9 to 19 months post transplantation. Encouraged by these reports, other centers are in the process of preparing antilymphocyte globulin for use in their transplant patients.

Public Health Service programs in the field of kidney disease are described below. The National Center for Chronic Disease Control is developing programs to expand available medical and other data related to kidney transplantation, to stimulate increased training of medical and paramedical personnel, to develop cost and other pertinent data, and to provide current information to both the public, and physicians. The National Institutes of Health conducts a research and development program aimed at the development of improved and less expensive dialysis, hardware and methodologies, and at optimal rehabilitation of chronic dialysis patients. Through the Office of Comprehensive Health Planning projects have been supported and are eligible to compete for support under P.L. 89-749.

NATIONAL CENTER FOR CHRONIC DISEASE CONTROL

The Kidney Disease Control Program began in 1966 to explore and develop a number of potentially fruitful approaches to the reduction of kidney disease mortality and morbidity. In the description that follows, this Program's plans and projects are grouped according to four major areas:

I. Preventive Programs
II. Chronic Dialysis and Transplantation Programs
III. Continuing Education, Training and Information
IV. Development of Basic Data

The major objective in all of these areas is to help stimulate and then translate new developments into broadly applicable health programs.

I. PREVENTIVE PROGRAMS

A. Kidney Disease--The attention given to end-stage kidney failure and its dramatic therapy (i.e., artificial kidney therapy and transplantation) has led to expanded interest in the area of kidney disease. In contrast to the treatment of end-stage kidney failure, which is the same whatever the original cause of the kidney disease, the prevention or therapy for early kidney disease will vary depending upon the pathologic process in question. In approaching the preventive aspects of kidney diseases we are thus confronted with an array of diverse disorders. One simple approach to prevention of all kidney diseases is impossible, and the present state of medical knowledge does not even allow a clear understanding of the incidence, natural history and causative factors involved in these various disease processes.

Methods for screening large populations for the early detection of significant urinary abnormalities are presently lacking. Knowledge of the natural history of such problems as asymptomatic bacteriuria, occult proteinuria, acute and chronic pyelonephritis, glomerulonephritis, urinary calculus formation, etc., must be expanded in order to identify the problems to which the population at risk is exposed. Further complicating factors include the lack of specific early signs or symptoms of these disorders. When signs or symptoms are present, the significance of these may not always be clear. In addition, when unequivocal signs of kidney disease are present, the diagnosis of the specific disorder is not always possible. Lastly, even when a diagnosis can be made, an effective means of therapy is frequently lacking; and a distinct lack of trained personnel and facilities in medical centers in many parts of the country serves to compound the problem.

The Kidney Disease Control Program is developing and implementing plans to: (1) define the extent of the problem of kidney diseases in the population, (2) develop better methods of detection, (3) accumulate knowledge of the natural history of the disorders, (4) test current means of therapy and develop new modes of treatment, and (5) establish centers for the development and testing of new and improved techniques for prevention, early detection, diagnosis and treatment.

B. Plans and Activities--In order to achieve the overall goals outlined above, the Kidney Disease Control Program is planning and developing projects to meet short and long range public health needs in the following six categories:

1. Bacteriuria and Pyelonephritis

Infections of the urinary tract, in which kidney tissue is attacked and destroyed by microorganisms, are second only in incidence to infections of the respiratory system. Infections of the kidney account for a significant percentage of patients who die of kidney failure and therefore first priority is being given to this area for programming.

We have four major goals in this disease category: 1. The development of effective screening methods for detection of significant bacteriuria. 2. Identification of the extent of the problem of urinary tract infection in the general population and in special sub-groups of the population. 3. Evaluation of current therapeutic techniques and development of an understanding of the natural history of the disorder. 4. The identification of so-called predisposing factors to the development of chronic infection of the urinary tract. Vesico-ureteral reflux is an example of the latter.

A great deal of work has already been done, but further developments and refinements are critical. In regard to development of screening tests for detecting chronic urinary tract infections, projects are currently underway; and insofar as costly and time consuming techniques are now utilized in the collection of urine for presently available urine tests, alternative methods of detecting bacteriuria are also being studied. Detection of enzymes in the urine, which may be elevated in patients with pyelonephritis, may eventually be an ideal means for large scale epidemiologic surveys. In addition, it is important that patients with bacteriuria and bladder infection only, are differentiated from patients who have active infection of the renal parenchymal. A single, simply performed, enzyme test may allow this differentiation. Currently two groups are under contract for study of several enzymes in the urine in patients with urinary tract infection. Other methods of detection, such as the determination of minute amounts of glucose in the urine, may prove of value in diagnosing bacterial infection.

In order to define the extent of the problem of urinary tract infection in the population, surveys of the pediatrics age group, and pregnant females (both susceptible groups) and general broad screening programs are being conducted. Pregnant females are known to be particularly susceptible to develop urinary tract infection, but the significance of this infection has not really been determined. Studies of the natural history of the disorder and the effect of pregnancy are proceeding, and we anticipate that several other detection and follow-up surveys will be developed. Broad screening programs to detect the incidence of urinary tract infection in a cross section of a general population are also important, and contact has been made with a large corporation and several other groups who might be able to carry out such a screening program. Further studies of natural history and evaluation of various therapeutic techniques are anticipated to define the best method of therapy for urinary tract infection in various population groups.

It is well known that many host factors play a significant role in the development of urinary tract infections. An example of this is the presence of reflux of urine back into the ureters during the act of bladder contraction during urination. Other factors include any obstructive lesion of the urinary tract, calculus disease of the urinary tract, congenital anomalies of the urinary tract, hypokalemia, diabetes mellitus, gout, and many other urologic and medical disorders. Detailed study of many of these suspected predisposing factors is needed in order to evaluate the effectiveness of therapy of these problems in preventing recurrence or progression of renal lesions due to infection.

2. Hypersensitivity Diseases

Acute glomerulonephritis, nephrotic syndrome, chronic glomerulonephritis and the collagen diseases are hypersensitivity diseases in which kidney tissue is destroyed by an immune reaction initiated by any of a number of causes, including streptococcal infection. These diseases represent a large segment of the disorders which eventually lead to chronic kidney failure.

Understanding of the epidemiology and natural history of these disorders is fragmentary at the present time and much basic research remains to be done. In light of current medical knowledge, the goal of the Kidney Disease Control Program is to support the development of screening techniques in order to detect these disorders and provide support for the study of the natural history of these disease processes in hope of detecting points at which the process can be interrupted. Occasionally these disorders occur in epidemics (e.g., acute glomerulonephritis), and it is a subgoal of the Program to develop a team capable of assisting a community in coping with an epidemic.

At the present time, a study of the natural history of acute glomerulonephritis, utilizing an epidemiologic approach, is being supported by the Kidney Disease Control Program. This epidemic is taking place on the Island of Trinidad, and is under study by a group from Northwestern University. Another epidemiologic study on an acute glomerulonephritis outbreak is being conducted by the University of Minnesota at the Red Lake Indian Reservation. Although there is no known effective method of therapy for treating patients with acute glomerulonephritis, it is anticipated that basic laboratory research in immunology will lead to the availability of therapeutic measures, which must be evaluated in a clinical setting in the next several years.

The nephrotic syndrome represents an area where it is thought that existing therapy may be effective. This is particularly true in pediatric patients. Definition of the epidemiology of the nephrotic syndrome will probably be forthcoming from immunologic research laboratories but much information can also be learned from controlled evaluation of the natural history of the disorders on a long-term basis.

Screening tests for chronic glomerulonephritis, collagen disease and metabolic disorders must be developed. The Northwestern group is currently being supported to search for simplified ensymatic techniques that may eventually be developed into simple screening tests for the detection of these disorders, and several other groups have expressed interest.

Studies of the natural history of hypersensitivity diseases and metabolic diseases involving the kidney are necessary since the characteristics of the early stages of these diseases are poorly understood. Thus, a definition is needed of the significance of minimal amounts of proteinuria and orthostatic proteinuria in order that methods can be developed to identify individuals who will progress to chronic renal failure. The Kaiser-Permanente group in San Francisco has been contacted regarding the utilization of the information derived from their multiphasic program that might be of value to the Kidney Disease Control Program in this area. In addition, work is progressing toward the development of a cooperative study supported by the Kidney Disease Control Program to characterize the significance of minimal orthostatic proteinuria in patients followed on a long-term basis. Such a study would include serial determination of the status of renal function, renal biopsy material, and evaluation for the presence of metabolic disorders known to involve the kidney.

3. Renal Calculus

The development of renal calculi occurs in a variety of disorders. It may be possible to develop techniques to screen individuals who have a propensity for developing calculi. If these individuals can be detected before significant precipitation of material occurs in the urinary tract, calculus formation may be prevented. The goal of the Kidney Disease Control Program is to develop effective screening methods to detect patients with calculi and to detect patients susceptible to the development of calculi. On the basis of information currently available, the development of such a screening method is a distinct possibility. It is well known that the incidence of calculi in some areas of the country is very high as compared to other areas. Therefore, a further goal in this category is to identify the areas of the country in which individuals are more likely to develop calculi so that screening programs can be instituted in population groups in these areas. A finer definition of the extent of the "stone-belt" and of host factors necessary for the development of calculi may also lead to increased understanding of the epidemiology of this disorder.

4. Hypertensive Vascular Diseases

Hypertensive vascular diseases are currently under study by the Heart Disease Control Program of the National Center for Chronic Disease Control, and the Kidney Disease Control Program is interested in the development of methods for detection of hypertension due to primary kidney disease. The Program's goal is to support work which will lead to detection methods for reno-vascular hypertension and of hypertension due to parenchymal disorders of the kidney. In addition, those complex problems that lead to hypertensive disease may also be susceptible to detection by screening programs and by screening techniques. At present, one project incorporates study of the significance of bacteriuria to changes in blood pressure.

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5. Congenital Disorders of the Urinary Tract

The actual incidence of bladder neck obstructions, renal tubular acidosis, and hereditary nephritis and methods to detect these disorders are currently lacking. The primary goal of the Kidney Disease Control Program is to define the problem as it exists in the population and to characterize the influence of these disorders on the development and progression of diseases of the kidney.

6. Comprehensive Nephrology Programs

One of the Program's major goals is to assist in the development and improvement of comprehensive nephrology programs. These programs will be instrumental in the development, testing and application of new and improved techniques for the prevention, early detection, diagnosis and treatment of kidney diseases. The nuclei of several such centers have already been established.

From any point of view, prevention would be the ideal solution to the current high rate of mortality and morbidity from kidney diseases; and, short of total prevention, early detection and prompt effective treatment would be the next best alternative. The development of combinations of these two solutions is one of the major goals of the Kidney Disease Control Program. Projects with high potential have already been initiated, and the categories outlined above indicate major areas of concern in our long-range plans. Finally, we are continuing and intensifying our efforts to increase communications between all persons and institutions with interests or responsibilities in these programs.

II.A. CHRONIC DIALYSIS PROGRAMS

A. Background--As described above, until about six years ago, use of the artificial kidney was limited. However, since then, with the development of the "Quinton-Scribner shunt," much progress has been made.

B. Plans and Activities--The National Center for Chronic Disease Control has been involved since 1963 in the development and funding of artificial kidney projects for patients with kidney failure. Fourteen centers have received grant support, and there are currently thirteen receiving Public Health Service grant funds. Initially started under the Community Health Services and Facilities Act, P.L. 89-395, these projects now continue under the provisions of the Comprehensive Health Planning and Public Health Services Amendments of 1966, P.L. 89-749.

Based upon our own experience, and that of the Veterans Administration and other programs, we believe that it has been demonstrated conclusively that carefully selected patients who are managed with scrupulous

attention to all aspects of their care can be rehabilitated to the extent that they are able to carry on many of the activities considered a part of normal daily living.

As they have developed, all of these centers have elements of the following objectives in varying combinations:

a. Innovation in order to improve the quality of medical care.

b. Continuous development, in a dynamic sense, as centers of excellence in order to provide the medical community with orientation and training opportunities, and to help develop plans and establish guidelines and criteria for other centers. This objective requires a continual updating of equipment in both the development and application of new techniques in dialysis systems design, staffing patterns, etc. The National Institute of Arthritis and Metabolic Diseases is currently conducting a dynamic and successful program in equipment research and development. Hopefully, the results of their research and development efforts will shortly be ready for widespread application in ongoing centers.

c. Uniform collection and analysis of medical data, patient socio-economic data and project costs data. The Kidney Disease Control Program and the National Institute of Arthritis and Metabolic Diseases have embarked upon a joint venture in the collection of uniform dialysis data.

d. Development of a sound clinical base for continuing research in kidney disease and chronic uremia.

Given the extremely high cost of chronic hemodialysis - even under the best of conditions - when performed within a hospital setting, the need for developing effective alternatives has become imperative. With increased funds appropriated in 1967 and 1968, the Kidney Disease Control Program is helping to develop and test such an alternative by establishing a limited number of home dialysis development and training centers. The purpose of these centers will be to develop and test the hypothesis that home programs, properly administered and controlled, can substantially reduce the cost of artificial kidney therapy without sacrificing quality of patient care. Twelve such centers have been started. They are:

University of Colorado
Denver, Colorado

Mount Sinai School of Medicine
Elmhurst, New York

Mayo Foundation
Rochester, Minnesota

University of Missouri
School of Medicine
Kansas City General Hospital
and Medical Center
Kansas City, Missouri

Charity Hospital of Louisiana
New Orleans, Louisiana

University of Miami
School of Medicine
Jackson Memorial Hospital
Miami, Florida

Grasslands Hospital
Valhalla, New York

Peter Bent Brigham Hospital
Boston, Massachusetts

Methodist Hospital of
Indiana, Inc.
Indianapolis, Indiana

Dallas County Hospital District
University of Texas Southwestern
Medical Branch
Dallas, Texas

University of Utah
College of Medicine
Salt Lake City, Utah

University of Texas Medical Center
Galveston, Texas

Medically suitable patients (and their family members and local physicians) are being trained in the techniques of home artificial kidney therapy, and then placed upon continuing treatment within the setting of their own homes. As a result of well planned, staffed, and equipped training centers, plus a statistically significant patient population, the developmental home artificial kidney programs will be able to:

a. Test the feasibility of widespread and prolonged home treatment with the artificial kidney and various methods of providing it.

b. Collect and evaluate cost data on both the training center and the home treatment of patients.

c. Collect and evaluate uniform patient and medical data.

d. Determine the extent to which possible sources and combinations of funds (i.e., insurance, private funds, voluntary sources, and local, State and Federal sources) can be developed to support this need.

Information and data derived from these programs over the next several years will help the Public Health Service in the determination of requirements, and the development of guidelines, criteria and plans for efficient and effective ways to curtail the needless loss of 9,000 lives each year. Even during the initial development of these training and support centers for home artificial kidney patients, hundreds of patients' lives will be saved; and, if this technique proves as successful and widely applicable as we expect, many thousands of lives may be saved by its widespread application.

II.B. TRANSPLANTATION PROGRAMS

Increasing successes with kidney transplantations have resulted in rising interest in it as an additional way to save the lives of end-stage kidney disease patients who would otherwise die, and as an answer to continual build-up of patients on chronic hemodialysis. At the same time, current experience suggests that the overall costs for transplantation are significantly lower than those for hemodialysis. In Denver, Colorado, where over 175 kidney transplants have been performed, the estimated average cost of an uncomplicated transplant is $6,000. Donor costs for hospitalization and surgery are approximately $1,000. These figures do not include, however, such economic factors as time lost from employment or travel to the center.

While renal transplantation has presented new challenges in the therapeutic approach to end-stage renal failure, it has also increased the need for specialty training for physicians and paramedical personnel. The harvesting, preservation, implantation, and immunology of kidney donations have opened a new area for expertise in American medicine. Currently, the surgical techniques in transplantation are relatively standard and present less difficulty than the skills required to maintain the homografted kidney with antilymphocyte globulin, immunosuppressive drugs and postoperative general medical management.

Teams of paramedical personnel who will be required to harvest cadaver organs, must be trained in organ graft perfusion techniques, and methods for preserving kidneys during transplantation and the graft until implantation is feasible. Precision and timing will be required to insure reduced ischemic time of the cadaveric graft material.

The Kidney Disease Control Program is presently planning projects to assist the orderly incorporation of renal transplantation into widespread practice in the treatment of end-stage kidney disease. Comprehensive data will be gathered on the costs, survival, rehabilitation and other pertinent aspects of transplantation. Analytical cost comparisons are planned with respect to both hemodialysis, and transplantation, and the relative socio-economic effectiveness of these methods. Inquiry is progressing on the legal and ethical aspects of donor kidneys to assist amelioration of problems in this area. Plans are also being developed to stimulate training programs to help meet the manpower needs of transplantation programs.

III. CONTINUING EDUCATION, TRAINING AND INFORMATION

A. Background--The need for continuing education of the practicing physician and improved and expanded teaching facilities for those in training continues to be a critical problem in developing capabilities to control kidney disease, and develop end-stage therapy. Knowledge of kidney diseases is particularly lacking at the level of the practicing physician and medical student because of the subtle presenting signs and symptoms of these diseases, lack or confusion of knowledge regarding the etiology and means of treatment, and the complications resulting from these disorders which necessitate familiarity with physical and chemical terminology.

The field of nephrology is represented by investigators and clinicians with broad interests. Thus, the Third International Congress of Nephrology was attended by physicians in diverse research and clinical fields including physiology, pathology, immunology, bacteriology, endocrinology, etc. In the midst of expanding interests in the area of the kidney and its diseases, is a large body of knowledge related to the manner in which basic discoveries can be applied to individuals with kidney disease. Dialysis and transplantation stand out as examples of the application of knowledge gained through experimentation to the care of the patient.

The expansion and application of knowledge has precipitated an increase in the needs of the community for trained physicians who can apply this

knowledge. The plans for increased dialysis and transplantation activity will not only provide for increased facilities for the care of patients but will also provide facilities for the training of doctors in the care of patients with kidney disease.

B. Plans and Activities--The Kidney Disease Control Program believes that programs in education, training and information in kidney diseases should be directed into two areas: medical and paramedical personnel in training programs, and the general public.

1. Medical and Paramedical Training Programs

Increasing the number of health personnel familiar with diagnostic and therapeutic techniques in kidney diseases is an obvious necessity to improve care of patients with these disorders. Progress toward achieving this goal is currently being made by the following Kidney Disease Control activities:

a. Dialysis Training--Training programs at the Downstate Medical Center and the Seattle Artificial Kidney Center are being supported which are designed for both medical and paramedical personnel. The physician trainee is paid a yearly salary while on the training contract. Basically, the training is of the apprenticeship variety. Admission to this one year training program is through application to the institutions involved; the project director and Department of Medicine at the institution act upon the application. There is a limitation regarding the number of physicians who can be trained by this method and the training contract with Downstate Medical Center provides for two physicians to be trained per year.

Although there is no requirement that a research protocol be submitted or that research be carried out during the tenure of the one year traineeship, it is assumed that physicians involved in the center activities do participate in some research, although their basic role is in the clinical care of dialysis patients.

b. Development of Training Materials--Valuable guidance was obtained through a contract negotiated with a firm experienced in educational media development and production. This firm worked closely with several artificial kidney centers to develop recommendations for visual aids and text materials for the training of physicians, nurses and technicians. Additional contracts are planned to develop training aids and curricula for medical and paramedical personnel.

c. Conservative Management--Recognizing the need to update the current level of dietary management of patients with chronic kidney failure, the Kidney Disease Control Program is planning short-term training courses for physicians, nurses and nutritionists in the nutritional aspects of uremia. In cooperation with other National organizations, five of these courses are planned in different geographic locations during the next year.

d. Other Programs--Physicians may receive training in the field of kidney disease from individual academic institutions or through private foundations. As a rule, foundation support is for research. On the other hand, many dialysis units have trained physicians expressly for the development of competence in this field. These training programs are basically apprenticeships without standard curricula.

2. Public Education

The Kidney Disease Control Program is developing methods to increase public awareness of the importance of kidney diseases. The basic philosophy underlying this aspect of the Program is that an informed public is a necessity if effective community-wide programs for kidney disease are to be developed. The importance of these diseases as a public health problem is not widely appreciated and the general public has little or no concept of the functioning of the kidneys or the nature of the diseases that can attack them. This is in contrast to other important chronic diseases such as heart disease and cancer where the efficacy of adequate public information programs has been repeatedly proven.

In the past, there have been very few publications available for the laymen which adequately describe either the general functions of the kidney or characteristics of specific kidney diseases. The Kidney Disease Control Program has produced a number of pamphlets, one describing the artificial kidney and another which explains the Program's activities and method of operation. Plans are under way to develop a series of brochures on various kidney diseases with highest priority being given to infections of the urinary tract and hypersensitivity diseases.

The use of movies and television for the widespread dissemination of information on current health problems has been successful in recent years. The Kidney Disease Control Program is proceeding with plans to produce a short general information film for public use covering the treatment of the patient with chronic uremia. Increased efforts are also being made to maintain close contact with the appropriate voluntary agencies in the field so that problems and progress in the kidney disease area may be brought quickly and accurately to the public's attention.

IV. DEVELOPMENT OF BASIC DATA

The collection, analysis and dissemination of basic data is another area of high priority to the Kidney Disease Control Program. Basic data relating to these diseases must be developed in order to describe adequately the extent and size of the problem and to permit us to

evaluate the effectiveness of various community approaches. A major aim is to ensure periodic collections of such data in a uniform manner so that time comparisons can be made and program evaluation and effectiveness may be judged. Portions of the data collection and analysis are being undertaken cooperatively with other agencies, in particular with the National Institute of Arthritis and Metabolic Diseases. Much of the basic data required will evolve from the studies and developmental programs outlined above. One of our major responsibilities will be to assure timely and effective evaluation and distribution of such data as a means of assuring the availability of current information in the hands of physicians, State and local health departments and others.

Mortality estimates are being developed utilizing not only the Vital Statistics of the United States, but also improving the information available through special death certificate studies, autopsy report studies, and studies of the records of selected health departments and medical care institutions. Morbidity estimates have been obtained from the National Health Survey, and these data are being supplemented from hospital record sources, data from selected health departments, and special studies.

Two extremely promising studies have been negotiated to meet basic data needs. A project to develop data on the economic costs of kidney diseases is already producing data which will permit the development of cost-effectiveness models. An exploratory study of socio-economic problems related to chronic hemodialysis is nearly completed, and will yield substantial data.

SUMMARY

Kidney diseases cause nearly 60,000 deaths each year of which at least 9,000 are known to be medically preventable at present. The Kidney Disease Control Program, in conjunction with many other governmental and private agencies, is attempting to work out short-range and long-range solutions to this problem. The problem must be clearly defined, and we are attempting to accomplish this objective. In the long run, prevention or early detection and effective treatment are the optimal solutions to the kidney disease problem, and we are attempting to plan and develop the long-range projects required to accomplish this goal. As a result of successful research, thousands of people who would die each year can now be kept alive and productive through the use of artificial kidney therapy. We are attempting to convert this lifesaving therapy from a highly expensive experiment to a widely applicable mode of treatment. There is currently a woeful lack of physicians and health personnel trained in the area of kidney diseases, and we plan to develop programs to help correct this deficiency. Progress has been made toward our overall objective which is to help stimulate and then translate knowledge and new developments into broadly applicable health programs.

National Institute of Arthritis and Metabolic Diseases

There is general agreement, both by authorties from artificial kidney centers and by scientists and consultants of the National Institute of Arthritis and Metabolic Diseases, that development of optimal treatment modalities for end-stage kidney disease depends substantially on additional knowledge of the nature of uremia, the fatal end-stage of kidney failure and on additional fundamental advances in organ transplantation. In addition, research toward prevention or early more effective treatment of the primary kidney disorders which eventually lead to kidney failure is essential to any improvement in the health problem represented by kidney disease.

This past year, Institute-supported scientists have reported on a considerable number of research findings which shed new light on some of the causes and manifestations of chronic renal failure.

Severe Renal Complications Averted

The development of peripheral neuropathy is a serious complication of chronic renal insufficiency, and previously chronic dialysis had been incriminated as a cause. Institute-supported scientists at the University of Washington, Seattle, however, have obtained evidence to indicate that intensive long-term intermittent dialysis may arrest or prevent development of peripheral neuropathy. The scientists discovered that dialysis should be instituted early in uremic patients who developed this complication, and that it should be intensified in those in whom neuropathy progresses. With earlier and more intensive dialysis therapy, it is believed that such neuropathy might be reduced to where it becomes a rare and mild complication of chronic renal failure.

New Therapy for Bone Disorders

Another NIAMD grantee has obtained evidence to indicate that bone disorders, such as osteomalacia, which are frequently present in chronic renal disease may result from calcium loss associated with acidosis. These osseous abnormalities have been attributed variously to chronic metabolic acidosis, acquired vitamin D resistance, and secondary hyperparathyroidism. The present study has shown that chronic renal disease patients in metabolic acidosis have a negative calcium balance, and that correction of acidosis by alkali therapy stabilizes calcium turnover. This finding is consistent with the investigators' earlier suggestion that slow losses of calcium from the skeleton may occur in such patients when acidosis is present.

Folic Acid Needed in Diet

The anemia in patients with chronic renal failure appears to be associated with a deficiency in folic acid, according to an investigator supported by the Institute. He has shown that this deficiency may be aggravated by chronic, long-term hemodialysis, and that abnormal changes in red blood cell and platelet precursors respond to folic acid supplementation. Chronic renal failure is often complicated by a type of anemia believed to result from failure of the bone marrow to form blood cells normally. Examinations by the investigators of many such marrows have shown a tendency for the developing blood cells to be large and disproportionately immature, suggesting that vitamin B_{12} or folic acid deficiency may be a factor in the development of this anemia. The present study has established that patients in chronic renal failure, particularly those with anemia who are undergoing periodic hemodialysis, have low serum levels of folic acid, and that this vitamin is dialyzed out of the blood in a hemodialysis system. Since considerable folic acid is lost in this manner, the study indicates that this vitamin should be added to the diet of patients on long-term hemodialysis.

Potassium Supplements Required

Still another complication of chronic renal insufficiency under intensive study is that of abnormal glucose metabolism. A group of Institute-supported grantees has shown that potassium depletion, which may be present in the uremic patient, contributes to the observed abnormal glucose metabolism in such patients. With oral potassium supplementation the glucose tolerance tests returned toward normal and the response of endogenous insulin to a glucose challenge was more prompt and reached higher values than during control periods (before potassium supplementation). Delayed insulin release apparently contributes to the abnormal glucose tolerance in the uremic state. Prior to this report no study of the relationship between body potassium stores and carbohydrate abnormalities had been made in uremic patients.

Penicillin G: Caution Necessary in its Usage

Another group of Institute grantees report that massive doses of potassium penicillin G, administered to patients with renal failure, may cause coma, muscle spasms, seizures and fluctuating levels of consciousness. It is known that penicillin can cause epileptic seizures if it is injected directly into the central nervous system, or reaches a high concentration in the cerebrospinal fluid. The present study indicates that impaired renal function favors this accumulation of penicillin in toxic concentrations and that extreme caution should be used in the use of large doses of this drug in uremic patients.

Glomerulonephritis

Acute glomerulonephritis, an inflammatory disease of the kidneys, usually follows a relatively benign course, although some patients do develop a progressive and serious form of the disease. An Institute grantee has now determined criteria which may be useful in predicting which patients will have the poorer prognosis. He found that these patients may be identified early in the course of their disease either by an anti-kidney antibody titer of 1:40 or more, or by persistence of the titer for more than 90 days. On the basis of his findings, the investigator speculates that in such patients an autoimmune phenomenon may result in continuing glomerular injury. If this conclusion stands the test of further study and experience, immunosuppressive therapy at an early stage of the disease in patients with very high antikidney antibody titers, or where the elevated titers persist for prolonged periods, might prevent the development of the progressive, and often fatal, form of glomerulonephritis.

Kidney Stones

Kidney stones remain an important urologic problem since they usually cause severe pain and may often lead to recurrent infection and ultimate kidney destruction.

An Institute grantee reported this year that daily oral administration of magnesium and vitamin B_6 for prolonged periods of time may reduce the rate of stone formation in susceptible patients. In earlier studies the Institute-supported investigators had shown that experimental induction of renal stones in rats could be prevented completely or partially by high dietary levels of the above substances. They now report that 30 of 36 patients on this regimen for at least five years have shown no recurrence, or decreased recurrence, of kidney stones. All of these patients had previously formed two or more stones per year for at least two years.

Two other Institute grant-supported scientists have been studying the processes concerning the genesis of kidney stone formation. Their observations in experimental animals using oxamide stones as a prototype, support a theory that this type of stone formation begins by simple intraductal crystallization and retention of the initial products of crystallization. The retained material then acts as a site for further crystallization and an encrusting "cap" is soon produced. Subsequently, fragments of this stone serve as nuclei for stone formation throughout the urinary system. It is hoped that a more thorough understanding of the mechanisms concerned in theorigin of oxamide stone precipitation will lead to a broader understanding of the general problem of urinary calculogenesis.

Advances in Kidney Transplantation

Kidney transplantation is a technique whereby a functioning kidney from a living or recently deceased donor is transplanted into a patient who has lost his own kidney function. Although this procedure is at present still in an advanced experimental stage, it shows considerable promise. With continued research, it is hoped that kidney transplantation, supplemented by efficient methods of hemodialysis will make fatal chronic uremia a menace of the past.

The main obstacle to better permanent function of the transplanted kidney results from the body's determination to destroy any foreign invader, a life-threatening microbe as well as a potentially lifesaving grafted donor kidney. Unable to distinguish between helpful and detrimental foreign substances, the body's immunologic humoral and cellular defense mechanisms

attack any and all intruders, including an implanted kidney. Transplanted kidneys, once attacked in this fashion, will eventually cease to function unless the host's defense response is blunted by special immunosuppressive drugs or sera.

With presently available methods of immunosuppressive therapy it is often possible to prevent or reverse the initial, acute rejection reaction to a kidney transplanted from one genetically nonidentical individual to another. This therapy, now relatively well standardized in most centers engaged in clinical transplantation, permits the survival for more than twelve months of 65 percent of renal allografts donated by a member of the recipient's immediate family and slightly less than half the kidneys donated by unrelated persons. This partial success in controlling early transplant rejection has now brought to light evidence of more subtle and chronic forms of immunologic attack upon the transplant that may occur despite long-term immunosuppressive treatment.

Institute grantees have found recently that chronic transplant rejection (in contrast to the well-known acute rejection crises), evidenced by proteinuria and nephrosis, occurs frequently in kidney transplant patients who have survived for more than three months and even years. The amount of proteinuria seems to be related to the degree of immunologic incompatibility between graft and recipient rather than to the original kidney disease. The present study has alerted investigators against complacency in cases of apparent success in kidney transplants where the postoperative course was not characterized by conspicuous acute rejection crises.

It has become increasingly apparent that improvement in success of kidney transplantation, and organ transplantation as a whole, will depend primarily on additional knowledge in the area of human tissue immunology and on the development of effective methods of donor tissue and organ preservation. Thus, sophisticated and reliable methods must be developed for immunologic matching of donor and recipient tissues with the same precision now available in blood transfusions; likewise, new methodology must be sought for preserving and banking donor tissues and organs for the varying and sometimes considerable time periods between their availability and the finding of a suitably matched recipient.

The Artificial Kidney

If and when kidney transplantation becomes a routine procedure, the artificial kidney will not be discarded. Many chronically uremic patients are not medically or psychologically suitable candidates for transplantation. Furthermore, patients who are suitable candidates will have to be sustained with an artificial kidney until they are well enough to have a transplantation operation and until a suitable, antigenically matching donor kidney

can be found for them. Also they may have to be placed on an artificial kidney after the operation if the donated kidney does not function properly for a time or is rejected.

The problem of perpetual maintenance of patients with artificial kidneys is complicated by the fact that the cost of currently available techniques is too high, both in terms of money and qualified manpower, to permit widespread patient treatment. Also, patients maintained with the aid of artificial kidneys continue to display a number of undesirable symptoms related either to the underlying disease or to the treatment.

The Institute's special Artificial Kidney Program has been created to deal with these problems. An up-to-date report of progress and future plans follows.

ARTIFICIAL KIDNEY PROGRAM

Background

In the United States today over 50,000 individuals die each year as a result of irreversible kidney failure. The diseases which originally initiate the chain of events which terminates with advanced kidney failure vary considerably in nature. They may be primary kidney diseases like glomerulonephritis. In other instances progressive kidney damage may be induced by long-standing hypertension or diabetes, or kidney infection and destruction may be initiated by obstructions such as kidney stones or hypertrophy of the prostate in aged males. Regardless of the original disease, the progressive kidney damage leads to a common final pathway, end-stage kidney disease, followed by fatal irreversible kidney failure.

Although artificial kidneys had been known for many years, until 1960 they could only be used a few times in each individual for lack of a practical method for repeatedly connecting the patient's bloodstream with the artificial kidney machine. In that year a group of Institute grantees at the University of Washington developed permanently indwelling plastic blood vessel connections ("cannulas") which made possible the repeated joining of patients with irreversible kidney failure to artificial kidneys for intermittent maintenance treatment. Subsequently, these investigators proved the feasibility of maintaining life in such patients for a number of years with the aid of artificial kidney treatments ("hemodialysis") given twice or three times each week. With increasing experience with this new treatment modality it soon became evidence that existing artificial kidneys and dialysis methods were as yet not optimal, that maintenance treatment with artificial kidneys was extremely expensive and not within the reach of most individuals who needed it, and that rehabilitation of

patients on chronic dialysis, using present methods and equipment, was not always optimal. It was estimated, based on recent experience, that about 8,000 patients of the yearly 50,000 individuals with end-stage kidney disease would possess the necessary medical and psychological prerequisites necessary for successful long-term dialysis treatment.

The emergence of this new lifesaving treatment encouraged the Congress, in the summer of 1965, to appropriate funds to this Institute for the pursuit of a planned and centrally directed program of research and development, utilizing predominantly a direct contract approach, aimed at the development of improved and less expensive dialysis hardware and methodologies and at optimal rehabilitation of chronic dialysis patients.

The Program

The new Artificial Kidney Program was located in the National Institute of Arthritis and Metabolic Diseases (NIAMD), the Institute which has major responsibility for research in urology and renal diseases.

It was considered important to undertake such a program through the utilization of the best possible consultative talent from both outside and within the National Institutes of Health. Accordingly, 23 outstanding authorities active in the field of chronic uremia and hemodialysis have been appointed as consultants. Among them are physicians who have led programs in artificial kidney centers, renal physiologists, physical chemists and membrane specialists, chemical and electronic engineers, and those rare, talented individuals who combine several of the above qualifications. These consultants are assisting in setting the trend of the program and are reviewing the scientific merit and feasibility of contract proposals.

It was also considered important that the program be undertaken in close cooperation with the activities of the Kidney Disease Control Program of the Bureau of Disease Prevention and Environmental Control (BDPEC), of the Public Health Service. The latter activity is concerned largely with the actual demonstration of chronic dialysis in a community setting - both in specialized dialysis centers and, where feasible, in the homes of selected patients. Because of the closely interdigitating and interdependent nature of the NIH and BDPEC activities, both programs are in close and constant communication and work with a high degree of cooperation. There is a constant exchange of essential data between staffs of these programs, with particular emphasis on program planning activities. This close cooperation assures a maximum of benefit and prompt application of research and development advances in the artificial kidney field.

Outline of Program Plans

A thorough study of the state of the art made it apparent that no single specific direction could be followed which would exclude others which might be relevant. Several different types of artificial kidneys are in use at the moment, and different methodologies are being advocated by the various workers in the field. Therefore, at this time, a variety of approaches in artificial kidney development are being supported. Once it becomes evident that one or more approaches show greater promise, efforts will be concentrated in these directions.

Problems of Highest Priority

The following are outstanding problems in dialysis toward which the Artificial Kidney Program is directing immediate efforts:

1. Cannulas. The life and function of the permanently implanted cannulas are still limiting factors in successful dialysis.

2. Dialysis membranes. Though effective, the cellophane membranes currently in use may not be optimal. The possibility of using other, perhaps more selective membranes, must be explored.

3. Design of individual dialyzer units. Most dialyzers presently in use are cumbersome and costly to assemble and sterilize. A dialyzer exists which utilizes a disposable dialysis-ultrafiltration "cartridge"; this cartridge is as yet too expensive for maintenance of chronic patients.

4. High requirement for professional personnel. This requirement is based on the medical nature of dialysis, but aggravated by problems 1, 2, and 3 above.

5. Lack of effectiveness data. No objective information has been obtained through well-controlled studies which permits a meaningful evaluation of the comparative effectiveness of the various dialysis methods and equipment currently in use.

6. Undesirable symptoms frequently found in patients maintained by repeated dialysis.

    a) Anemia. On the average, one or more blood transfusions are needed per month per patient maintained in dialysis - with the attendant risk of transfusion hepatitis.

b) A significant incidence of peripheral neurological damage. This may be due to long-term effects of the semi-uremic state in surviving patients on repeated dialysis, or due to the dialysis procedure per se.

c) Pseudo-gout, secondary hyperparathyroidism, skeletal demineralization, and calcium deposition in joints and in the tissues throughout the body. The most recent findings involve calcium deposition in the cornea of the eye. Simultaneously, there is a tendency to decalcification of bone with resultant fractures produced by minor stresses.

Problems 1 through 4 are primarily responsible for the current high cost of dialysis, which averages $14,000 per year in patients maintained by hospital center dialysis on a twice-weekly schedule.

Current Activities

Following the 1965 Congressional appropriation, the Artificial Kidney Program was mounted in record time with the activation of 24 carefully selected research and development contracts. These contracts were placed with universities, nonprofit research laboratories and industrial concerns, and constitute a broad spectrum approach to the problems of highest priority. These projects involve development of improved blood cannulas and filtration membranes; evaluation and development of new polymer surfaces for artificial kidneys, cannulas and membranes which do not induce blood coagulation; design of more efficient, compact, and less costly dialyzer systems; development of a new concept of artificial kidney dialysis ("hollow fiber" or "capillary" kidneys); research on and development of absorption cartridges for blood purification; research on the utilization of ultrasonics to speed up dialysis in artificial kidneys; development of inexpensive disposable dialysis units; improvement and design of new automated centralized artificial kidney systems; improvement and design of new dialysis units with automated fail-safe mechanisms; design and development of prototypes for miniaturized or portable artificial kidneys, and many other related projects. In 1967 the Program awarded an additional group of new pertinent research and development contracts, totaling $2.6 million, to 19 institutions.

A substantial portion of the new contracts embody unique, new approaches to artificial kidney methodology such as diafiltration (a novel concept in artificial kidney design); development of new types of permanent arteriovenous shunts; introduction and evaluation of novel materials for cannulas; development of additional types of capillary (hollow fiber) artificial kidneys;

evaluation of a special protein restricted diet in the maintenance of uremic patients for whom chronic dialysis is deemed not feasible or unobtainable; isolation from dialysates and identification of the as yet unknown compound(s) which is (are) specifically responsible for the toxic symptomatology in uremia, and many other projects related to improved dialysis methodology or apparatus. At the present time the Artificial Kidney Program has 49 active research and development contracts and agreements and will activate an estimated additional 20 contracts by the end of fiscal year 1968.

Patient Registry

A patient registry coupled with a medical, engineering and economic analysis of all patients in chronic dialysis has been instituted with the Research Triangle Institute as the contractor. The contract provides for a registry of all patients presently maintained with the aid of artificial kidneys or peritoneal dialysis, and will permit a truly comparative evaluation of the effectiveness of the equipment used and of the various methodologies of treatment. The patient registry project aims at a meaningful comparative evaluation of the various facets, steps and methodologies involved in chronic dialysis, from selection of the patient through his medical evaluation once he is being maintained with chronic dialysis. This over-all systems analysis will be undertaken as a cooperative effort with the community service programs in dialysis of the Kidney Disease Control Program of the PHS; it will cover the various dialysis centers of the Veterans Administration Hospitals and all other centers or hospitals engaged in chronic dialysis and willing to cooperate.

In addition, there has already been an exchange of information with the personnel involved in the annual dialysis survey of the European Dialysis and Transplant Association concerning information obtained during its annual cross section survey of the patient population in Europe, which equals approximately the number of patients on dialysis in this country. Since a number of valuable innovations have originated in Europe and since the patient problems are similar, access to the European data and a mutual exchange of information will increase the value of both registries, particularly as to the medical, clinical, and technical aspects of dialysis.

In the process of instituting this registry it has become increasingly apparent that the medical and clinical aspects of chronic dialysis require detailed evaluation, particularly with regard to efficacy in controlling the various symptoms associated with uremia and with regard to the long-term deleterious effects on the nervous system, blood and bones.

The ideal diet for patients in dialysis is still a matter of controversy and disagreement among the experts. Some favor high protein diets with

frequent dialyses, whereas others favor special selected low protein diets with infrequent or occasional dialyses. Also, some favor entering patients into dialysis programs on a preventive basis prior to terminal uremia, while the patient still has some kidney function, whereas others adopt the opposite approach and attempt to delay as long as possible the time when dialysis must be instituted. In order to help resolve these matters various centers are being stimulated to study these problems in a detailed and organized way.

Conferences

A working conference on the dietary management of chronic renal failure, co-sponsored by the Artificial Kidney Program of the Institute and the Kidney Disease Control Program, BDPEC, PHS, was held October 2-3, 1967. The two-day session entitled, "A Conference on the Nutritional Aspects of Uremia", was designed to analyze and communicate certain aspects of current knowledge of dietary therapy in the management of patients with chronic renal failure. Special emphasis was devoted to a comparative evaluation of a new type of diet, developed in Italy and England, which limits dietary nitrogen intake to minimal amounts of essential amino acids, and which has permitted limited survival and rehabilitation, in certain types of patients with chronic renal failure, without recourse to kidney transplantation or artificial kidneys.

As a result of the meeting a number of pertinent clinical studies will be undertaken by several participants, in addition to the work already currently supported by the Program in this area, with special emphasis on the use of variations of this diet coupled with occasional, infrequent dialyses, in the many patients who cannot now obtain regular chronic dialysis treatment. The proceedings of the Conference will be published as a special supplement to the monthly American Journal of Clinical Nutrition and copies will be made available subsequently to all workers in the field of chronic renal failure.

As a result of the success of this Conference a similar conference on abnormal calcium metabolism and bone disease in uremia and dialysis patients is planned for later this year.

Publications

In 1967 the Program began publication of the quarterly ARTIFICIAL KIDNEY BIBLIOGRAPHY. The current awareness publication provides information on the latest scientific articles published anywhere in the world concerning renal failure, dialysis, artificial kidneys, and kidney transplantation. It

is made available, without cost, to NIH grantees engaged in kidney disease research, to contractors of the Artificial Kidney Program and, upon request, to other qualified interested investigators and practitioners working in areas closely related to the artificial kidney. The laudatory response of the recipients of this new publication has been very gratifying.

The Program has also published and widely distributed the publication "A Review of the Development and Performance of Hemodialyzers" which was prepared under the auspices of one of its contractors. Among other essential subject matter it contains tables which, for the first time, compile and compare performance data on the various existing dialyzers and dialysis membranes - an indispensable aid to anybody engaged in artificial kidney improvement.

Accomplishments

In the past year there have been a number of accomplishments and encouraging developments in the research and development contract program. A compact, high-efficiency dialyzer for artificial kidney machines has been developed which permits treatment of almost twice as many patients in a given dialysis center setting as with conventionally used dialyzers. The Babb-Grimsrud (B-G) dialyzer, named for its developers, measures only 20 by 50 centimeters and is constructed of plastic and a commercially available foam nickel support material. It requires a total blood volume of only 70 cc, thus decreasing the presently high blood priming requirement and the need for compensatory blood transfusions. It costs half as much as the conventionally used two-layer Kiil dialyzer, can be assembled in ten minutes and can be sterilized in an autoclave. Compared to the Kiil dialyzer, the B-G dialyzer has approximately one-third the membrane area, one-seventh the blood volume, and one-fourth the weight, with no decrease in urea clearance and only slight decreases in creatinine clearance. At the present time a series of these new dialyzers is being built for extensive testing under routine operating conditions.

The same clinicians involved in collaborating with the engineers on the Babb-Grimsrud dialyzer design at the University of Washington, Seattle, have devised a technique for storing and re-using artificial kidneys of the Kiil type and of the attached blood tubing, which reduces the cost and simplifies the work involved in performing hemodialysis in the home. The new procedure permits re-use of the artificial kidneys for at least three successive dialyses, requires assembling and disassembling of the unit only once instead of three times a week, and allows use of blood tubing sets at least nine times, for an estimated saving of $800.00 per year. The clinicians involved in developing this are involved also in other contracts of research and development in the dialysis area.

The new and unique hollow fiber capillary kidney, which is being developed under a contract with the Dow Chemical Company, is progressing according to schedule and has already been tried on one patient. A semi-automated facility has been set up under the contract in order to expand the production of prototype models which will be put into clinical testing shortly. The advantage of this design is that it is compact, disposable, and as efficient as dialyzers in current use, and lends itself to mass production. The design consists of small bundles of many hollow cellulosic fibers through which the blood is passed, and which are washed by a blood-purifying dialyzing solution. In addition to the above-mentioned two new artificial kidney designs, other possible designs are being explored including other approaches to the hollow fiber dialyzer design.

Another contractor who is manufacturing the conventional Kiil dialyzer has been successful in the development of a new type of multiple minute pyramidal membrane supports which increase the effective dialysis area of the membrane in the Kiil dialyzer. Preliminary laboratory tests have shown that this new development has increased the dialyzing efficiency of these modified Kiil dialyzers by about 40%. A series of the new type of dialyzer is now being built for clinical testing with patients.

The Program is believed to have had and undoubtedly will have other indirect salutary effects. The sudden vigorous activities in artificial kidney development (and possibly the specter of the new low-cost disposable capillary dialyzers which are being developed under Program contracts) are expected to exert a gradual effect on the price of commercially produced dialysis equipment. It may be coincidence, but such an effect has already been visible in the current price of the only commercially available disposable dialyzing cartridge. In the long run such developments are likely to result in distinct economies in dialysis treatment, particularly in home dialysis for which disposable types of dialyzers are well suited.

The activities of the Program have also resulted in an increase, in this country, in the use of a new type of diet, developed in Italy and England and heretofore used primarily abroad, which has permitted limited survival and definite rehabilitation in certain types of patients with chronic renal failure, without recourse to kidney transplantation or artificial kidneys.

Plans for Future Activities

The Program will continue all promising current research and development efforts and will pursue any new ideas and approaches which appear feasible. Among these is a new method of detoxification of uremic blood with the aid of special selective adsorbing agents (in contrast to the presently used purification with the aid of membrane dialysis). The complete success of such detoxification-by-adsorption hinges on the successful identification

of all toxic substances which accumulate in the bloodstream in kidney failure. The Program is currently funding a number of studies aimed at the isolation and identification of such unknown toxic factors which may have to be removed from the patients' blood, in addition to metabolic wastes and other substances known to accumulate during kidney failure, such as urea, creatinine, uric acid, potassium, hydrogen ion, and water.

The Program intends to follow very closely the clinical and technological developments abroad and, when promising, to enlarge upon them for the benefit of U. S. patients as well. For instance, reports have been received of the preliminary development, in Scotland, of a new miniaturized dialyzer which requires little or no blood priming and of new selective membranes characterized by increased permeability to urea, heat sealability, and improved water flux. Should these new developments prove indeed successful, the Program will be interested in fostering larger scale clinical trials, and placement of production of the new membranes and dialyzer in this country.

The Program will support further development of special diets (see above) for maintenance of uremic patients, to be used in conjunction with infrequent peritoneal dialysis or hemodialysis. For the latter type of regimen patients would be given surgically constructed, subcutaneous, natural arterio-venous blood vessel shunts (which are very adequate for infrequently administered hemodialysis). It is hoped that with the aid of such a special-diet-infrequent-dialysis regimen patients would be maintained without the need for implantation of plastic shunts, and that a larger number of patients with renal failure may be accorded life-saving treatment in this fashion in the face of the great expense of conventional chronic dialysis therapy which is unavailable to most patients with end-stage kidney disease.

Most of the Program's ongoing research and development contracts are systematically structured to yield specific goals according to a built-in time schedule. In many cases the attainment of targeted research and development goals in one contract is essential to the success of projects which are part of other contracts. Thus close communication of research results between all of the Programs' contractors is essential for maximum effectiveness of the overall effort. With this in mind, the Program is planning to have annual two-to-three day working conferences in which all the senior contractors' staff and the Program's consultants will participate. On such occasions each contract project will report its negative and positive findings to all other active contractors in formal presentations to be followed by informal general brainstorming discussions. It is expected that such close communication and cross fertilization of ideas from a large number of active contractors and consultants coming from diverse biomedical and technological displines will go far toward attainment of the common goal of the Program - optimal artificial kidney technology, improved clinical methodology and patient rehabilitation - at an early time.

Kidney Disease: Outlook

Research conducted and supported by the National Institute of Arthritis and Metabolic Diseases has added much to the understanding and treatment of chronic kidney disease. Investigations such as those discussed in this report have increased our ability to cope with the problems of kidney failure. Additional new research efforts are called for in order that a more widespread and permanent control of kidney diseases can be achieved. A meaningful program to reduce kidney disease must include all of the various components - research, prevention, treatment, education - available in our armamentarium. This combination, led by much-needed research, should yield maximal benefits in the number of lives saved today and deaths prevented in the years to come. Such a total program must be aimed at all the primary kidney diseases as well as at end-stage kidney failure.

EMPHYSEMA AND CHRONIC BRONCHITIS

First recognized as chronic lung diseases about 150 years ago, emphysema and chronic bronchitis have become major public health problems only within the past few years. In 1965 emphysema and chronic bronchitis caused 23,432 deaths. As recently as 1950, these diseases caused only 3,157 deaths. Thus, since 1950, the number of deaths caused by this syndrome has doubled every 5 years. This rate of increase is faster than for any other disease, and is four times the rate for lung cancer.

In 1965, some 18,000 new victims of emphysema and chronic bronchitis were awarded approximately $21 million in Social Security disability pensions. And a total of some $90 million in disability pensions were paid in 1966 because of these diseases.

In health interview surveys conducted between July 1966 and June 1967, nearly five million Americans reported symptoms of bronchitis, emphysema, or a combination of both. Some surveys have yielded estimates that at least 3 percent of all persons over 40 have early signs of chronic obstructive lung disease. Other small surveys suggest that as high as 25 percent of the population over 40 may have some degree of impaired lung function. These surveys, when projected, suggest an estimate of up to 14 million Americans in various stages of chronic obstructive lung disease.

Research carried out under the auspices of the National Institutes of Health, the National Center for Air Pollution Control, and Occupational Health Program of the National Center for Urban and Industrial Health, is being stepped up. Efforts to control the cigarette smoking problem with which these diseases have been associated are being carried out by the National Clearinghouse for Smoking and Health, in the National Center for Chronic Disease Control. In the same Center, the Chronic Respiratory Diseases Control Program is carring out a program of disease control, epidemiology and training and education.

Bureau of Disease Prevention and

Environmental Control

Within the National Center for Chronic Disease Control, there are two programs involved in the fight against emphysema and chronic bronchitis.

National Clearinghouse on Smoking and Health

The National Clearinghouse on Smoking and Health, with a budget of $2,075,000 is conducting investigations of the behavioral aspects of cigarette smoking and carrying out educational efforts for the public on the health hazards associated with cigarette smoking. Although these efforts are directed toward no specific disease entities, the findings of behavioral research studies and the efforts of health education are certainly part of the total effort to prevent and control emphysema and chronic bronchitis.

Chronic Respiratory Diseases Control Program

Established during 1966, this program directed its initial efforts toward stimulating and helping develop community health service grant requests for community projects over and above direct contract activities supported by a budget of $1 million. Over $2 million has now been put to work on emphysema and chronic bronchitis in projects with a 3-year duration. Most of these projects are expected to continue through local support. Through direct contract, the Program has supported or is supporting demonstration activities in case-finding, early detection, and management procedures including pulmonary rehabilitation, and intensive care for respiratory failure.

Through these activities and through professional and public information activities, the Program has helped to produce an awareness in the medical community that efforts at control are fruitful and that much can indeed be done, and remains to be done, in this area.

On this basic framework, and with a budget of $1,584,000, new areas of emphasis and direction have been added during the past year.

Defining the Public Health Problem

Major emphasis is now being placed on epidemiology to determine the size and scope of the problem posed by emphysema and chronic bronchitis, the nature of the problem in terms of socio-economic impact, sex, race, urban factors, geographic factors, occupational status, personal habits and concurrent disease. This knowledge is essential to the planning and execution of any program to prevent and control disease. As a first step, the Program is reviewing all available information on the epidemiology of emphysema and chronic bronchitis.

The Program is also supporting or planning projects to develop and evaluate instruments for epidemiologic field studies, instruments which will help clarify the relationship of shortness of breath and other

symptoms to the ultimate development of disabling lung disease. In addition, the Program is carrying out projects to determine the reliability of current criteria for categorizing pathologic changes in the breathing system associated with emphysema. This study compares the methods in which various researchers classify lung tissue samples in post-mortem studies. Another current study compares the development of lung disease in siblings living in Israel with that of their North American brothers and sisters. In this study clues on the relationship of air pollution and other factors with the development of lung disease should be evident. The retrospective analysis of data from three chest clinics now being conducted will provide information for the planning of prospective studies and surveys in specific localities.

Various other epidemiologic studies are in progress or in the planning stage.

Case Control

As evidenced by its early concentration on the development and demonstration of better methods of case-finding, treatment, rehabilitation, and intensive care, the Program places primary emphasis in this area of control. Two studies on the requirements and benefits of pulmonary rehabilitation for people disabled by emphysema and chronic bronchitis have been in progress for more than a year and early results are promising.

In one of these projects at the University of Colorado Medical Center in Denver, 100 patients have been treated for almost a year. At least two-thirds of them have improved dramatically in their ability to breathe. In addition, the number of patients requiring hospital care has dropped 60 percent, the number of days spent in the hospital has dropped 73 percent, and 24 percent of the patients have either returned to work or maintained their previous levels of productivity at an annual income gain of some $92,000. None of the treatment provided in this outpatient clinic, or the other at Mt. Sinai Hospital in Minneapolis, which has demonstrated similar results, is new or complicated. However, these services are not widely available in most parts of the country. The Program has also supported for 2 years three intensive care units for patients in acute respiratory failure, and is now devoting efforts to the analysis of data to determine the requirements and results of this intensive care.

Emphasis on long-term comprehensive care is continuing. The treatment of early, asymptomatic cases of disease may also provide clues for the possible arrest of emphysema. It is generally accepted that chronic

bronchitis will respond to early treatment, and in many cases treatment and cessation of cigarette smoking lead to a complete reversal of symptoms. The case for emphysema is not so clear, but the Program is attempting to determine the efficacy of treatment in early emphysema.

As these and other studies are carried through to completion, the Program is attempting to establish and promote guidelines for the application of findings in the community, thereby hastening the time between the development of knowledge and its use in the care and treatment of people afflicted with these diseases.

Training and Education

Throughout its short history, the Program has attempted to provide the latest scientific information to the medical and allied health communities through the publication of various reports and the proceedings of the Aspen Conferences on Emphysema. These efforts are continuing and have been intensified during the past year, as contractors have reported their activities at various medical meetings and through several articles in the scientific press.

During 1968, the Program has also intensified projects for the encouragement of specialized training, including the development of course content and short-term training curricula and the preparation of training aids. As was pointed out by the National Task Force on Emphysema and Chronic Bronchitis (sponsored by the Program and the National Tuberculosis Association) in October 1966, the need for strengthening pulmonary disease teaching in medical schools is critical. Because these diseases have only recently emerged as important causes of death and disability, medical school training programs have been unable to adjust their curricula to meet the need. Certain types of therapy must be administered or supervised by skilled paramedical staff, also limited in availability. The lack of services and facilities for the care and treatment of chronic respiratory disease patients throughout the country is directly related to the lack of trained personnel to staff these facilities and provide the necessary service. The program is directing efforts toward the training of both highly specialized personnel and toward updating the knowledge and practices of nonspecialist personnel.

An informed public is a vital and essential part of a disease control program. The Program has been a leader in familiarizing Americans with the dangers posed to themselves and their families by emphysema and chronic bronchitis. Through the public information efforts of the Program, people have been informed of the benefits of recognizing early symptoms, of seeking medical treatment, and of the various ways they can help themselves toward better health. Through the publication of a new guide for patients, "If You Have Emphysema or Chronic Bronchitis," it is hoped to extend this effort.

Other Areas - Bureau of Disease

Prevention and Environmental Control

In the National Center for Urban and Industrial Health, the Occupational Health Program budget covers about $1,227,000 yearly in direct operations and about $600,000 in research grants to study the prevalence and etiology of chronic lung disease associated with occupational factors.

The National Center for Air Pollution Control supports intramural and extramural research on the relationship of pollutants to chronic respiratory disorders.

It is believed that community and industrial air pollution are significant factors in the causation and, certainly, the aggravation of chronic respiratory disease.

National Institutes of Health

National Institute of Allergy and Infectious Diseases

A Search for Better Treatment

To provide hope and relief to those disabled by emphysema, research has been conducted in the early detection and treatment of the disease. Pulmonary function tests have been developed. Drugs and inhalation therapy techniques have been tested. Pilot rehabilitation centers have been established to train physicians, nurses, and technicians specializing in the treatment of emphysema patients. Investigators are probing the relationship between smoking and air pollution and emphysema.

Beyond Treatment to Prevention

The cause or causes of emphysema are not now known. At one time, it was considered a disease entity affecting only the alveoli, tiny air sacs clustered around the ends of the bronchial tubes deep in the lung tissue. However, some scientists now suspect that emphysema is actually a cluster of conditions possibly precipitated by a series of "insults" to one or more portions of the respiratory tract. These insults may be acute viral and bacterial infections, allergic reactions such as asthma and hay fever, or the inhalation of noxious agents such as cigarette smoke or the soot and fumes of urban environments. Other investigators believe that substandard living conditions and genetic factors may contribute to chronic obstructive respiratory disease conditions.

Deaths Under-reported

NIAID grantees at the University of Colorado Medical Center have maintained an Emphysema Registry for the past ten years in an effort to obtain data for testing the hypothesis that a number of different acquired disease conditions are involved in emphysema. In monitoring their Registry, the scientists have discovered that many deaths actually attributable to

emphysema and chronic bronchitis find their way into vital statistics records as deaths due to such associated conditions as pneumonia, heart failure, and sometimes stroke. In their recording of the nature and extent of gross and minute changes in the lungs, the Colorado investigators are now beginning to relate atrophy and thinning of airway walls to a physical flabbiness of the walls, which results in a ready collapse of the bronchial tubes on expiration. Their studies also include the location, nature, and degree of airway obstruction and the effect on total lung capacity.

Cigarette Smoking and Socio-economic Factors

At Harvard University and Boston City Hospital, scientists are describing the mechanism by which cigarette smoking may impair the protective processes of the lung and thus increase its susceptibility to microbial infection.

They are also evaluating the effect of socio-economic conditions on the progression of chronic progressive respiratory disease. Current indications are that the disease is more severe in lower social and economic groups.

Lung Damage and Lung Repair

Scientists at Duke University School of Medicine in Durham are pursuing the hypothesis that emphysema may represent an attempt by the lungs to repair alveoli damaged by infection, air pollution, allergic reactions, and genetic disorders of connective tissue.

The Duke grantees are using several approaches to explore lung damage and repair at the cellular and subcellular levels. They are attempting to characterize the response of respiratory tract cells when challenged by potentially injurious agents such as airborne contaminants acting in consort with microbial agents. To shed light on the process by which inhalated particles are cleared from the lower portions of the human lung, the scientists are studying the clearance mechanism of frog lungs. And they are conducting other investigations--primarily in patients with emphysema and chronic bronchitis--correlating measurements of pressures and flow in the lung with airway structures in an effort to explain why air movement becomes difficult in diseased lungs.

The cilia--tiny hair-like cell projections attached to the lining of the respiratory tract--are being examined meticulously for their role in chronic respiratory diseases. In their healthy state, cilia vibrate and, by their constant motion propel mucous and foreign matter (such as dust and pollen) toward the mouth where it can be removed by "clearing the throat". The Duke University studies indicate that clearance of this foreign matter is enhanced by water deposition, increased temperature, and breathing movement, and is reduced by drying.

Radioactive Gold Traced

Another team of scientists--working at Hektoen Institute for Medical Research in Chicago--are also studying lung clearance and the effects of microbial agents on the activity of the cilia. Disappearance of particles labeled with radioactive gold is being observed in normal subjects and in patients with chronic bronchitis and emphysema. Results are being correlated with bacteriological, virological, and immunological analyses of bronchial secretions and biopsy specimens.

Pulmonary Emphysema of Horses Simulates Disease in Man

At Yale University School of Medicine, scientists are assessing the role of viruses, mycoplasmas, and other microbial agents in the causation of emphysema. At a nearby VA hospital patients with emphysema are contributing to a study of blood specimens, waste products and, when possible, bronchial secretions.

Because of the anatomical similarity of the horse's lung to that of man--and because pulmonary emphysema of the horse (commonly known as the heaves) closely simulates emphysema in man--a preliminary investigation of this equine disease has been undertaken. In examining the lungs of horses exposed to urban environment and those living in rural areas, it was found that nearly all of the older horses examined had severe emphysema while the younger animals showed little if any evidence of the disease. Further studies are underway to try to determine whether viruses and other infective agents play any role in the causation of equine emphysema and bronchitis.

Pulmonary Function Studied

At the University of Utah College of Medicine, 150 patients with chronic bronchitis or emphysema are being studied to determine the relationship of age, sex, race, residence, and occupation to the diseases.

The Utah grantees have developed a complete Pulmonary Function Laboratory where patients in early stages of the disease are tested and followed over many years. Of particular interest is the role of infection in the natural history of the disease. Complete studies of lung functions are made periodically to correlate bacteriologic findings with the disease's progress. A technique called transtracheal aspiration makes possible withdrawal of secretions from deep in the lung to more thoroughly explore the events occurring in this vital segment of the organ.

Primary and Secondary Causes

Northwestern University investigators are using the same technique in an attempt to pin-point the principal and secondary factors in the progression of chronic obstructive lung disease. Studies are being conducted

with 25 patients and 5 control subjects who have pneumonia, using transtracheal aspiration to obtain secretions for bacterial, fungal, mycoplasmal, and viral cultures. A search is also being made for possible autoimmune hypersensitivity factors in the development of chronic lung disorders.

Infection and Immunity in Chronic Bronchitis

Similar microbial organisms found in the nose and throat are being investigated by scientists at the University of Vermont. Particular emphasis is being placed on an assessment of the protective role of immunoglobulin and antibody in respiratory secretions and serum. And the effects of antibiotic therapy and viral vaccines on the course of bronchitis are being evaluated.

A Community Under Continual Observation

Scientists of the School of Public Health at the University of Michigan for some years have been conducting health and disease investigations in a typical American community at Tecumseh, Michigan. In early studies (supported by the National Heart Institute), it was discovered that more than 10% of the population over age 15 (or 550 individuals) had chronic cough and sputum production, both common symptoms of chronic bronchitis. Now under NIAID support, persons with established or early chronic pulmonary diseases are followed intensively and their symptoms recorded weekly. If a change develops in an individual's usual state of health, specimens are collected to determine whether viruses or other microbial organisms are present. Working on the hypothesis that healthy relatives of emphysema victims are more likely to develop the condition than the general population, members of the family of patients with chronic pulmonary disease are also being kept under continual medical observation.

Smog and Lung Architecture

At the University of Southern California School of Medicine, scientists are evaluating the relationships between the individual components of smog in the Los Angeles area and the production of chronic bronchitis, emphysema, and certain virus infections.

Studies of mice exposed for several weeks to air containing different concentrations of nitrogen dioxide (NO_2) showed marked inflammatory changes in lungs and alteration in lung structure. When the animals were removed from the NO_2 atmosphere, the inflammation subsided but the lung architecture did not return to normal. The alveoli were enlarged and in some cases had ruptured walls, similar to the changes seen in emphysema of man. The USC grantees also found that animals with lungs damaged by NO_2 inhalation were more susceptible to airborne bacterial infections. Studies are continuing to determine what alterations in the lungs may be brought about by NO_2 and such virus infections as influenza.

Respiratory Tract Antigens Discovered

Scientists at Baylor University College of Medicine in Houston are seeking additional knowledge regarding the basic immunologic characteristics of the cells which line the respiratory tree. Their experiments led to the discovery of antigens (antibody-producing substances) which are unique to the respiratory tract. These antigens also have been found in the sputum of patients with various respiratory diseases. Current investigations involve the purification of these antigens and further study of antigens in the sputum of patients.

A Study of Three Races

Investigators at the University of Oklahoma Medical School are attempting to determine whether emphysema prevalence differs in three racial groups: Caucasian, Negro, and American Indian. This study is based in part on earlier reports that a deficiency of antitrypsin (a substance which inhibits the action of the pancreatic enzyme trypsin) is a genetic characteristic and is related to chronic obstructive lung disease. Also, the Oklahoma scientists are evaluating the presence of various organisms in the sputum in the development of obstructive lung disease.

Infectious Agents and Pulmonary Function

NIAID grantees at Washington University School of Medicine in St. Louis have undertaken a systematic evaluation of the effects of acute virus and mycoplasma respiratory infections on the pulmonary function of adults. Their hypothesis is that such infections cause temporary abnormalities in pulmonary function which persist beyond the acute illness and perhaps lead to chronic disease. Thus, what otherwise would be minor infections may prove serious in cases of chronic pulmonary disease because of the added burden of diminished pulmonary function. These studies are being conducted with 50 medical and nursing students and with 50 patients with chronic pulmonary insufficiency, using appropriate techniques for isolating viruses, mycoplasmae, and bacteria from throat swabs and stool specimens at regular intervals and during periods of acute respiratory infections.

Tears and Exhaust Fumes

At the Research Foundation of State University of New York in Albany, two studies are currently underway on lysozyme (a protein found in saliva, tears and many animal fluids) which acts as a bacterial enzyme.

In one investigation, the scientists are collecting tears from patients with chronic bronchopulmonary disease, for quantitative analysis of immunoglobulin content and lysozyme activity. Such information may lead to earlier diagnosis of these conditions.

The second study--a new approach to the subject of air pollution and tissue damage--involves the immunologic reactivity of certain nitro-olefins, thought to be important constituents of automobile exhaust fumes. The primary goal of this project is to observe the effect of inhalation of nitro-olefins in sensitizing guinea pigs and in producing lung disease.

Other Studies Continue

In addition to the emphysema research activities described above, the Institute also supports the following parallel investigations which may provide valuable leads to the knowledge of emphysema and other chronic obstructive disorders.

....A study at the University of Illinois on the relationship of repeated infections and the progression of chronic bronchitis.

....An appraisal by scientists at Louisiana State University on the impact of combined viral and bacterial infections on respiratory function.

....An evaluation by University of Pennsylvania scientists of the relationship between bronchiolitis (a disease in which the small bronchioles are destroyed) and allergic asthma.

One of the major problems confronting scientists seeking the cause of emphysema is the need for a laboratory animal model. Such an animal, living in a controlled environment, could be subjected to the same factors suspected of precipitating the disease in humans and the efficacy of various regimens for treatment and prevention could be evaluated. Steps toward this goal were taken in 1967 when the first interdisciplinary symposium on the subject was jointly sponsored by the Institute and the Division of Research Grants. Seventy scientists and physicians shared their knowledge and views as to natural and experimental animal models for the study of emphysema. Animals considered to warrant more intensive investigations were the "germ-free" rat, the horse, and the pig.

Intramural Research

Scientists at the Institute's Maryland and Montana laboratories continue to make important contributions to the search for knowledge about the role of viruses and other micro-organisms in chronic degenerative diseases. Recent reports from the NIAID laboratories revealed that when viruses attack the hair-like cilia projecting from the lining of the respiratory tract, the cilia lose their normal ability to propel foreign matter out of the tract. This inability, it has been suggested, may be one of the early steps leading to chronic obstructive respiratory disease.

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Bureau of Health Services

Division of Direct Health Services

This Division treats over 6,500 inpatients annually for pulmonary disease in its ten general hospitals. This represents approximately 14% of the patients treated in our hospitals. In addition, there are approximately 15,000 outpatient clinic visits annually for the treatment of emphysema and related chest disease in the ten general hospitals and 28 outpatient clinics.

Clinical services devoted to pulmonary disease are centered in three hospitals located at New Orleans, San Francisco, and Staten Island. These services are engaged in treatment, research and training activities related to emphysema and other pulmonary diseases. Each of these hospitals has an inhalation therapy clinic. Fifty-seven full-time health workers are engaged in the pulmonary disease programs. Some of the research activities being conducted are:

1. The effects of heat stress on pulmonary and bronchial circulation.

2. The evaluation of the efficacy of drugs on pulmonary disease.

3. The use of radioisotopes for improved diagnosis of pulmonary disease.

4. Early detection of abnormal pulmonary function by means of computerized testing system.

Additional activities include health education programs for patients and employees on smoking and its relationship to disease. The Staten Island PHS Hospital is currently developing a similar community-wide education program. A Cooperative Pulmonary Rehabilitation Service is planned which will involve the PHS New Orleans Hospital, Tulane University, and the PHS National Center for Air Pollution Control.

In addition to the three hospitals with specialty services, the other seven PHS general hospitals are engaged in pulmonary disease research. Areas of study include: (1) improved treatment methods for chronic bronchitis, (2) pulmonary physiology, (3) improved diagnostic methods, and (4) epidemiological studies of pulmonary diseases.

A Look to the Future

Many complex questions remain to be answered. Prevention of emphysema will require the efforts and support of scientists, medical educators, public health officials, Government leaders, and the American people.

ARTHRITIS

The National Health Survey estimated that 13 million Americans suffer from some form of arthritis. The National Health Examination Survey estimated that 40 million citizens have radiologic changes of osteoarthritis and 3.6 million have rheumatoid arthritis. While "arthritis" includes an array of disease processes, the major and prevalent forms are rheumatoid arthritis, osteoarthritis and gout.

Current losses to the economy as a result of arthritis are estimated at $3.6 billion annually. The costs of social and emotional problems resulting from arthritis cannot be estimated. However, social problems arise when the arthritic is unable to maintain his usual level of activity on the job and in the home. His progressive inability to work, and later, to care for himself, causes him to depend on others for the necessities of life. He ceases to consume some community services while placing an increased burden on others. Beyond these dislocations, he suffers severe, prolonged pain and deformity.

The Public Health Service has programs to combat this disease in two areas. The National Center for Chronic Disease Control carries out programs in epidemiology, therapeutic approaches to the disease and education of health professionals and the public. The National Institute of Arthritis and Metabolic Diseases conducts research on arthritis in its own laboratories and supports research projects at centers throughout the country. These activities of the Public Health Service are discussed below.

National Center for Chronic Disease Control

EPIDEMIOLOGY

Before curative or primary preventive measures can be developed for arthritis, more information regarding the influence of environmental and hereditable factors in the etiology of rheumatic disease is essential. The effective application of currently accepted treatment for the prevention of crippling and disability from arthritis requires that we develop a better understanding of the factors that influence the course of these diseases. Once these factors are uncovered, criteria for the diagnosis and prognosis of rheumatic disease will become more meaningful.

The long term community based study at Sudbury, Massachusetts is continuing its operations. Data are expected in the near future which may result in improving diagnostic criteria for rheumatoid arthritis.

An investigation into the influence of genetic factors in the etiology of rheumatoid arthritis and gout is well underway in Connecticut. Extensive studies have been completed on thirty-two sets of twins participating in this study.

A study has begun in the District of Columbia which is designed to determine the progression of rheumatoid arthritis and gout in a population of patients who attended a clinic which closed six years ago and will now be reopened. Patients will be contacted, interviewed, examined, and their current clinical status will be compared to their previous records. Data will be collected regarding what care, if any, patients received in the interim. When the study is completed, we may have more insight into the natural history of the arthritides and the relative effect of different treatment programs. As a by-product, we will learn what an indigent population does to secure medical care when a clinic is closed.

THERAPEUTIC APPROACHES

Arthritis is an expensive disease. The combined cost of professional services, hospitalization, drugs and equipment imposes an economic hardship on the individual, his family, his community and the nation. We face the twofold problem of developing the means by which effective comprehensive care can be delivered to more people at lower cost while developing and refining other therapeutic modalities. The applied research program of the NCCD is designed to provide answers for these problems.

Two approaches to effective, economical comprehensive care for arthritics are currently being tested. "Midway House" is an intermediate care facility designed to treat patients who do not require all the services of an acute hospital at substantially lower cost than at a rehabilitation center. Preliminary experience supports this thesis. A day care rehabilitation program at the Coney Island Maimonides Hospital Center is testing the hypothesis that an in-patient facility's capacity can be substantially increased by modest increases in professional staffing. The protocol requires that all patients qualify for admission to the hospital, but that one half, randomly selected, be treated during the day only, and return home each evening. The clinical and psychosocial progress of both groups will be compared to determine if the "day care" group improves as much or more than the hospitalized group of patients.

Intramuscular gold salts and synovectomy have been used for some time in the treatment of rheumatoid arthritis. Nevertheless, there is considerable controversy regarding their efficacy. Studies are underway to elucidate the effectiveness of these approaches and to determine which patients will benefit most from them.

Gold salts have been in use for thirty years. While controversy exists related to its effect on rheumatoid arthritis, there is a reasonable possibility that it exerts a specific action on factors causing or continuing rheumatoid arthritis. A careful investigation into the effect of gold is now ready to begin in California. The investigator will utilize the latest knowledge and techniques for measuring gold levels in serum and tissue and evaluating the clinical

progress of patients. Hopefully, this study will demonstrate methods by which gold therapy can be made effective in more rheumatoid arthritics than was previously possible.

Early synovectomy is a promising approach toward reducing crippling and disability from rheumatoid arthritis. Although widely used, there is no reliable information about its efficacy compared to conservative medical management. A project supporting the development of a protocol and forms for a prospective study of the merits of synovectomy is now near completion. Multicenter trials using this new protocol will begin this year.

PROFESSIONAL EDUCATION

While accurate data are not available regarding the numbers of health professionals skilled in arthritis management, there is no doubt that personnel are in short supply and that there is a critical need for more effective training techniques.

A new concept in physician training was instituted last year. Local general practitioners, with no university medical center affiliation, spend three half days a week for 12 weeks in the ongoing training program of a rheumatology department in a medical school. Time is spent in the clinic, on the wards and in laboratories and classrooms of the rheumatology section. This pilot effort is limited to four physicians in each of three sessions. The first group has completed their training. Written and practical tests show they have markedly improved their skills in treating rheumatic diseases. An educational psychologist is performing an evaluation of the program to learn what kinds of doctors benefit most from this training approach. A later evaluation is planned to determine how much knowledge is retained and used in daily practice.

Other professional training programs include a Splinting Workshop in Florida and a Refresher Course for Physical Therapists in New York.

A splinting workbook now under development will demonstrate the use of the newest materials available for static and dynamic splinting. This workbook will be useful at both undergraduate and graduate levels to a variety of health professionals.

Work is now underway to develop a set of clinical teaching slides depicting the rheumatic diseases, their progression and the results of therapy. These slides will also be suitable for a wide range of health professionals at graduate and undergraduate levels.

PUBLIC EDUCATION AND INFORMATION

The lack of public understanding of arthritis, its course, treatment and prognosis frequently leads affected individuals to fraudulent, misrepresented treatments and "cures." An estimated 300 million dollars a year is spent by arthritis victims on misrepresented and quack remedies.

More important than the money lost to quackery is the loss of valuable time by patients in getting to competent medical care, since we know that early diagnosis and treatment significantly reduce the chance of future crippling and disability from arthritis.

A twenty minute animated color motion picture designed for lay audiences is near completion. The film discusses rheumatoid arthritis, osteoarthritis and gout, stressing probable causes and acceptable treatment programs. Moreover, particular attention is paid to the false hopes and later disappointments resulting from quack "cures."

Plans are underway for the development of a survey to determine the characteristics of a population seeking misrepresented and quack remedies. This information will serve as one basis for later action programs against fraudulent, misrepresented treatments for arthritis.

ARTHRITIS CENTER PROGRAM

A cost effectiveness analysis of the arthritis problem in the United States had indicated that an investment in a developmental program of arthritis centers would generate significant medical and economic benefits. This arthritis center and satellite facility program is designed to: 1) develop and evaluate means for providing exemplary care for arthritics, 2) train clinical fellows, practicing physicians and allied health professionals for rheumatic disease competence, and 3) organize and prosecute goal-directed clinical and epidemiologic research. The population served by this program will be assayed for an "increase in productive years" as an indicator of program accomplishment. More important than any increase in productive years in that population, however, will be the development of the capability to deliver similar benefits to all arthritis patients. We anticipate that we can initiate this program in 1969.

MISCELLANEOUS

Different States have different problems in health care generally, and arthritis care particularly. Many factors including the geographic distribution of the population, the average age of the population, the availability of specialized medical care personnel and/or facilities and the availability of active community agencies contribute to these

differences. Two statewide Governors' Conferences on Arthritis (California and Arizona) were held last year. Effective action will, of course, be the ultimate measure of success of such conferences. Preliminary evaluations, however, show this to be an effective way of bringing the necessary agencies together to develop a coordinated approach toward arthritis problems locally. Enthusiasm generated by these meetings has resulted in requests for NCCD technical advice and assistance in nine other States, equally eager to assess their own problems and develop a plan for attacking these problems.

A contract recently completed in Oklahoma will aid practitioners in tailoring specific home therapy programs for arthritis patients. This group developed 150 home therapy reminder pads which allow the doctor to select those exercises and/or activities required by individual patients. These gummed pads are pasted into booklets designed to accommodatethem. The booklet also contains valuable general information about physical medicine in the treatment of rheumatoid arthritis. Physical therapists are in short supply; this new approach will enable each physical therapist to supervise the therapeutic program of many more patients.

National Institute of Arthritis and Metabolic Diseases

An organized attack on arthritis and rheumatism is being waged by the National Institute of Arthritis and Metabolic Diseases (NIAMD), which conducts intramural research and supports relevant projects at research centers throughout the country. The purpose of this report is to outline briefly some of the major research accomplishments reported by Institute investigators and grantees during the past year.

Rheumatoid Arthritis

Two theories regarding the cause of rheumatoid arthritis have received the most attention during the past few years. One is the concept of autoimmunity, which contends that the body, for some unknown reason, produces abnormal antibodies that are directed against its own tissues (the joint lining) rather than against any foreign material, as is normally the case. Part of the evidence supporting this concept is the abnormally high level of gamma globulins (antibodies) in the blood of rheumatoid arthritis patients. The characteristic "rheumatoid factor," a complex protein found in the blood and joints of most patients with this disease, also closely resembles an antibody.

The other theory is that this disease may result from an infectious process. This might tie in with the autoimmunity concept, because it could be an infectious agent which induces pathological changes in joint tissues; these altered tissues, in turn, could stimulate the production of antibodies which are directed against them. Although no causative organism has yet been definitely incriminated there is some evidence pointing towards at least two types of microorganisms.

Last year it was reported that grantee investigators at the University of California produced arthritis in monkeys by injecting them with Bedsonia viruses isolated from human patients with Reiter's syndrome, a disease related to rheumatoid arthritis. The Bedsoniae are large viruses which resemble bacteria in some respects. This promising lead is being pursued intensively to determine if these organisms do indeed contribute to the development of Reiter's syndrome. The studies have been expanded in an attempt to evaluate the incidence of infection with Bedsoniae in man. Specimens from every type of arthritis patient who undergoes surgery at the University of California Medical Center are being studied, along with autopsy specimens from patients who did not have arthritis. More extensive animal studies are also underway. This work may have long range application to a broad spectrum of diseases, including rheumatoid arthritis.

Mention was also made in last year's report of an Institute-sponsored conference to explore the possible relationship of the mycoplasma, another type of microorganism, to rheumatoid arthritis and related diseases. The conference pointed out the need to learn more about this organism itself, which lies somewhere between bacteria and viruses in size, in other properties, and in biological behavior. Also identified as areas needing further investigation were the methods for identification and culture of mycoplasma, and the study of chronic animal infections with mycoplasma that may have bearing on the problem, particularly in primates other than man. Research in these areas has been intensified during the past year, and cooperation between investigators working in the field has been improved by the conference. Hopefully, further research will clarify what role, if any, the mycoplasma play in causing rheumatoid arthritis.

Diagnosis of Rheumatoid Arthritis

Examination of fluid in the joint cavity has aided greatly in diagnosing certain rheumatic conditions and has led to a better understanding of the development of some joint diseases. A grantee investigator at Georgetown University has reported finding particles of the complex genetic material, deoxyribonucleic acid (DNA), consistently in the synovial fluid of rheumatoid arthritis patients. This discovery may prove useful in confirming the diagnosis of rheumatoid arthritis. It is not known where the DNA particles originated, but further studies are being conducted to determine their origin, nature, and significance.

Another finding pertinent to the diagnosis of rheumatoid arthritis was reported by grantee investigators at the Mount Sinai Hospital and Medical School in New York. Since most patients with this disease have the rheumatoid factor in their blood, the identification of the factor is an important diagnostic measure. The tests most commonly used employ latex or bentonite particles suspended in a solution. The particles are coated with antigens which, in the presence of the antibody-like rheumatoid factor, cause a visible clumping phenomenon which can be quantitated. The investigators successfully substituted an activated charcoal for latex as the carrier particle. The advantages of charcoal over the previous carriers include its stability, low cost, ease of use, and lack of special storage needs. Since the charcoal adsorbs almost instantly a wide variety of antigens or antibodies, it should also be useful in studying numerous other immunologic reactions, and, in fact, has already had wide application in this area.

Arthroscopy Found Effective in Joint Disease Examination

An Institute-supported investigator at the University of Vermont has reported success with a new technique which may have important value in the diagnosis of rheumatoid arthritis and other joint diseases. Using an arthroscope, a slender, sharpened and hollow instrument which is inserted into the joint space through a small incision, they have achieved 100 percent success in obtaining adequate tissue for histologic examination of the intra-joint structure without resorting to extensive, and potentially dangerous, surgery.

Inasmuch as present methods of studying intra-joint structures have not been completely satisfactory, the investigator recommends adoption of arthroscopy since the technique requires only superficial surgery, provides adequate data for differential diagnosis, and may be used for assessing response to treatment. A completely flexible instrument is now being developed by the grantee scientist which, when perfected, will facilitate visualization and biopsy of the hip joint as well as of additional structures within the knee.

A Study of Corticosteroid Therapy

The synthetic equivalents of certain hormones secreted by the adrenal gland have an important place in the treatment of properly selected cases of rheumatoid arthritis. Although corticosteroid drugs do not retard progression of the disease itself, they suppress its overt signs and improve the patient's functional capacity for long periods of time. These drugs, however, often have troublesome and potentially serious side effects such as peptic ulcer, the masking of infection or activation of certain types

of infection, and psychoses. An Institute-supported investigator at Henry Ford Hospital has obtained concrete evidence from a study of rheumatoid arthritis patients treated with corticosteroid agents confirming the suspicion that these drugs favor the development of osteoporosis, or bone demineralization.

In this investigation, quantitative measurements were made of bone tissue and cell dynamics in 11 patients with rheumatoid arthritis who had received corticosteroid drugs continuously for periods ranging from 2 months to 12 years. Compared with normal control subjects of the same age, the number of sites of new bone formation was reduced by one half, while bone resorption sites were about one and a half times normal. Since previous studies had shown the same types of alterations in non-arthritic patients receiving corticosteroid agents, the changes can be attributed to the drug, rather than to the disease. Findings such as this increase scientific knowledge of the long-term effects of corticosteroid administration, and lead to the formulation of sounder treatment principles.

Gouty Arthritis

Investigators at the Institute have made significant progress during the past year in clarifying the nature of gout, an inherited metabolic disease that results from deranged metabolism of purines, building blocks of the body's heredity mechanism. Uric acid, a breakdown product of purines, accumulates in the blood and body tissues of gouty individuals either because of overproduction of this potentially harmful metabolite or because of difficulty in excreting it via the urine. When uric acid accumulates in the form of urate crystals in the joints, in many cases in and around the big toe, the result is often an excruciatingly painful attack of gouty arthritis.

Institute scientists have found that excessive production of uric acid in a number of gout patients is associated with an enzyme defect. This finding is closely related to results of studies of the Lesch-Nyhan syndrome, a tragic neurological disease of young males that in the past was frequently classed as a form of cerebral palsy. Children with this disorder appear normal at birth, but fail to achieve normal development, showing instead mental retardation, uncontrollable movements of the hands, and eventually compulsive self mutilation of the fingers and lips. The Institute-supported investigators who first identified this curious neurological and behavioral disorder associated it with a biochemical abnormality. They found that these children produced six times more uric acid than normal for their body weight and much more than any other human being. Then Institute scientists began to investigate this disorder with the hope

that discovery of the biochemical basis for the excessive uric acid formation in these children might provide leads to the primary biochemical derangements responsible for excessive uric acid formation in gouty patients as well.

In nine months of investigation with Lesch-Nyhan patients, these Institute scientists identified the primary enzyme defect in these children. An enzyme normally found in red blood cells and in many other tissues which is involved in the metabolism of purines, hypoxanthine-guanine phosphoribosyltransferase (PRTase) is deficient in, or absent from their cells. When the activity of this enzyme is impaired, xanthine and hypoxanthine (forerunners of uric acid) are not metabolized in the normal fashion and tend to accumulate in toxic concentrations, as is uric acid. Ordinarily, this enzyme's highest activity is in the brain, especially in basal ganglia. Since the affected children's major neurological symptoms indicate dysfunction of basal ganglia, a cause and effect relationship is suggested.

As anticipated, discovery of the primary defect in the Lesch-Nyhan syndrome provided new insight into the metabolic derangement in some patients with gout as well. When the investigators determined PRTase activity in blood cells from gout patients who produce excessive quantities of uric acid, they found that there was a markedly diminished activity of this same enzyme in a surprising number of patients. Furthermore some of the gout patients (those with the least amount of enzyme activity) also showed evidences of a neurological disease that had not previously been recognized as being related in any way to their gout. These studies provide evidence that at least one type of gouty arthritis may be the end result of a specific enzyme defect which results in excessive amounts of uric acid in the blood.

Action of Colchicine Clarified

Colchicine, a drug derived from meadow saffron, has been used very effectively for centuries in the treatment of gouty arthritis. The patient's positive response to this drug is so clear-cut and dramatic, in fact, that it has diagnostic as well as therapeutic value. How colchicine acts to suppress gouty inflammation, however, has been one of the mysteries of medicine. Institute-supported investigators at Yale University School of Medicine recently conducted a study which may explain one aspect of its action. Their study showed that colchicine diminishes the increased oxygen intake usually associated with phagocytosis in white blood cells (the defensive engulfing of foreign particles by body cells) without interfering with phagocytosis itself. In addition, the formation of digestive vacuoles in these cells is impeded, and less acid phosphatase, an important enzyme with tissue-digesting potential, is released from cell granules where it is normally stored. The study indicated that the drug acts to maintain the integrity of lysosomes, intracellular particles which contain powerful, tissue-digesting enzymes which, when released from their "envelopes,"

flood surrounding tissues, triggering inflammatory reactions. The investigators suggest that these actions of colchicine may reduce tissue injury and subsequent inflammation when the gouty patient's white blood cells engulf crystals of urate which are found in his joints, thus perhaps accounting for one anti-inflammatory effect of the drug in gouty arthritis.

Reiter's Syndrome

Reiter's syndrome, mentioned earlier in this report, consists of the triad of urethritis (inflammation of the urethra), arthritis and conjunctivitis (inflammation of the delicate membrane that lines the eyelids and eye socket). The diagnosis of this disease is fairly simple when all three are present, but in the absence of urethritis it is difficult to distinguish the disorder from rheumatoid arthritis. Investigators at Georgetown University who are receiving grant support from the Institute studied joint fluids from patients with Reiter's syndrome and discovered two distinctive features. The first was a level of hemolytic complement higher than that found in other types of joint disease. Hemolytic complement is a complex protein substance which has the ability, in cooperation with other elements such as antibodies, to combine with and neutralize or destroy foreign materials. The elevated complement levels appeared to be directly related to the severity and duration of joint inflammation.

The other distinctive feature was the presence of macrophages (large wandering scavenger cells) containing intact white blood cells. The investigators suggest that these unique macrophages may represent an early response to the provocative factor, or factors, responsible for the acute arthritis of Reiter's syndrome. It is believed that these two unusual findings may clearly distinguish Reiter's syndrome from those arthritic disorders which it might mimic. Thus new, useful measures have been suggested as aids in the differential diagnosis of difficult cases of arthritis.

Scleroderma

A chronic disease of connective tissue, scleroderma results in hardening and thickening of the skin and underlying tissue. Internal organs such as the heart and lungs may be involved in a similar manner. The skin changes may cause muscles to atrophy and contract, which limits joint motion, resulting in joint deformity and inflammation.

Although the cause of this disease remains unknown, grantee investigators at the University of Texas Southwestern Medical School have detected a distinctive abnormality in skeletal muscle capillaries of scleroderma patients which may play a role in its development. They obtained biopsies of thigh muscle tissue from eight scleroderma patients, from 48 patients

with rehumatoid arthritis, systemic lupus erythematosus, and pulmonary tuberculosis, and from 18 normal individuals. The specimens were then examined with the electron microscope, and a minimum of 18 consecutive blood vessels from each specimen were photographed.

An abnormality consisting of a laminated appearance of the capillary basement membrane was found in all specimens obtained from the scleroderma patients, 65 percent of all capillaries being involved. In addition, in scleroderma patients the number of blood vessels of all sizes was decreased to about half of normal, their average diameter was increased, and the number of capillaries was markedly decreased. The investigators believe these variations reflect the loss of typical capillaries, leading to a relative increase in the size of intermediate sized blood vessels. It is still not known what causes these changes, but the findings suggest that scleroderma may develop as the result of underlying blood vessel abnormalities. The nature of the disease suggests that such abnormalities may indeed be responsible, but further studies of this phenomenon will be required to establish whether or not there is such a relationship.

Psoriatic Arthritis

Arthritis affects 8 to 10 percent of patients with psoriasis, a fairly common skin disease characterized by white scaly areas overlying patches of thickened red skin. The arthritis associated with this disease generally becomes worse or improves depending upon changes in the psoriasis. There is no known cure for the skin disorder, and current methods of therapy - ointments, ultraviolet irradiation, corticosteroid agents, and anti-cancer drugs - are only variably and usually temporarily successful.

Preliminary studies by a grantee investigator at the Mt. Sinai Hospital and Medical School in New York have now shown that a diet low in tryptophan, an essential amino acid, might ameliorate this common skin disease. The diet, which features white turkey meat twice daily (it is one of the few animal protein sources with a low tryptophan content), was given to four patients who had suffered from extensive psoriasis for one to 20 years. Within two weeks, all four patients showed moderate to striking improvement. When a regular diet was resumed in two of the patients, psoriasis recurred. Before the dietary treatment, skin biopsies in two patients showed characteristic psoriatic changes, but after 17 to 20 days on the diet, their biopsies were normal.

The investigator suggests that the low-tryptophan diet may control psoriasis in one of two ways. This amino acid or a closely related substance may play a causative role in the disease. Or, a more tenable explanation at present is based on the fact that psoriatic skin cells

multiply much faster than normal skin cells, and consequently may require larger amounts of essential amino acids, such as tryptophan, to thrive. Tryptophan deprivation, therefore, could retard such rapid cell growth. Studies are underway to clarify the role of this amino acid in psoriasis and to continue evaluation of the low-tryptophan diet.

Polymyalgia Rheumatica

Polymyalgia rheumatica is characterized by widespread pain in muscles and tissues surrounding the joints, stiffness and tenderness, fatigue and weight loss. The condition responds readily to treatment with corticosteroid drugs. After studying this disorder in two patients, grantee investigators at the University of California School of Medicine warn that it may be associated with the presence of giant-cell arteritis, a condition characterized by inflammation of the temporal artery, at times leading to sudden blindness. Before the correct diagnosis is established, such patients are usually studied exhaustively for the presence of other diseases, especially intracranial tumors which could explain the patient's eye symptoms. Both the blindness and the tedious diagnostic studies might be avoided, the investigators assert, if the possibility of this disease were considered and a biopsy of the temporal artery performed. If the characteristic inflammatory changes in the artery are found, prolonged therapy with large doses of corticosteroid drugs may be successful in averting blindness.

Synovial Fluid in Rheumatic Disorders

As evidenced in previous sections of this report, synovial fluid, the sticky lubricating substance present in joints, has been the subject of much fruitful study during recent years. Many chemical components of this fluid have been investigated, resulting in new information about various disorders that affect the joints.

An Institute-supported investigator at Albert Einstein College of Medicine recently detected a new component in human synovial fluid which is believed to be a degradation product of joint cartilage. The component appears to be heavily concentrated only in acutely inflamed joints, such as gouty and septic arthritis, lupus erythematosus, and acute rheumatic fever. This suggests that acute episodes of joint inflammation promote the release of this material from joint cartilage into synovial fluid. It is hoped that by comparing the amount, chemical composition, and turnover of this material in normal and inflammatory synovial fluids, insight might be gained into the effect of inflammation on the metabolism of human joint cartilage.

Outlook

Medical science's attack on the debilitating group of diseases known as arthritis and rheumatism is continuing with increased vigor. Recent research conducted or supported by the National Institute of Arthritis and Metabolic Diseases has yielded many new findings which are leading to better understanding and management of these conditions. The findings mentioned in this report do not indicate the total effort, but they summarize descriptively the variety and efficacy of the Institute's stimulus to rheumatological investigation.

STROKE

Stroke, or cerebrovascular disease, takes about 200,000 lives each year in the United States, and an estimated two million Americans living today have suffered one or more strokes. Exceeded only by heart disease and cancer as a killer, stroke may well equal either of these as a cause of long-term illness and dependency -- 30 to 50 percent of stroke survivors are residing in nursing homes or chronic disease hospitals. Its economic cost is more than one billion dollars a year in medical and nursing care and loss of earnings; its social cost is impossible to evaluate.

Although the immediate cause of stroke can often be simply explained as stoppage or obstruction of blood flow to the brain so that cellular nutrition ceases and control centers of the nervous system cease to function, cerebrovascular disease presents an extremely complex set of medical and scientific problems. Scientists trained in at least a dozen branches of biology, as well as physicians skilled in clinical practice must work closely together if cerebral cellular metabolism, the dynamics of blood flow in the brain, the effects of drugs, and many other processes are to be well enough understood for man to intervene and prevent or cure the disorder.

Programs of the Public Health Service in the field of cerebrovascular disease, carried on in the National Institute of Neurological Diseases and Blindness and the National Center for Chronic Disease Control, are discussed below.

National Institute of Neurological Diseases and Blindness

Centers

Since 1961 the Institute has sought to encourage the team approach by establishing cerebrovascular research centers in leading universities and hospitals across the country. There are now 16 of these supported by NINDB (a 17th is supported by the National Heart Institute), some staffed by as many as 15 to 20 scientists and physicians, plus technicians and other assistants, and each concentrating on one, or several closely related areas of study.

Project Grants

In addition to the broadly targeted work of the cerebrovascular research centers, about 90 research projects are being conducted with Institute support. These range from basic laboratory studies in such fields as neurophysiology and biochemistry to clinical investigations of drug effectiveness and the improvement of diagnostic devices and techniques.

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Cooperative Studies

Another promising approach to the problem of stroke is through cooperative statistical studies, because of the large amount of data that can be collected and analyzed through the combined efforts of a number of institutions. The Institute has been supporting a Cooperative Study of Intracranial Aneurysms and Acute Subarachnoid Hemorrhage among 24 university-based centers here and abroad since 1958. Preliminary data on 6,368 cases have been published, and analyses are in progress.

With the discovery and utilization of effective antihypertensive drugs has come a decrease in the number of people dying of strokes. The Institute is funding a cooperative study at eight institutions of hypertensive patients showing signs of cerebrovascular disease in order to learn the degree of protection these drugs afford, and to determine whether differences exist among hypertensive drugs as to the amount of stroke protection afforded.

Training

Accurate diagnosis and proper management of strokes require highly trained neurologists. Since its establishment in 1952, the NINDB has allocated about 25 percent of its resources to enlarging the pool of men trained for teaching and research, but the number of workers in the field of stroke is still far from adequate. Last year, training efforts were expanded, with the organization of cerebrovascular training programs in several universities, and the extension of short-term support for training of medical practitioners seeking to keep abreast of developments.

Communication

The improvement of communication in the stroke field has been an important program goal of the Institute. Scientific conferences, both on specific aspects of the problem, such as aphasia, rehabilitation, and others, as well as meetings on the broad topic of stroke have been sponsored. The sixth in a series of biennial conferences on stroke was held in January of this year at Princeton, New Jersey. Also, a workshop for the scientific directors and staffs of the cerebrovascular research centers was held in San Diego in February.

Another aid to communication supported by the Institute is a cerebrovascular reprint service providing a monthly package of reprints of stroke articles appearing in medical journals. Also, a Cerebrovascular Bibliography has been published and distributed regularly since 1961. This publication, prepared with the assistance of the National Library of Medicine, consists of a selection of cerebrovascular and related listings from the Library's Index Medicus, and provides a continuing index of recent research in the field.

Joint Council Subcommittee

Probably the most important stimulus to stroke research and training has been the Joint Council Subcommittee on Cerebrovascular Disease. This group, composed of members of the National Advisory Councils of both NINDB and the National Heart Institute, and consultants for specific areas, has coordinated, in large part, the development and implementation of the whole program.

Research Advances

Although cerebrovascular research is still in an early stage of development, some noteworthy advances are being reported.

At the Institute in Bethesda, for example, increasing emphasis has been placed upon spinal cord vascular diseases which have been neglected as a cause of neurologic deficit in the past. Better techniques for visualizing the arteries supplying the spinal cord, improved diagnosis of spinal cord vascular insufficiency, and therapy for it were achieved within the past year.

One of the needs in stroke research is a means of measuring blood flow in aortocranial vessels under varying conditions. In the past, all studies of cerebral circulation, both in animals and man, have been done with the subject motionless and often under general anesthesia. A new ultrasonic flowmeter can now be implanted, and free-ranging animals can be studied. This will provide a much better understanding of the moment to moment variations brought about by changes in activity.

Institute grantees seeking useful drugs for treatment of cerebral embolism, a type of stroke, have found that intravenous injection of atropine in dogs can reverse the reduction in pulse rate, blood pressure, and cardiac output brought about by embolism, and have suggested possible use of the drug in humans for this purpose.

Surgeons are continuing to refine a new technique for thrombosing aneurysms--ballooned weak spots in arterial walls. The technique involves injection of iron particles into the aneurysms and holding them in place with magnets until thrombi form and close the opening.

Significant advances have also been reported during the year in better defining stroke proneness, in the study of the vascular anatomy of the brain, and in improvement of cerebral hypothermia. These and many other projects offer new hope for victims of this crippling disease.

National Center for Chronic Disease Control

The Heart Disease and Stroke Control Program has recognized the importance of stroke and for the past eight years has maintained a separate administrative section devoted to work in this field. This Section of the Heart Disease and Stroke Control Program has supported a number of studies, surveys, conferences, rehabilitation programs, and publications in the field of cerebrovascular disease. Important among these numerous activities are the following achievements:

(a) Studies supported by this Program have yielded the most valid statistics on the incidence of stroke to date.

(b) Studies on the geographic distribution of stroke mortality in the United States have pinpointed the Rocky Mountain States as having very low rates of stroke and the States in the Southeastern United States as having very high rates of stroke.

(c) More than 25 community or State-wide stroke rehabilitation programs have been supported through the granting of monies, and the training of professional medical and paramedical personnel to assist communities in the development of comprehensive stroke rehabilitation programs.

(d) Guidelines and booklets have been published to assist physicians in the every day care of the stroke patient. Among these, "Up and Around" and "Strike Back at Stroke" have been highly successful.

(e) A long-term study of a retirement community in California has disclosed among other things that cardiac arrhythmias are a definite risk factor in the development of stroke.

A National Stroke Registry system is being inaugurated in seven communities in the United States. These registries will determine the prevalence, incidence and outcome of stroke in the communities studied, and will provide data necessary to properly assess the needs of stroke patients and also give clues as to possible etiologic and risk factors.

In light of the high case fatality rate for stroke and the lack of knowledge concerning the possible prevention of some of these deaths, the program is supporting, by contract and with field assignees, a project in the intensive care of the acute stroke patient at St. Francis Hospital in Pittsburgh, Pennsylvania. This study utilizes an intensive care unit, around the clock nursing and physician coverage, and special training courses for nurses in an effort to determine the factors contributing to the high death rate from stroke.

The cost of rehabilitating the stroke victim is high and the benefits derived from such specialty services remain virtually unknown.

In order to gain a better understanding of this complex problem, a long-term study of the effects of different types of facilities is underway in Pittsburgh, Pennsylvania and Alameda County, California.

There is a need to increase the number of community studies directed at the following:

(a) To obtain more precise and complete knowledge of the nature, extent and natural history of stroke, including the identification of factors and diseases associated with the onset and progression of stroke.

(b) To obtain more precise knowledge of specific risk factors involved in the onset and progression of stroke, including methods for their detection.

(c) To develop improved programs for identifying the stroke-prone individual, those with early disease, and stroke patients at high risk of morbidity and mortality.

(d) To define the elements of optimal preventive, care, and rehabilitation services, including the development of specific programs to alter risk factors and evaluate their short and long-term benefits.

(e) To develop, test and evaluate programs of coordinating community resources in order to provide comprehensive primary, secondary, and tertiary preventive services through application of current useful knowledge in detection, risk factor alteration, diagnosis, acute management, and rehabilitation.

DIABETES

A complex disorder, for which there is no known cure, diabetes ranks seventh on the list of diseases that cause death in the United States. It affects individuals predisposed to the disorder by their hereditary background. As a result of the body's inability to metabolize carbohydrates normally, the diabetic is inefficient in converting carbohydrates into the stored form, glycogen, or into heat and energy required for normal body functions. The carbohydrates, converted into glucose, accumulate in the blood and are excreted in the urine. As the disease progresses, abnormal carbohydrate metabolism becomes associated with a noticeable derangement in the metabolism of fats and proteins.

In its severe form, untreated diabetes rapidly progresses to a grave metabolic disorder, called keto-acidosis, which may result in coma and death unless controlled by insulin administration and general supportive therapy. In its less severe form, diabetes may also result in accelerated degeneration or "hardening" of the arteries, and, thus, in a greatly decreased life expectancy. Although the disease can be fatal unless properly treated, in most cases it can be well controlled. Today, with proper treatment, most diabetics can lead a normal life and live almost as long as their fellow human beings. Despite good control of clinical symptoms, however, and the usual ability to hold in check the abnormal blood sugar level, the long-term complications of diabetes, primarily those affecting blood vessels, peripheral nerves, kidneys, and the eyes, all too often develop relentlessly.

National Institute of Arthritis and Metabolic Diseases

During the last decade, diabetes research has passed through a phase in which important advances have been made in therapy, notably development of the oral drugs for better blood sugar control in older diabetic patients. Currently, investigators are placing emphasis upon studies of a more fundamental nature which should yield information leading to a better understanding of the underlying cause of the disease.

Dr. Rachmiel Levine, president of the International Diabetes Federation, recently singled out four major research areas which require thorough exploration by diabetes investigators: (1) The specific genetic factor that makes some individuals more susceptible to the disease than others, and the environmental and other as-yet-unknown factors that appear to bring out overt diabetes in predisposed

individuals; (2) Epidemiologic data; comparative studies of various population groups in which metabolic deviations can be evaluated with other factors; (3) The mechanism of insulin secretion and action; its impairment as a result of physiologic, chemical, endogenous or exogenous inhibitors or antagonists, and (4) Obsesity as a causal or contributory factor.

It is largely in these specific research areas that scientists of the National Institute of Arthritis and Metabolic Diseases (NIAMD) and Institute-supported investigators have made, and are continuing to make, the most significant progress. Adding impetus to ongoing diabetes research projects is the knowledge that there are about four million diabetic patients in this country, as well as an additional five million Americans now living who may develop the disease during their lifetime.

Effect of Gastrointestinal Hormones

Evolving knowledge of the nature of diabetes compels researchers today to recognize that they are dealing with a complex, multifaceted disease, and not with a presumably simple metabolic disturbance that Drs. Banting and Best attacked successfully with insulin in 1921. Dr. Best has recently predicted that the next breakthrough in the struggle to conquer diabetes will come when scientists learn the exact mechanism of insulin release from the pancreas and precisely how the hormone does its vital work in human tissue.

It is now known that a number of factors - notably glucose, amino acids, glucagon, growth hormone, and cortisone - influence insulin secretion by the pancreas. Despite the fact that it was first proposed in 1906 that gastrointestinal hormones might have an insulin-releasing effect, evidence for such an effect was obtained only during the past year. An Institute-supported scientist at the University of Texas demonstrated that three gastrointestinal hormones involved in regulation of digestive secretions in the gastrointestinal tract - secretin, pancreozymin, and gastrin - are biologically capable of triggering insulin secretion in dogs, suggesting that these hormones may play an important role in the priming of insulin secretion following food ingestion. Thus, there may exist in the gastrointestinal tract a chain of hormones capable of stimulating the insulin-releasing cells of the pancreas as required for disposal of high blood glucose or amino acid levels.

The investigator has postulated that this proposed "gastrointestinal-pancreatic axis" may counteract excessive blood glucose or amino acid levels which would otherwise follow ingestion of large meals if pancreatic insulin release were entirely dependent upon elevated blood glucose concentrations.

In a subsequent study the same investigator has obtained evidence of the existence of an as-yet-unidentified intestinal factor, possibly a new hormone, which acts to augment insulin secretion response to glucose blood levels. This material, isolated from the intestinal tract of dogs, was found to be a molecule somewhat larger than the pancreatic hormone, glucagon, which it resembles most closely. The scientist is currently purifying the material and attempting to learn its molecular structure.

It would, of course, be premature to attempt to find a role for the newly discovered intestinal factor in the development of diabetes. It is quite possible, however, that an abnormality in the release of this factor may partially account for the sluggishness of pancreatic insulin response and the glucose tolerance differences observed in the milder forms of diabetes.

Possible Role for Ribose

Another grantee-scientist at the University of Minnesota has shown that a naturally occurring body sugar, ribose, markedly stimulates pancreatic insulin secretion when administered either orally or intravenously to dogs. This response was greater when ribose was given intravenously. Direct exposure of the insulin-producing cells of the pancreas to the sugar was ineffective in stimulating insulin release.

These findings imply that insulin response to ribose is triggered by the arrival of the sugar at some site outside of the pancreas. The investigator has suggested that a substance produced by ribose metabolism may lead to release of a second substance to which the insulin-producing cells of the pancreas are sensitive. Further exploration of the possible role played by ribose may shed some light on the fundamental question of the nature of insulin response to glucose.

New Type of Diabetes

Diabetes is loosely divided into two major clinical types - juvenile diabetes and maturity-onset diabetes - which have different prognoses, somewhat different treatment, and related, but possibly dissimilar, causative mechanisms. During the past year a new clinical entity in the diabetes family was described in eight children, and indications are that the condition may be more common than had been previously recognized.

A grantee-scientist at Children's Hospital Medical Center, Boston, reported the new clinical and biochemical abnormality which is characterized by defective kidney and intestinal glucose transport. Its manifestations include very small stature, failure to thrive, reddened cheeks, protruding abdomen, massively enlarged liver, extreme flexibility of joints, diminished skeletal calcification, and massive losses of glucose in the urine. Although growth is retarded in affected children, mental health appears to be normal. The disorder, termed "pseudo-phlorizin diabetes", appears to be hereditary, and the disease may be fatal if unrecognized and untreated.

These children apparently produce adequate amounts of insulin and, thus, do not require insulin injections. They appear to benefit from a diet high in protein, vitamin D, sodium fluoride, and salt. The major defect appears to be an impairment in glucose conservation by the kidney coupled with a defect in intestinal glucose absorption. Studies of the new type of diabetes are continuing in the hope that they will provide a better understanding of the genetic aspects of diabetes.

In two separate studies at the University of Florida and St. Luke's Hospital, New York City, other Institute-supported scientists have determined almost simultaneously that ketosis - the excessive accumulation of ketone substances

in the blood - can be induced experimentally with the aid of medium chain length fatty acids. The fact that this condition is quantitatively reproducible, and that the degree of ketosis produced in diabetic subjects is more than double that produced in normal individuals, may provide physicians with a method that is useful in classifying diabetic subjects according to their ketosis-prone tendencies. It may also be of value in the study of ketone body formation in diabetic patients, a subject which requires more exploration.

Early Recognition of Diabetes

Last year an Institute-supported investigator described a metabolic disorder closely resembling human juvenile diabetes which had appeared as a new genetic mutation in inbred mice. The disease was readily reproducible and therefore it was anticipated that the new strain of mice would provide a much needed experimental animal model for research on juvenile diabetes.

Continuing studies of these animals have suggested that their diabetes may be demonstrable five days after birth, as opposed to the previously reported three week delay in diagnosis, at which time the disorder becomes clinically manifest. This is of potential significance in that it would permit, for the first time, study of the evolution of the syndrome from the asymptomatic, pre-clinical stage to the clinical stage and, thus, might lead as well to a better understanding of the pre-diabetic state in man.

Another relevant study in the same area was made by a grantee-scientist at the University of California, San Francisco, who demonstrated that the first five to ten minutes of the intravenous glucose tolerance test are the most important in detecting the "latent" diabetic. He found that while the 30 to 60 minute levels for insulin secretion were often normal in prediabetic subjects, the earlier values indicated an initial sluggishness of insulin release.

This finding is of particular value because recent research has made it possible to treat experimentally diabetes in its "latent" stage (before the patient has exhausted his own insulin reserves) with sulfonylurea and/or biguanide drugs in an effort to delay onset of the overt disease, as reported by Institute-supported investigators several years ago. As a result, it may conceivably be possible to reduce some of the disheartening consequences of a delayed approach to therapy through earlier diagnosis followed by prophylactic "delaying" treatment.

In this connection, another pertinent study should be mentioned. A grantee-scientist at the University of Missouri has apparently delayed, or perhaps even prevented, the onset of overt diabetes in two children genetically predisposed to the disease who exhibited early chemical signs of carbohydrate intolerance. By administering very small daily doses of insulin to the two

children, the investigator hopes to preserve their pancreatic function by providing exogenous insulin at the stage prior to serious failure of endogenous insulin secretion. His approach is, admittedly, highly experimental; however, early results have been "highly encouraging" and he is continuing his unique studies with a great deal of optimism.

Obesity and Diabetes

There appears to be little doubt that there is a definite relationship between obesity and diabetes. Most persons who contract the disease after age 40, when diabetes most commonly becomes clinically manifest, are overweight. Moreover, a significant number of such patients can control their carbohydrate intolerance by weight reduction alone.

It has been known for some time that administration of glucose to persons with mild diabetes results in exaggerated blood levels of insulin, an effect that has also been observed in obese nondiabetic individuals. This has led to the theory that insulin action in patients with mild diabetes is somehow inhibited, leading to impaired glucose metabolism and utilization, and that the exaggerated insulin response to glucose challenge in such patients is thus a compensatory effort. The nature of the insulin antagonism in such patients has been, and is being, investigated vigorously.

During the past year an Institute-supported scientist at the University of Washington, Seattle, questioned this theory of an insulin "block" in mild diabetes. He found that elevated blood levels of insulin in such patients are related only to co-existent obesity and not to carbohydrate intolerance. In his studies, obese diabetic subjects produced less insulin than nondiabetic subjects of identical weight and secreted less insulin in response to glucose administration.

This is a significant finding, inasmuch as most adult-onset diabetic patients are obese. It implies that maturity-onset diabetes, like juvenile diabetes, may result from a relative insulin deficiency (the original classical theory), and may not necessarily involve overproduction of insulin which is partially or wholly inactivated by an as-yet-undefined insulin "block". These concepts certainly warrant further exploration.

Complications of Diabetes

Many patients with long-term diabetes develop complications such as "hardening" of the arteries, heart disease, failing eyesight, and kidney failure. Progressive damage to the retina develops in many persons whose diabetes begins in childhood and who have had the disorder 20 years or more. This condition, known as diabetic retinopathy, is the third leading cause of blindness.

Three years ago an Institute-supported scientist at Massachusetts General Hospital, Boston, reported finding a low incidence of diabetic retinopathy in diabetic subjects who also suffered from rheumatoid arthritis and were taking

large doses of salicylate drugs, such as aspirin. During the past year the same investigator showed that diabetic patients, particularly young patients with the characteristic proliferative diabetic retinopathy, have elevated levels of complement, an immunologically active blood protein, and that aspirin suppresses such high complement levels in the test tube.

Thus, a relationship between elevated blood complement levels and the development of diabetic retinopathy appears possible. Although progression of retinopathy apparently has been arrested in some diabetic patients who were treated with salicylate drugs over prolonged periods of time, it is most unlikely that these agents could reverse any existing retinal damage. This study, however, points to a new direction for future evaluation of this serious complication of diabetes.

Pima Indian Study

In 1965 a team of Institute scientists discovered that the incidence of diabetes in the Pima Indians of Arizona (30%) is 15 times greater than that of the general American population (2%). This finding presented a unique opportunity to explore the possible precipitants of the diabetic state, as well as factors involved in delaying the onset or preventing the serious complications of the disease.

The same scientists subsequently unearthed evidence to refute the generally accepted theory that pregnancy precipitates diabetes. They found in studying the Pima Indian women that diabetes was actually more common among those who had not borne children than it was among those who had borne seven or more.

More recently, in late 1967, the scientists discovered that the incidence of gallbladder disease in the Pimas is six times higher than that found in a similar gallbladder study done among Caucasians in Framingham, Massachusetts. Although no association could be found between diabetes and gallbladder disease in Pima females, 80 percent of Pima men over age 45 with gallbladder disease also had diabetes. Precisely what influence this finding may have upon ongoing diabetes studies remains to be determined.

Studies of the Pima Indians are continuing in order to evaluate the development and course of diabetes in this unique population group. Such studies include diabetic individuals, pre-diabetic individuals (individuals with two diabetic parents, but as yet devoid of signs and symptoms of the disease), and others who are being observed and who may or may not develop the disease. Initial studies are also being made of the possiblity of preventing or ameliorating the serious complications of diabetes.

Outlook

Although the basic defect that results in diabetes remains unknown, there has been much progress in recent years in elucidating some of its many mechanisms. The handicap is not a paucity but a plethora of clues. Institute scientists and grantees have broadened their fundamental studies of the pathology of diabetes, of the action of insulin, and of the many biochemical and physical changes which occur in body cells and fluids of diabetic patients. Hopefully, if diabetes research continues at its present highly productive rate, a means of preventing diabetes or of controlling its course better will be found in the not too distant future.

National Center for Chronic Disease Control

High Yield Screening

Screening for diabetics and pre-diabetics is of major importance in the control of this disease. Recent advances in research give great hope for significant breakthroughs in either prevention of diabetes or in our ability to cure the disease. When such breakthroughs occur it is of extreme importance that we know to whom we can apply this knowledge. While significant improvements have been made in the quantity and quality of screening, at current levels of expenditure we are barely keeping par with the growth in population and are hardly making a dent in the estimated 2,000,000 undetected diabetics. Much more needs to be done to be able to apply current available information, to say nothing of knowledge immediately available from major breakthroughs in our understanding of the disease.

A continuous diabetes screening program for Federal employees offered an opportunity to evaluate, over a period of several years, the yield of new cases in persons with positive test results who had not been diagnosed as diabetic upon initial screening. Almost one in four of the persons with initial positive results were identified by a private physician as diabetic within the two year period.

Analysis of the data from the same Federal employee screening program reveals that new cases of diabetes are diagnosed more frequently among screenees with selected characteristics than among the general population. Case yields are higher in those who are older, overweight, or have a family history of diabetes.

Diabetes screening reports to the Public Health Service for fiscal year 1966 indicate that there was an 80,000 increase over fiscal 1965 in the number of persons screened (where blood tests were used). The number of new cases shows a substantial rise--9,762 compared to 7,923 in 1965. The new case yield is 12.0 per 1,000 screened as compared to 10.8 per 1,000 in fiscal 1965. The higher yield attests to the efforts being made throughout the Nation to concentrate on high-risk groups and to improve methodology.

Diabetes Education

Serious deficits exist in the educational aspects of diabetes, both from the standpoint of professional as well as patient education. A physician in practice today who received his medical training over 10 years ago and has not had the opportunity to return to up-grade his knowledge of diabetes is sadly out of date with the current level of the science of diabetes. Very little has been done to remedy this situation. The same is true of allied health professionals, for example, nurses who are the

mainstay of patient education. Hundreds of them today do not know as much as we expect patients to know of their disease. Patient educational techniques are also seriously deficient. In a disease which requires as much self care as diabetes, a much more comprehensive understanding is required than is currently being made available.

Diabetes is a self care disease. This means that the patient must learn how to take his own medication including injection of insulin, make small adjustments in his dosage, test his own urine to evaluate his control, and regulate his diet which may include weighing all of his foods. It can be seen that the patient must act as his own physician, nurse, dietitian, and laboratory technician.

In order to do this, the patient must be firmly grounded in all the various aspects of his disease. Motivation also plays an important part. This disease is symptomatic only when the blood sugar is at the extremes, that is very high or very low. Levels of sugar short of these extremes do not cause the patient to feel ill but are considered by most diabetologists to be related in some way to the early vascular complications of diabetes. Therefore it is important that the patient realize the necessity for control even when he is symptom free.

Recently compiled data from the special Diabetes Supplement to the National Health Survey (July 1964-June 1965) indicate that many patients have not been given sufficient information about their diet, and many others are not motivated to follow a diet. Approximately 77.1 percent of the diabetics who were surveyed reported that they had been given a diet for diabetes, but only 52.7 percent said that they followed one. In all age groups, females more often than males were given diets and more often followed them. The greatest attention to diet was reported by persons between 55 and 64 years of age. This significant study also indicated other serious deficiencies in diabetes patient education.

To fill these gaps, the Diabetes and Arthritis Control Program is exploring many avenues of patient education. The Boston Medical Foundation has submitted its report of studies on the prepost test method of evaluating diabetic programmed instruction courses. The report indicates that programmed instruction teaching methods are definitely effective with particular groups of patients. Further studies will be conducted comparing the programmed technique with other methods of instruction.

The program has also developed inexpensive food models that will enable dietitians to more accurately express portion size in teaching the diabetic. The models, available soon for distribution, demonstrate correct methods of exchange systems.

A recently initiated study, using a new concept of teaching both the patient and his family along with nursing, dietetic, and medical students, has proven quite successful. We also continue to support and advise an experimental "wilderness" camp for diabetic youngsters in Wyoming.

Epidemiology of Diabetes

Studies are being carried out at the Boston Field Station on the relationship between diabetes and pregnancy, the prevalence and incidence of diabetes in several communities (Sudbury and Oxford) and studies on the relationship between blood glucose, lipids, and insulin in both the diabetic and nondiabetic. These studies have been valuable in ascertaining to what extent any causal relationships exists between factors that are common in diabetes, such as obesity and aging, and the onset of the disease. Also, effects of pregnancy as an etiologic factor in diabetes are being explored.

A study has just been undertaken which will, hopefully, answer the question of whether abnormal sugar levels in the elderly are truly abnormal and, therefore, signs of diabetes, or whether the higher levels are only manifestations of normal aging.

Much effort is being directed at the development of a compact, portable instrument that can analyze blood glucose at the rate of 100 or more specimens per hour. If such a machine existed, diabetic detection programs would be much more effective--volunteers could be immediately informed if they should see their own physician for diagnosis. Also, certain community or "high-risk" groups (nursing homes, for example) could be tested much more economically and efficiently. Studies continue to explore the variability of the glucose tolerance test and all of the factors which contribute to variability.

Studies have been continued which we feel will give a better estimate of how predictive certain factors relating to diabetes really are. Measurements of obesity (by skinfold, thickness, etc.) age, family history of diabetes, degree of kinship, cholesterol count, and other special studies are being evaluated by statistical methods. The results should give us a more exact definition of the relationship of these factors to the disease.

Reports from an epidemiological study on the island of Vinalhaven indicate that this project may provide some interesting clues to the mode of inheritance in diabetes, and family histories recovered from courthouse records indicate that many of the diabetics have common ancestry.

Outlook

Because of deficits existing in diabetes casefinding, patient education, and knowledge of epidemiologic factors in diabetes, the Diabetes and Arthritis Control Program has used a multiple approach to the total problem. The development of more efficient and less costly methods of casefinding is receiving high priority. Newer methods for patient motivation and education are being sought and older methods evaluated. Hopefully, the epidemiologic explorations in diabetes will be as valuable in this disease as in conquering contagious disease.

Along these lines, several conferences are planned. A diabetic retinopathy conference, hopefully, will lead to a clearinghouse for all retinopathy cases. An international conference on diabetes epidemiology would certainly afford the opportunity for standardizing detection methodology and treatment regimens throughout the world. The natural course of diabetes has not been worked out with any degree of exactness, and it is hoped that this will be a natural outcome of this international meeting. A conference on juvenile diabetes is also tentatively planned for the coming year.

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EPILEPSY

Epilepsy has been defined as a group of conditions characterized by recurring convulsions. Usually a long-term chronic disease, about 80 percent of epileptic seizures start in childhood or adolescence. It is estimated that there are over 1,500,000 epileptics in the United States, and that the estimated annual cost of care for persons with epilepsy is $757,500,000. The annual loss to the economy is estimated at more than a billion dollars.

Epilepsy is the one prevalent neurological disorder most amenable to treatment. Comprehensive care, provided by a team consisting of such competencies as a neurologist, nurse, health educator, psychologist, and social worker, can provide the opportunities for epileptics to lead normal lives, hitherto denied.

It is estimated that only 15 percent of the population lives in communities in which there are adequate comprehensive programs of medical and allied medical services. In addition, the general public's attitude attaches a stigma to persons with epilepsy.

The epileptic population represents a tremendous source for potentially productive citizens both in sheer numbers and in encouraging results of present methods of management.

Programs against epilepsy are carried out by two organizational components of the Public Health Service. The National Center for Chronic Disease Control, through its Neurological and Sensory Disease Control Program, provides for the development of new instruments, methods, and techniques to improve the services available to epileptics. The National Institute of Neurological Diseases and Blindness research program includes individual research grants, a research program at the Institute's Bethesda laboratories, a recent targeted program of clinical epilepsy research centers, and a new collaborative study.

The Public Health Service programs are discussed in detail below.

National Center for Chronic Disease Control

It is generally conceded that the epileptic suffers more from the prejudice of the community than from the disease itself. Thus the epileptic child is often denied the normal educational and social experiences by being excluded from the public school system. An adult with epilepsy is prevented from obtaining employment commensurate with his physical and mental skills, and the families of the epileptic are excluded from their rightful place in society. Hence, the Neurological and Sensory

Disease Control Program efforts to reduce the disability resulting from epilepsy include promoting better public understanding of the epileptic in order to make him more able to participate normally in society.

Getting public acceptance of the epileptic involves removing from the public attitude deeply instilled myths and misunderstandings regarding epilepsy, and the replacing of these ideas with an informed public understanding of epilepsy and the problems confronting the epileptic. Therefore, the program will continue promoting public awareness and understanding of epilepsy and the problems that confront the epileptic. Numerous T.V. and radio appearances will be made by Program personnel explaining the problems facing the epileptic, and new approaches available for treatment and care, and stressing the fact that epilepsy is, in most cases, controllable through present treatment methods.

Initial management of epilepsy begins with medication. The number of patients who can be treated by surgery is small, probably less than five percent. Total treatment, however, involves psychiatric counseling, social adjustments made with the advice of a social worker and public health nurse, and vocational rehabilitative measures. Other items of importance in control include talks with teachers, employers, patients, highway department officials, and prospective marriage partners. The Program will, therefore, endeavor to expand, as to quality and availability, the services available to epileptics. The team approach will be stressed. Program expertise will be available in a consultant capacity to official and voluntary health agencies, professional organizations, institutions of higher learning and other agencies that wisn to establish or improve programs to provide services to epileptics.

The Program is supporting the development of a protocol for nationwide use in epidemiological studies of epilepsy. This protocol will identify the means to determine annual incidence rates, current prevalence rates, relevance of various suspected etiologic factors, and the nature of medical care available and utilized during the periods of study. On the basis of the results of this study, plans would be formulated to extend this investigation to other selected populations to determine additional information on geographic distribution and population selectivity and to evaluate diagnostic and medical care facilities for epilepsy in these populations.

There is a shortage of medical and allied health personnel who have the specialized knowledge needed to provide the best services to epileptics. In addition, many general practitioners have little knowledge about treating such patients and many specialists need additional training to be familiar with recent advances in neurology. Also, many allied health personnel, i.e., nurses, social workers, EEG technicians, occupational therapists, and physical therapists, could benefit from specialized training in working with patients who have epilepsy. The Program will continue to stimulate and aid in the implementation of long-term and continuing education training programs for persons who provide services to epileptics.

The Program will continue to assume executive responsibility for the Service and Service Training Subcommittee of the Surgeon General's Advisory Committee on the Epilepsies.

A project to computerize EEG interpretation will be continued. The successful outcome of this project will result in more objective interpretations and a saving of neurologists' time. Thus, the services available to epileptics will be improved.

National Institute of Neurological Diseases and Blindness

Although new drugs and surgical procedures make it possible to eliminate seizures in about half the cases and control seizures in another 25 percent, effective treatment still has not been found for many persons. Also, the long-term social stigma attached to the disease, while much less a problem than formerly, continues to be a problem in relation to schooling and employment. Discrimination also continues under many State laws.

The Institute's programs in epilepsy are attacking the problem through approaches designed to elucidate the basic chemical, structural, or functional mechanisms which are disturbed in the disorder; the factors that precipitate seizures; and the basis for effective treatment of epilepsy.

Under the individual research grants, a broadly representative group of individual scientists are supported in basic studies of the anatomy, chemistry, physiology, and pharmacology of the brain.

At the Institute's laboratories in Bethesda, advanced surgical techniques and instrumentation for the treatment of temporal lobe epilepsy have been developed and evaluated, and the relationship of head injury to epilepsy is being studied.

The clinical epilepsy research centers, sponsored by the Institute, are focusing the many talents of a variety of experts on the problem of epilepsy. Using the team approach, these groups of 15 to 20 physicians and scientists explore major aspects of epilepsy at the University of Wisconsin, University of California at Los Angeles, University of Washington, and Yale University. In addition, the Institute supports the Neuropharmacology Research Center of the University of Utah, which is primarily concerned with the mode of action of anticonvulsant drugs.

In the recently developed Institute Collaborative Study of Epilepsy, the initial goal is to establish a therapeutic baseline, or frame of reference, for seizure control. Four medical centers participate: Marquette University, the University of Virginia, Montreal Children's Hospital, and the New England Medical Center. A fifth, Emory University, will soon be included. For the baseline, only one anticonvulsant (ethosuximide) is used, and only one type of epilepsy (petit mal or loss-of-consciousness seizures) is being studied.

The leading investigators in the Collaborative Study meet periodically to work toward a tighter standard nomenclature of the epilepsies, improve methods of quality control in the Study, and exchange information. Use of television tape monitoring systems for quality control and to capture the seizure phenomena in a permanent visual record is a significant innovation of the Study. With the successful completion of its 2-year initial effort, the Institute expects to expand the Collaborative Study to provide a more extensive review of anticonvulsant drugs.

Basic research on the mechanism of seizure-causation has led to several new findings. For example, this year Institute grantees demonstrated in cats a possible control for seizures. They found that the brain cells around a focus of epileptic activity are inactive. This interaction, known as "surround inhibition," persists in the cat brain during an artificially induced seizure, preventing the spread of convulsive activity to other areas of the brain. The scientists interpreted their findings as indicative of a basic control mechanism in the brain. Further study of this phenomenon promises to lead eventually to improved treatment of epilepsy.

An Institute grantee reported this year that specific electroencephalographic (EEG) abnormalities occur in each decade of life in epilepsy patients. Analyzing EEG records from 1,355 epilepsy patients, he found evidence that brain maturation significantly influences seizure phenomena. The finding lends support to theories of a changing epileptic activity pattern throughout life.

The investigator noted that for all EEG abnormalities considered together, there is a predominance of left-sided foci, especially in the slow-wave type of epilepsy. In explaining this finding, he cited earlier studies which relate the left-sided predominance of epileptic

foci to a left-sided occurrence of factors known to cause epilepsy (emboli, thrombi, aneurysms, hemorrhage, and maximum pressure to the left side of the infant's head during delivery).

Seizures may be precipitated in some persons by certain forms of light or sound. An example is the patient who experiences seizures after prolonged viewing of the television screen. At one of the Institute's clinical epilepsy research centers, scientists have developed an effective "deconditioning" technique which ameliorates this form of seizure susceptibility. Computer automation has been employed to simplify the application of the method.

The leading investigator on this project this year reported that desensitization is not permanent, but must be reinforced by periodic repetition of the deconditioning stimulus. He has devised methods for the epilepsy patient to carry this out at home.

A team of scientists at the Institute's Bethesda facilities is examining the relationship between brain temperature and a certain form of seizures. Using a temperature-telemetering device implanted on the surface of the patient's brain membranes, they have found that temperature elevation is associated with increased frequency of seizures. Study of this principle has led to development of a new therapeutic approach. By cooling the patient's head while anti-convulsant medication is administered, it was shown that seizures in such patients can be completely controlled. These studies are being expanded to elucidate the seizure-temperature relationship.

Another Institute study of children with frequent seizures who do not respond to anticonvulsant drugs confirmed the previously reported finding that a high-fat diet can control seizures. While more study of this diet is under way to pinpoint the chemical basis of its effectiveness, it is clear that high levels of fats in the patient's blood plasma are closely associated with cessation of seizures.

Anticonvulsant drugs remain the major weapon that neurologists use to attack seizures. New drugs are being evaluated by several Institute-supported studies. Rapid and sustained control of seizures has been obtained, for example, with the tranquilizer, diazepam (Valium), without the serious side effects of other drugs. Controlled clinical trials must still be conducted before this and other promising new drugs can be considered for use as anticonvulsants. The Institute is also gathering information on new anticonvulsant drugs. At least four major pharmaceutical manufacturers have promising anticonvulsant drugs in various stages of development.

Surgical treatment of temporal lobe epilepsy at the Institute's Bethesda laboratories has brought freedom from seizures for a significant number of patients, one group of which has been followed in detail for 7 years.

Institute grantees in two medical centers are employing a combination of implanted thin wires (electrodes) deep in brain structures, and analysis of electrical burst activity from these electrodes with a computer, to locate with precision the exact focus of a seizure in the brain. From the computer data, surgeons can determine which areas of the brain must be removed to completely halt seizures, thereby avoiding unnecessary loss of healthy brain function.

Recognizing the need for better communication of research knowledge in epilepsy, the Institute has developed a new service, Epilepsy Abstracts. Each monthly issue digests approximately 200 articles related to epilepsy from the world's biomedical literature. This publication is made available to interested investigators and physicians without charge. In addition, the Institute is preparing an annotated bibliography of epilepsy articles appearing during the past 25 years.

The communication process is also stimulated through meetings. Two symposia are planned for 1968: "Laboratory Evaluation of Anti-epileptic Drugs," and "Basic Mechanisms of the Epilepsies."

THURSDAY, MARCH 7, 1968.

OFFICE OF THE SURGEON GENERAL, SALARIES AND EXPENSES

WITNESSES

DR. LEO J. GEHRIG, DEPUTY SURGEON GENERAL
JOHN H. KELSO, EXECUTIVE OFFICER
DR. WILLIAM H. STEWART, SURGEON GENERAL
CHARLES MILLER, CHIEF FINANCE OFFICER
JAMES B. CARDWELL, DEPUTY ASSISTANT SECRETARY, BUDGET

Mr. FLOOD. We have now a statement by the Deputy Surgeon General of the Public Health Service on the Office of the Surgeon General, salaries and expenses.

BIOGRAPHICAL SKETCH OF PRINCIPAL WITNESS

We will put your biographical sketch in the record at this point. (The biographical sketch follows:)

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

PUBLIC HEALTH SERVICE

Name: Leo J. Gehrig, M.D.
Position: Deputy Sugeon General.
Birthplace and date: Mapleton, Minn., April 25, 1918.
Education: University of Minnesota, B.S., B.M., M.D.; internship: Salt Lake County General Hospital, University of Utah Medical School, 1944–45; Residency: Thoracic Surgery, Overholt Thoracic Clinic, 1947–50; General surgery, U.S. Public Health Service Hospital, Staten Island, N.Y., 1952–55; PHS Executive Career Development Program, 1960–61.
Experience: Deputy Surgeon General, November 1965 to present; Chief, Bureau of Medical Services, April 1964–November 1965. Deputy Chief, Bureau of Medical Services, U.S. Public Health Service, Washington, D.C., 1962–April 1964; Medical Director, U.S. Peace Corps, 1961–62; Program Officer, Bureau of Medical Services, 1960–61; Deputy Chief, Division of Hospitals, Bureau of Medical Services, U.S. Public Health Service, 1959–60; Assistant Chief, Division of Hospitals, Bureau of Medical Services, U.S. Public Health Service, 1957–59; Deputy Chief, Surgery, U.S. Public Health Service Hospital, Seattle, Wash., 1955–57; Chief, Thoracic Surgery, U.S. Public Health Service Hospital, Staten Island, N.Y., 1950–52; Acting Director, Tuberculosis Control, Territorial Department of Health, Juneau, Alaska, 1946–47.
Association memberships: Diplomate, American Board of Surgery; Diplomate. American Board of Thoracic Surgery; Fellow, American College of Surgeons; Alpha Omega Alpha Honorary Medical Society.

Mr. FLOOD. Doctor, you may proceed.

GENERAL STATEMENT

Dr. GEHRIG. Mr. Chairman and members of the committee, I am pleased to appear before you to discuss the budget estimates for this appropriation, which finances the principal staff offices that coordinate the activities of the Service. This appropriation also supports activities concerned with relationships with other agencies whose missions are related to health. In addition, it provides for a number of functions which are operated on a centralized basis for the entire Service.

We are requesting an increase in 1969 of $491,000. Of this amount, we are proposing $322,000 to provide 13 positions and the computer capability necessary to support our management information system. Mandatory increases of $169,000 account for the remainder of the increase over our budget for fiscal year 1968.

As this committee is well aware, the activities of the Public Health Service are extremely diverse.

The number, scope, and complexity of PHS programs have increased immensely in recent years—thereby creating an increased need for PHS-wide coordination and review. In less than two decades the Public Health Service has become the world's foremost supporter of biomedical research. It plays a vital role in developing health manpower, facilities and services. It stimulates and supports planning and demonstrations in States and communities designed to bring high quality health care within the reach of all of the American people. In all of these program areas, grants and contracts are the primary instruments for carrying out Public Health Service programs. Approximately 40,000 individual grants and contracts distributed through 33 PHS organizations responsible for 130 different programs are awarded each year. This represents 80 percent of the total Public Health Service budget.

In view of this, one of the most urgent needs of the Surgeon General in carrying out Service management responsibilities is readily accessible data on grant and contract expenditures. Limited funds were granted in the 1968 budget to initiate the development of a computerized management information system. Initial efforts of this small staff in fiscal year 1968 have placed priority on the identification of specific contract and grant information to be included in the system as well as the development of forms and procedures. In fiscal year 1969, the only nonmandatory item of increase in this appropriation is our request for $322,000 to provide necessary computer capability and to support additional staff to carry out the operational work in the grant and contract system.

I shall be glad to answer any questions the committee may have.

Mr. FLOOD. In the table on page 7 you have this line: "Unobligated balance, reserve." That shows 22 positions and no dollars. This is quite a trick. How can 22 positions represent no dollars? If you could show us how to do that, you will get some kind of an award from the Appropriations Committee.

Dr. GEHRIG. There is a funding figure behind this which was placed in reserve. That figure is $262,000. These same funds, together with additional funds transferred from the Bureau of Health Manpower, are proposed for release from reserves to support increased pay and postal costs.

Mr. MILLER. I believe $78,000 is being transferred from the Bureau of Health Manpower for this purpose.

SUMMARY OF 1969 BUDGET REQUEST

Mr. FLOOD. Your request is for $9,073,000?

Dr. GEHRIG. Yes, sir.

Mr. FLOOD. An increase of $491,000 over the adjusted appropriation for 1968.

Mr. FLOOD. You turn to page 7 and take a look at it. "Unobligated balance, reserve: positions, 22; amount, blank."

Mr. MILLER. We are putting the positions in reserve, but the money to cover those positions is not shown because it is being proposed to cover pay increase costs. This is money, of course, which was placed in reserve in this appropriation as part of the President's cost reduction program.

Mr. FLOOD. How do you put jobs in reserve?

Mr. MILLER. We had positions in the 1968 appropriation which included those 22, but they were placed in reserve so that they cannot be filled. We cannot fill those positions.

Mr. FLOOD. Then you don't need them?

Mr. MILLER. We need them but because of the 1968 cost reduction in personal services they were placed in reserve and cannot be filled.

This is true of all the appropriations in the Public Health Service except those for direct patient care.

Mr. CARDWELL. The budget does show, Mr. Chairman, that in 1969 they would in fact be deleted. There is a minus 22 to show their ultimate deletion.

INCREASE FOR DATA SYSTEMS STAFF

Mr. FLOOD. There is not very much to talk about in connection with your request this year, except this increase of $322,000 and 13 positions for your—and I quote—"data systems staff."

Some of these budget balancing people around here will take a look at those jobs and think they are easy prey. I hope you have mighty good arguments in behalf of them.

Dr. GEHRIG. Yes, sir. I think that, as you have indicated within this entire appropriation, there is only one area of nonmandatory increase and it is in this very account.

Mr. FLOOD. That is all I am talking about.

Dr. GEHRIG. In the programing of the management information system.

I mention that only to indicate that this is the priority that we established for it because of its importance. The reason for its importance, I would like to develop in this way: As I indicated in my opening statement, a high percentage of all of the activities of the Public Health Service is carried out through grants and contracts to universities, research organizations, State institutions, voluntary hospitals, and other institutions.

About 80 percent of our entire budget is handled this way. With the management responsibilities which the Surgeon General has, one of the important needs he has is for a system which will provide, without undue delay, adequate information about grants and contracts wherever they may be made throughout the Service. In addition to funding detail it is necessary to have available such information as the character of work which is being supported, geographically where it is being supported, and the individuals who are carrying out the work.

This information is needed by the Surgeon General to carry out the programs of the Public Health Service, monitor the policies which have been enunciated, and assist in the evaluation of programs.

This is the most important management resource need in the Office of the Surgeon General. We have been able, with the committee's help

last year, to develop our plans for implementing this activity in an operating way this July. The funds requested will do three things: They will provide us with the computer programing, the computer resource, and finally with the manpower necessary to operate the program.

Mr. FLOOD. Very well. Thank you.

JUSTIFICATION MATERIAL

OFFICE OF THE SURGEON GENERAL, SALARIES AND EXPENSES, AMOUNTS AVAILABLE FOR OBLIGATION

	1968	1969
Appropriation	$8,358,000	$9,073,000
Transfer to "Operating expenses, Public Buildings Service," General Services Administration	−108,000	
Transfer from—		
"Comprehensive health planning and services"	91,000	
"National Heart Institute"	163,000	
Proposed transfer from "Health manpower education and utilization" for pay increases	78,000	
Total	8,582,000	9,073,000

OBLIGATIONS BY ACTIVITY

	1968 estimate		1969 estimate		Increase or decrease	
	Positions	Amount	Positions	Amount	Positions	Amount
International health activities	26	$301,600	26	$310,000		+$8,400
Management and central services	693	8,280,400	706	8,763,000	+13	+482,600
Total obligations	719	8,582,000	732	9,073,000	+13	+491,000
Unobligated balance, reserve	22				−22	
Total, obligations and reserve	741	8,582,000	732	9,073,000	−9	+491,000

OBLIGATIONS BY PROGRAM

	1968 estimate		1969 estimate		Increase or decrease	
	Positions	Amount	Positions	Amount	Positions	Amount
Office of international health	26	$301,600	26	$310,000		+$8,400
Immediate office of the Surgeon General	46	687,800	46	704,000		+16,200
Office of program planning and evaluation	53	579,000	53	582,000		+3,000
Office of legislation	12	115,400	12	125,000		+9,600
Office of extramural programs	22	302,000	22	304,000		+2,000
Office of administrative management	320	4,022,300	333	4,430,000	+13	+407,700
Office of the executive officer	(16)	(332,300)	(16)	(334,800)		(+2,500)
Division of buildings and facilities	(54)	(702,900)	(54)	(716,900)		(+14,000)
Division of finance	(98)	(1,180,900)	(98)	(1,205,800)		(+24,900)
Division of grants and contracts	(30)	(340,800)	(30)	(355,800)		(+15,000)
Division of internal audit	(26)	(346,600)	(26)	(351,000)		(+4,400)
Division of procurement and materiel management	(80)	(915,500)	(80)	(926,700)		(+11,200)
Data systems development staff	(7)	(79,500)	(20)	(413,500)	(+13)	(+334,000)
Management policy staff	(9)	(123,800)	(9)	(125,500)		(+1,700)
Office of personnel	181	1,888,200	181	1,925,000		+36,800
Office of information	59	685,700	59	693,000		+7,300
Total obligations	719	8,582,000	732	9,073,000	+13	+491,000

OBLIGATIONS BY OBJECT

	1968 estimate	1969 estimate	Increase or decrease
Total number of permanent positions	719	732	+13
Full-time equivalent of all other positions	5	5	
Average number of all employees	634	647	+13
Personnel compensation:			
Permanent positions	$6,584,000	$6,813,000	+$229,000
Positions other than permanent	44,000	43,000	−1,000
Other personnel compensation	4,000		−4,000
Total personnel compensation	6,632,000	6,856,000	+224,000
Personnel benefits	562,000	629,000	+67,000
Travel and transportation of persons	200,000	200,000	
Transportation of things	20,000	20,000	
Rent, communications, and utilities	398,000	498,000	+100,000
Printing and reproduction	240,000	240,000	
Other services	250,000	350,000	+100,000
Services of other agencies	200,000	200,000	
Supplies and materials	45,000	45,000	
Equipment	35,000	35,000	
Total obligations by object	8,582,000	9,073,000	+491,000

Summary of changes

1968 enacted appropriation	$8,358,000
Transfers from:	
"National Heart Institute"	163,000
"Comprehensive health planning and services"	91,000
Proposed transfer from "Health manpower education and utilization" for pay increases	78,000
Transferred to "Operating expenses, Public Buildings Service," General Services Administration (space rental)	−108,000
1968 total estimated obligations	8,582,000
1969 estimated obligations	9,073,000
Total change	+491,000

Increases	Base		Change from base—	
	Positions	Amount	Positions	Amount
A. Built in:				
1. Annualization of new positions authorized in 1968				$91,400
2. Annualization cost of pay increase (Public Law 90-206 and Public Law 90-207)				55,500
3. 1 extra day of pay (260 days in 1968, 261 days in 1969)				36,100
B. Program: 1. Data systems staff	7	$79,500	13	322,000
Total increases			13	505,000
Decreases: 1. Nonrecurring items of equipment and rent				−14,000
Total decreases				−14,000
Total net changes requested			+13	+491,000

EXPLANATION OF CHANGES

Office of Administrative Management.—An increase of 13 positions and $322,000 is requested to augment and expand the Office of the Surgeon General Management Information System that will be placed in operation in 1968 by the data systems development staff.

EXPLANATION OF TRANSFERS

	1968 estimate	Purpose
Transfer to: Operating expenses, Public Buildings Service, General Services Administration.	$108,000	Rental of office space (81 Stat. 349).
Transfer from:		
Comprehensive health planning and services	91,000	Transfer of certain grants management functions formerly performed in the Office of Comprehensive Health Planning to the Division of Grants and Contracts, Office of the Surgeon General. This transfer involves 9 positions and is made under authority of 42 U.S.C. 226.
National Heart Institute	163,000	Transfer involving 10 positions of grants policy and procedures functions formerly performed in the Division of Research Grants, NIH to the Office of Extramural Programs and Division of Grants and Contracts in the Office of the Surgeon General. Transfer of 2 positions and related funds to cover constructions projects and the servicing of facilities located off NIH ground from NIH to the Division of Buildings and Facilities, OSG (42 U.S.C. 226).
Proposed Transfer from: Health manpower education and utilization.	78,000	To cover increased pay costs resulting from Public Law 90-206 and Public Law 90-207.

JUSTIFICATION—OFFICE OF THE SURGEON GENERAL, SALARIES AND EXPENSES

	1968 estimate		1969 estimate		Increase or decrease	
	Positions	Amount	Positions	Amount	Positions	Amount
Personne' compensation and benefits	719	$7,194,000	732	$7,485,000	+13	+$291,000
Other expenses		1,388,000		1,588,000		+200,000
Total	719	8,582,000	732	9,073,000	+13	+491,000

General Statement

This appropriation provides funds necessary to the discharge of certain responsibilities within the Office of the Surgeon General. This Office provides overall administration, management and direction of all programs and projects of the Public Health Service. It is organized for three principal purposes: (1) To interpret for the entire Service policies which emanate not only from the Surgeon General but also from the Department of Health, Education, and Welfare, the General Accounting Office, the Bureau of the Budget, the General Services Administration, the Civil Service Commission, and other Government agencies having policy making powers; (2) to furnish staff services to the Surgeon General as basis for his decisions; and (3) to furnish services to the headquarters and field offices. The budget is presented under two activities, "International health activities," and "Management and central services."

This estimate provides for a program increase of 13 positions and $322,000 to support the Office of the Surgeon General Management Information System that will be placed in operation during fiscal year 1968, and to support related projects.

INTERNATIONAL HEALTH ACTIVITIES

	1968 estimate		1969 estimate		Increase or decrease	
	Positions	Amount	Positions	Amount	Positions	Amount
Personnel compensation and benefits	26	$264,000	26	$272,400		+$8,400
Other expenses		37,600		37,600		
Total	26	301,600	26	310,000		+8,400

The Office of International Health will continue to serve as principal advisor to the Surgeon General on international health matters, and to overseeing all phases of PHS activities in the international field. This includes the development of

policies covering all PHS relationships in international matters; direct staff assistance to the Surgeon General and to the heads of PHS Bureaus; developing and recommending U.S. and Service policy positions for health and related fields; and providing current information on health needs and conditions in foreign countries. The Office will continue to maintain PHS relationships with multilateral and bilateral health agencies and to serve as the liaison for the PHS with these health agencies and international agencies and international organizations.

We are requesting an increase of $6,800 representing annualization of positions new in 1968 and annualization of increased pay and related costs resulting from enactment of Public Law 90–206 and Public Law 90–207, and $1,600 for one extra day of pay.

MANAGEMENT AND CENTRAL SERVICES

	1968 estimate		1969 estimate		Increase or decrease	
	Positions	Amount	Positions	Amount	Positions	Amount
Personnel compensation and benefits	693	$6,930,000	706	$7,212,600	+13	+$282,600
Other expenses		1,350,400		1,550,400		+200,000
Total	693	8,280,400	706	8,763,000	+13	+482,600
Subactivities:						
Immediate Office of the Surgeon General	46	687,800	46	704,000		+16,200
Office of Program Planning and Evaluation	53	579,000	53	582,000		+3,000
Office of Legislation	12	115,400	12	125,000		+9,600
Office of Extramural Programs	22	302,000	22	304,000		+2,000
Office of Administrative Management	320	4,022,300	333	4,430,000	+13	+407,700
Office of Personnel	181	1,888,200	181	1,925,000		+36,800
Office of Information	59	685,700	59	693,000		+7,300
Total	693	8,280,400	706	8,763,000	+13	+482,600

IMMEDIATE OFFICE OF THE SURGEON GENERAL

	1968 estimate		1969 estimate		Increase or decrease	
	Positions	Amount	Positions	Amount	Positions	Amount
Personnel compensation and benefits	46	$602,600	46	$618,800		+$16,200
Other expenses		85,200		85,200		
Total	46	687,800	46	704,000		+16,200

The staff included within the immediate office will provide advisory services to the Surgeon General for such matters as: coordinating the policy and procedural aspects of special projects and studies; carrying out factfinding and evaluations in the areas of program review and intergovernmental relations; developing and maintaining close and effective liaison between the Public Health Service and professional associations, educational and research institutions, and other outside groups.

The requested increase for 1969 is to cover annualization of positions new in 1968 and annualization of increased pay and related costs resulting from enactment of Public Law 90–206 and Public Law 90–207 ($14,600) and $1,600 for 1 extra day of pay in 1969.

OFFICE OF PROGRAM PLANNING AND EVALUATION

	1968 estimate		1969 estimate		Increase or decrease	
	Positions	Amount	Positions	Amount	Positions	Amount
Personnel compensation and benefits	53	$465,100	53	$477,100		+$12,000
Other expenses		113,900		104,900		−9,000
Total	53	579,000	53	582,000		+3,000

The office of program planning and evaluation is responsible in the areas of advanced health planning and evaluation as they relate to strategy development and implementation. The office will continue to identify alternative means of achieving program goals and aid in translating strategy into program decisions. It will also cooperate with the Division of Finance to manage and improve the servicewide planning-programing-budgeting system. This responsibility will mean developing and communicating planning policies, procedures, and assumptions to the bureaus and reviewing program plans submitted by the bureaus for consistency with planning guidelines and practicality. The office will undertake and direct studies leading to program memorandums covering possible alternative methods of approach in order to recommend to the Surgeon General long-range plans which will result in the most effective allocation of the Service's resources to meet the Nation's health needs.

The conduct of in-depth system analysis-operations research studies to facilitate and enhance planning and programing will be a necessary input and followup to the consideration of program plans. These studies will be designed to begin developing cost-benefit criteria, such as in the areas of cost of quality medical care and the application of computer techniques to health activities, and to evaluate operations of special interest to the Surgeon General for performance and conformity to the approved plans.

A net increase of $3,000 is requested in 1969 representing an increase of $9,700 for annualization of positions new in 1968 and cost-of-pay increases resulting from enactment of Public Laws 90–206 and 90–207, and $2,300 for 1 extra day of pay, offset by a decrease of $9,000 for nonrecurring equipment and rental of office space.

OFFICE OF LEGISLATION

	1968 estimate		1969 estimate		Increase or decrease	
	Positions	Amount	Positions	Amount	Positions	Amount
Personnel compensation and benefits	12	$111,800	12	$112,400	.....	+$9,600
Other expenses	.....	3,600	.....	3,600	.....	.....
Total	12	115,400	12	125,000	.....	+9,600

One of the major responsibilities of the Office of Legislation is responding to congressional requests for reports on legislation introduced each session. These requests range from informal calls for comments to formal committee reports. Another responsibility of the Office—perhaps the primary function—is the development of informational materials for use by the Congress. These materials may range from preparation of testimony and supporting data for hearings to speeches, and special reports for the use of individual members in explaining our programs to their constituents.

An increase of $9,600 of which $8,600 is for annualization of positions new in 1968 and cost of pay increases resulting from enactment of Public Law 90–206 and Public Law 90–207, and $1,000 for 1 extra day of pay.

OFFICE OF EXTRAMURAL PROGRAMS

	1968 estimate		1969 estimate		Increase or decrease	
	Positions	Amount	Positions	Amount	Positions	Amount
Personnel compensation and benefits	22	$231,300	22	$233,300	.....	+$2,000
Other expenses	.....	70,700	.....	70,700	.....	.....
Total	22	302,000	22	304,000	.....	+2,000

The distribution of authority for extramural awards into five bureaus and the National Library of Medicine with the consequent need for continuing leadership in the development of overall policies and operating guidelines requires the establishment of a focus of responsibility in the Office of the Surgeon General; that is, in the Office of Extramural Programs. The Office will also provide centralized guidance for referral and review of all proposals for extramural sup-

port, determining the manner in which, and the standards by which, such proposals are evaluated.

An increase of $2,000 is requested to cover the annualization of increased pay and related costs resulting from the enactment of Public Law 90–206 and Public Law 90–207 ($1,000) and for 1 extra day of pay in 1969 ($1,000).

OFFICE OF ADMINISTRATIVE MANAGEMENT

	1968 estimate		1969 estimate		Increase or decrease	
	Positions	Amount	Positions	Amount	Positions	Amount
Personnel compensation and benefits	320	$3,352,500	333	$3,763,200	+13	+$410,700
Other expenses		669,800		666,800		−3,000
Total	320	4,022,300	333	4,430,000	+13	+407,700

The Office of Administrative Management brings together the following service-wide management support groups:

Office of the Executive Officer
Division of Buildings and Facilities
Division of Finance
Division of Grants and Contracts
Division of Internal Audit
Division of Procurement and Materiel Management
Data Systems Development Staff
Management Policy Staff

A discussion of each of the divisions' funding requirements for 1969 follows:

OFFICE OF THE EXECUTIVE OFFICER

	1968 estimate		1969 estimate		Increase or decrease	
	Positions	Amount	Positions	Amount	Positions	Amount
Total	16	$332,300	16	$334,800		+$2,500

The executive officer participates in executive policy formulation and serves as the principal advisor on management at the service level. He exercises technical guidance and leadership, and reviews activities throughout the service in all areas of administrative management. The Office is also responsible for coordinating the activities and providing guidance for the administration of the Office of the Surgeon General.

We are requesting an increase of $1,700 for annualization of cost of pay increases resulting from enactment of Public Law 90–206 and Public Law 90–207 and $800 for 1 extra day of pay.

DIVISION OF BUILDINGS AND FACILITIES

	1968 estimate		1969 estimate		Increase or decrease	
	Positions	Amount	Positions	Amount	Positions	Amount
Total	54	$702,900	54	$716,900		+$14,000

The Division of Buildings and Facilities is the central resource for Public Health Service facility planning and is responsible for carrying out design, construction, renovation, repair, and related real estate activities for all Service components other than NIH on-campus projects. In addition to the construction of PHS facilities, the Division of Buildings and Facilities has responsibility for the planning and implementation of the design and construction requirements for Indian health facilities. The annual construction budget for these Indian health and related facilities is approximately $14 million involving over 40 projects.

The Division of Buildings and Facilities is relatively new, having been established in October 1966. Its primary goals are to reduce the backlog of currently authorized design and construction projects and to provide for an effective capability for long-range PHS facility planning at the least possible cost. The Division is currently responsible for the design and construction of 33 new facilities costing over $240 million and for the rehabilitation and repair of 250 existing facilities at a cost of over $3.5 million. Projects include planning for the design of the National Center for Urban and Industrial Health, Cincinnati, Ohio; National Center for Air Pollution Control, North Carolina; and for 16 new Indian health facilities. Work will continue on the design and/or construction of the Appalachian Laboratory, Morgantown, W. Va.; Indian health hospitals at Phoenix, Tuba City, and Chinle, Ariz.; and the Pacific Northwest Marine Health Sciences Laboratory, Manchester, Wash.

Work will also continue on addition and extension projects including the Arctic Health Research Laboratory Animal Facility, College, Alaska; dental health applied research facility, San Francisco; and the Northeast Marine Health Sciences Laboratory, Narragansett, R.I. In addition, major emphasis will be given to the modernization and/or replacement of PHS hospitals at Carville, San Francisco, Galveston, New Orleans, Staten Island, Baltimore, Seattle, Boston, Norfolk, and Detroit. Eight Indian health hospitals are also scheduled for the modernization program

An increase of $14,000 is requested to cover annualization of positions new in 1968 and annualization of increased pay and related costs resulting from the enactment of Public Law 90-206 and Public Law 90-207 ($11,400) and for 1 extra day of pay in 1969 ($2,600).

DIVISION OF FINANCE

	1968 estimate		1969 estimate		Increase or decrease	
	Positions	Amount	Positions	Amount	Positions	Amount
Total	98	$1,180,900	98	$1,205,800	.....	+$24,900

The Division of Finance will continue to provide leadership for the improvement of Service programing and financial management activities, including development of the 5-year program and financial plan under the planning, programing, and budgeting system. Moreover, the enormous impact of managerial needs in the accounting and contract areas will require increasing financial management attention.

The requested net increase for 1969 is $24,900 of which $24,100 is for annualization of positions new in 1968 and annualization of increased pay and related costs resulting from enactment of Public Law 90-206 and Public Law 90-207 and $3,800 for 1 extra day of pay in 1969. These increases are partially offset by nonrecurring equipment purchases in 1968 in the amount of $3,000.

DIVISION OF GRANTS AND CONTRACTS

	1968 estimate		1969 estimate		Increase or decrease	
	Positions	Amount	Positions	Amount	Positions	Amount
Total	30	$340,800	30	$355,800	.....	+$15,000

The Division of Grants and Contracts was established to provide a focus for the coordination of Public Health Service activities which consitute the management processes of grant and contract administration. The mission of such a point of coordination is fourfold:

1. To insure basic uniformity and consistency of policy implementation in those matters that are common to grant and contract administration; and to insure the recognition among the awarding institutes and divisions of the very basic difference in the use of these two nscal instruments.

2. To insure basic uniformity and consistency in the Public Health Service approach to the solution of operating problems arising from grant and contract

administrative processes in respect to relationships with the Department, other operating agencies in the Department, other Federal agencies involved, and grantees and contractors themselves.

3. To provide a resource for working with grantees and contractors in solving institutional management problems involved in the processes of grant and contract administration.

4. To provide the Office of the Surgeon General with current and pertinent information in respect to Public Health Service grant and contract management problems and the measures being taken to solve them; to recommend policy and procedural changes when these are needed to solve problems; to implement changes; to coordinate decisionmaking in respect to PHS-wide grant and contract management problem solving.

We are requesting an increase of $13,900 for annualization of positions new in 1968, and annualization of increased pay and related costs resulting from enactment of Public Law 90-206 and Public Law 90-207, and $1,100 for 1 extra day of pay.

DIVISION OF INTERNAL AUDIT

	1968 estimate		1969 estimate		Increase or decrease	
	Positions	Amount	Positions	Amount	Positions	Amount
Total	26	$346,600	26	$351,000	.....	+$4,400

This Division is responsible for management appraisal and review of Service operations (1) to assure fulfillment of the objectives and missions of the Service, (2) to achieve uniformity between Bureaus in baisc management concepts, (3) to detect program and general management operating problems and recommend corrective action, (4) to assure the most effective administration of the programs charged to the Public Health Service, and (5) to evaluate Service accounting, financial, and statistical data systems for proper accountability of assets. Other assigned responsibilities include direction of the investigative and security activities in connection with allegations of misconduct and possible violations of Federal statutes by Service personnel.

Increases of $3,300 for annualization of increased pay and related costs and $1,100 for 1 extra day of pay are requested.

DIVISION OF PROCUREMENT AND MATERIEL MANAGEMENT

	1968 estimate		1969 estimate		Increase or decrease	
	Positions	Amount	Positions	Amount	Positions	Amount
Total	80	$915,500	80	$926,700	.....	+$11,200

This Division provides leadership for the procurement and materiel management programs of the Service in the areas of procurement, supply, forms, records, and printing management and issuances, and provides technical assistance in these areas to all components of the Service. It is responsible for the issuance of all policies required to implement Federal and HEW procurement and property management regulations. A further responsibility requires formulation of servicewide plans and policies applicable to the acquisition and utilization of automatic processing equipment.

Increases of $7,000 for annualization of increased pay and related costs and $4,200 for 1 extra day of pay are requested.

DATA SYSTEMS DEVELOPMENT STAFF

	1968 estimate		1969 estimate		Increase or decrease	
	Positions	Amount	Positions	Amount	Positions	Amount
Total	7	$79,500	20	$413,500	+13	+$334,000

The data systems development staff plans, develops the specifications for and implements (or coordinates implementation of) servicewide systems for controlling, recording, processing, maintaining, and reporting of all data required for program planning, direction, and control; determines the information requirements of the Surgeon General and Office of the Surgeon General staff activities; provides technical services to all elements of the OSG in data systems design; maintains the necessary liaison throughout the service to insure that data needs are met and that appropriate adjustments in the data system are made to accommodate new areas of interest and changes in program emphasis or goals; and reviews all new data systems proposals for consistency with PHS information planning, direction, and management needs.

Thirteen additional positions (nine professional; four clerical) will be required in 1969 to support the OSG management information system that will be placed in operation during 1968, and to support the following new projects:

1. Provide systems design and programing support to the bureaus and NLM in improving the grants and contracts processing and information system.
2. Prepare and publish data systems standards for all OSG/MIS data elements.
3. Provide assistance to all areas of the OSG in the development of systems.
4. Develop internal controls for all items of input to the OSG/MIS.
5. Work with the bureaus, NCHS, and NLM in the development of output from OSG/MIS that may benefit the bureaus, NCHS, and NLM.
6. Expand the data base and system within the OSG to make it more responsive to the needs of OSG.
7. Install and supervise a computer facility within OSG to meet the needs of the Office in such areas as planning, programing, and budgeting; personnel information; committee management; accounting property and supply, et cetera.

The estimate provides for $100,000 for 6 months' rental of a computer, and $100,000 for contract services in the areas of systems design and feasibility studies, and for computer services pending establishment of the OSG facility. A summary of the requested increases follows:

Title	Grade	Number of positions	Amount
Computer analyst	GS–15	1	$18,404
Do	GS–14	2	31,682
Systems analyst	GS–13	2	27,014
Do	GS–12	2	22,922
Do	GS–11	2	18,314
Secretary	GS–6	1	6,137
Do	GS–5	1	5,565
Clerk-typist	GS–4	2	9,990
Total		13	140,028
Lapse			40,028
Total compensation (new positions)			100,000
Pay for 1 extra day			1,000
Annualization of positions new in 1968 and cost of pay increase			11,000
Personnel benefits			8,000
Rent of office space, telephones, and computer rental			106,500
Services of other agencies, contract for computer program			100,000
Equipment			7,500
Net increase requested			334,000

MANAGEMENT POLICY STAFF

	1968 estimate		1969 estimate		Increase or decrease	
	Positions	Amount	Positions	Amount	Positions	Amount
Total	9	$123,800	9	$125,500	.....	+$1,700

The management policy staff is principally concerned with servicewide management planning to assure clearcut assignments of functional responsibility, effective delegations of authority, consistent regulation, appropriate internal relationships, and viable management policies and procedures. This is accomplished through the assessment of the management implications of new legislation; the conduct of organizational studies and surveys; the review of all ac-

tions affecting organization structure, delegations of authority, and regulations; the negotiations of solutions to interservice and intraservice relationship problems; the provision of management analysis services and consultation; and the conduct of other related staff work.

We are requesting an increase of $900 for annualization of increased pay and related costs and $800 for 1 extra day of pay.

OFFICE OF PERSONNEL

	1968 estimate		1969 estimate		Increase or decrease	
	Positions	Amount	Positions	Amount	Positions	Amount
Personnel compensation and benefits	181	$1,666,500	181	$1,705,300	.....	+$38,800
Other expenses	.....	221,700	.....	219,700	.....	−2,000
Total	181	1,888,200	181	1,925,000	.....	+36,800

The office of personnel meets the personnel management needs of the Service by formulating general personnel policies and plans and evaluating results. The office acts for the Surgeon General on personnel management questions; advises top officials on all aspects of personnel management, such as recruitment, career development, policy development, and manpower planning; and represents the Service on personnel matters with the Department, the Civil Service Commission, the Congress, and the public.

We are requesting a net increase of $36,800 representing increases of $28,800 for annualization of positions new in 1968 and increased pay and related costs resulting from enactment of Public Law 90–206 and Public Law 90–207, and $10,000 for 1 extra day of pay, offset by a decrease of $2,000 for nonrecurring equipment and rental of office space.

OFFICE OF INFORMATION

	1968 estimate		1969 estimate		Increase or decrease	
	Positions	Amount	Positions	Amount	Positions	Amount
Personnel compensation and benefits	59	$500,200	59	$507,500	.....	+$7,300
Other expenses	.....	185,500	.....	185,500	.....	.....
Total	59	685,700	59	693,000	.....	+7,300

Planning, directing, and coordinating the information and publications programs of the Public Health Service are the responsibility of the office of information. The office prepares articles, releases, publications, speeches, exhibits, motion pictures, and TV and radio productions which are of Service-wide or Department-wide significance. It will continue to provide guidance on the handling of public inquiries and produce and distribute the Service's official journal, technical public health monographs, and related scientific and professional publications. The office uses all forms of media to communicate Service aims, policy and accomplishments to the health professions and the public.

We are requesting an increase of $4,100 for annualization of increased pay and related costs, and $3,200 for 1 extra day of pay.

THURSDAY, MARCH 7, 1968.

COMPREHENSIVE HEALTH PLANNING AND SERVICES

WITNESSES

DR. JAMES H. CAVANAUGH, DIRECTOR, OFFICE OF COMPREHENSIVE HEALTH PLANNING
DR. EUGENE H. GUTHRIE, ASSOCIATE SURGEON GENERAL
JAMES L. WESSEL, ACTING EXECUTIVE OFFICER, OFFICE OF COMPREHENSIVE HEALTH PLANNING
MRS. DIANE H. CARVEY, FINANCIAL MANAGEMENT OFFICER, OFFICE OF COMPREHENSIVE HEALTH PLANNING
DR. WILLIAM H. STEWART, SURGEON GENERAL
CHARLES MILLER, CHIEF FINANCE OFFICER
JAMES B. CARDWELL, DEPUTY ASSISTANT SECRETARY, BUDGET

Mr. FLOOD. We now have Dr. James H. Cavanaugh, who will present the justification for the Comprehensive Health Planning and Services Program. I see you are a Ph. D. How do you survive with these medical types?

Dr. CAVANAUGH. Well, they are realistic and very accommodating, Mr. Flood, and we get along very well.

BIOGRAPHICAL SKETCH OF PRINCIPAL WITNESS

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

PUBLIC HEALTH SERVICE

BIOGRAPHICAL SKETCH

Name: James H. Cavanaugh, Ph. D.
Position: Director, Office of Comprehensive Health Planning.
Birthplace and date: Orange, N.J.: March 3, 1937.
Education: Fairleigh Dickinson University, B.S., 1959; University of Iowa, M.A., 1961; University of Iowa, Ph. D. 1964.
Experience: January 6, 1967 to present. Director, Office of Comprehensive Health Planning, Office of the Surgeon General, U.S. Public Health Service, Bethesda, Md.

November 14, 1966, special assistant to the Surgeon General for Health Care, Office of the Surgeon General, U.S. Public Health Service, Bethesda, Md.

1964–1966, assistant professor, graduate program of hospital and health administration, College of Medicine, University of Iowa.

November 1964, visiting professor and educational consultant, College of Medicine, Central University of Venezuela, and Venezuelan Ministry of Health, Caracas.

1964–1966, consultant to Minister of Health, Province of Saskatchewan, Canada.

1963–1964, instructor, University of Iowa.

1962–1963, research associate, University of Iowa.

1960–1962, administrative assistant, Princeton Hospital, Princeton, N.J.

1961 to present, commissioned officer, U.S. Naval Reserve.

Mr. FLOOD. Please proceed with your statement.

Dr. CAVANAUGH. If it is satisfactory with you, Mr. Chairman, I will submit the prepared statement for the record and then summarize it.

Mr. FLOOD. As you wish.

General Statement

Statement by Director, Office of Comprehensive Health Planning on "Comprehensive Health Planning and Services"

Mr. Chairman and members of the committee, I am pleased to have this opportunity to report to you on accomplishments as we near the end of the first year of the Partnership for Health and on our progress toward full implementation of the program since receiving our first regular appropriation in November 1967.

The Congress, in enacting this landmark legislation, clearly articulated its intent: to provide a mechanism through which the Federal Government, the States, and the communities, and all other official and voluntary health service providers can work together to attain the goal of assuring the highest level of health attainable for every person.

THE FEDERAL PROGRAM

To achieve this national goal, the Congress authorized five grant programs designed to assist the States and communities (1) in instituting comprehensive health planning, and (2) in providing improved health services to people. The Partnership for Health provides formula grants to States for comprehensive health planning; project grants for comprehensive areawide or local health planning; project grants for training, studies, and demonstrations in health planning; formula grants to State health and mental health agencies for health services; and project grants to governmental agencies, voluntary health groups, universities and hospitals to support health services.

The intent of this program was strengthened last year by enactment of Public Law 90-174, the Partnership for Health Amendments of 1967, which extended the program through 1970 and provided increased authorizations.

I believe that Governor Hulett C. Smith, of West Virginia, in his assessment of the importance of this program, fairly stated the consensus of the other Governors when he testified before the House Interstate and Foreign Commerce Commmittee last year. Governor Smith said, "The States are increasingly aware of their own responsibilities in development of new programs, and * * * the action of the Congress in the comprehensive health program legislation is one that is going to permit the States to take even more effective action in their quest for overcoming illnesses and disabilities of the citizens."

Governor John A. Volpe, this year's chairman of the National Governor's Conference, gave particular emphasis to the program's provision of planning support, when, at the House hearing last May he said: "* * * in my opinion planning is the key to the success of all our efforts. If we don't properly plan * * * we may well be spending for items which are not of the highest priority and not realize that perhaps there is an item of high priority."

THE STATE'S ROLE IN HEALTH PLANNING

Mr. Chairman, a great deal has been accomplished in the past few months in translating our plans for the partnership program into action.

In the relatively short time since the program became operational, 54 of the 55 States and territories eligible to participate have initiated action by designating their State agencies to administer their health planning activities. In addition, the initial programs of 33 States for comprehensive health planning have been approved by the Surgeon General. We feel that these measures of significant progress demonstrate the enthusiastic response of the States to a major aspect of this legislation—the new concept of comprehensive statewide health planning.

To promote more effective planning for health services in communities and to assure its relationship to State comprehensive health planning, Public Law 89-749 provides project grants for comprehensive areawide health planning. The first series of applications for these grants is now undergoing review.

At the same time, the Nation's pool of manpower to conduct and to participate in comprehensive health planning—a field of critical manpower shortage is being augmented. During fiscal year 1967, initial support was provided for both the development of course curricula and for academic-year graduate training in comprehensive health planning. During the same period, support was provided

for short-term training and for orientation courses in health planning for over 5,000 individuals. The students currently supported will continue their training in 1969 and others will begin similar 2-year training programs in September. Continuing efforts to prepare the many professionals and nonprofessionals who will be participating in and contributing to comprehensive health planning will provide short-term training to about 2,000 people under this year's program.

THE STATE'S ROLE IN HEALTH SERVICES

A second major aspect of the partnership for health deals with health services provided through formula grants to State health and mental health departments. Prior to passage of Public Law 89–749, these State health programs were supported through nine narrow, disease-oriented categories. Under the partnership for health, the categorical restrictions were removed, thus affording the States new flexibility in dealing with the health needs which they determine to be most pressing and to which they assign high priorities in their health planning. As a result, a number of States have begun to promote and support health services in areas such as alcoholism and family planning, that previously were not supportable under the categorical approach.

This program focuses on the interrelation of activities supported by Federal State, and local governments. We feel that the most effective attack on local health needs can be made through localized identification of health needs and resources, planning, determination of priorities, and decisionmaking.

The State of Kansas, for example, should not be required to spend the same portion of its Federal grants-in-aid for health for tuberculosis control as the State of Massachusetts, when in any given year the tuberculosis problem may be very different in Kansas than it is in Massachusetts, or Kansas may be solving its tuberculosis problem through the use of State or local or voluntary funds.

FEDERAL-STATE-LOCAL EFFORTS

In addition to State formula grants, the program provides project grants to support services to meet health needs of limited geographical scope or of special regional or national significance. The elimination of categorical restrictions here, too, has encouraged the introduction of a wide array of new activities, including family planning, comprehensive health services development, alcoholism programs, encouragement of group practice, and health referral programs, for military draft rejectees. Basic sanitation and health education programs, directed primarily at slum area rodent control are also being given special emphasis. A 1968 supplemental program request for $20 million is reflected in the 1969 President's budget.

In organizing to assist the States and communities in combating their health problems, the Public Health Service has placed responsibility for grants review and approval in its nine regional offices—closer to the States and local communities and closer to the people these programs are designed to serve. Office of Comprehensive Health Planning staff in the regional offices are actively consulting with State and local agencies and prospective grant applicants within their regions.

As each level of Government becomes more involved in the partnership for health program, it has an obligation to assure the taxpayer that he is getting his money's worth. Accordingly, plans are underway to provide continuing evaluation of these programs. By analyzing target problems, project objectives, and proposed methods, efforts will be evaluated and changes recommended to assure that the best interests and needs of the public are met and that the health services and related activities supported by this program accomplish their purposes.

PROGRAMS OF SPECIAL LOCAL INTEREST

In addition to the broad programs I have just mentioned, the Office of Comprehensive Health Planning is playing an active role in the development of a number of special interest programs, including the model cities program, neighborhood health centers, and other neighborhood services. Working closely with the Department of Housing and Urban Development, the Office of Economic Opportunity, and other elements of the Department of Health, Education, and Welfare, the partnership for health is coordinating its efforts with other Federal agencies, to assure that the planning and service developments in the partnership program

contribute to meeting the national health needs as identified through State and local planning.

A typical project is one being planned by a local medical society in association with a city health department. It calls for development of a group practice plan, an extended-care facility, and a neighborhood health service center to be established in a major urban ghetto as a component of a model cities program. This kind of facility will provide prevention, diagnosis, treatment, chronic care, and rehabilitation services to people who now receive little if any health care.

Thus, we are beginning to foresee dramatic changes in the way health services are provided at the State and local levels, and in the methods of planning, decisionmaking, and allocation of health resources to meet health needs.

NATIONAL IMPACT

Finally, Mr. Chairman, I think that we all recognize that the rising costs of medical care constitute a very serious national problem. Sound planning is an important factor in minimizing this rise in cost. Although the partnership for health program is not charged with the specific responsibility of reducing health care costs, it should serve as a brake on the rapid escalation of prices. Not only will comprehensive health planning help assure that all of our health facilities are being used efficiently and effectively and that our resources, which are not inexhaustible, are being applied to the health problems with the highest priorities, it will also serve to identify and promote alternatives to high cost medical care services.

Our appropriation request for 1969 will permit Federal, State, and local agencies to move forward on the growing momentum of this program and to insure continuing progress toward the common goal of the highest level of health care available for every individual. To meet the responsibilities on the Federal side of this new partnership, we are requesting an appropriation of $195,383,000 for 1969, an increase of $37,467,000 over the $157,916,000 recommended for appropriation in 1968.

Mr. Chairman, I shall be happy to answer any questions you or the committee may have.

Dr. CAVANAUGH. Mr. Chairman, it is a pleasure to be here this afternoon with you and to have the opportunity to report on the accomplishments of the partnership for health program as we near the end of our first year of operation.

HISTORY OF PARTNERSHIP FOR HEALTH PROGRAM

Mr. FLOOD. When was the partnership for health program born?

Dr. CAVANAUGH. It was born when the President signed the legislation on November 3, 1966.

Mr. FLOOD. Tell me how this program was created.

Dr. CAVANAUGH. If we go back to the roots of the program with the passage of the original Social Security Act in 1936, Congress authorized a general health grant to each of the States to support development of public health services.

In 1939, 3 years after the initial grant-in-aid was authorized, Congress established a formula grant for VD control. Later, Congress authorized grant programs for tuberculosis control, cancer control, mental health, and other diseases. In 1965, the ninth formula grant, that for dental public health was established across the country.

A result of the establishment of the narrow disease-oriented categorical grants was to force the States to expend money in certain disease areas when, in fact, the health problems in any given year might vary widely among the States. For instance, the tuberculosis problem in Kansas is very different from the TB problem in Massachusetts. Under the old system, the State of Kansas had to spend its Federal TB grant for TB control and couldn't spend it for another health priority.

The result was either they spent it for TB or it reverted to the Treasury. TB might have minimal importance in the State of Kansas, whereas it might be a more urgent problem at that time in the State of Massachusetts or in other densely populated areas than the proportion of the Federal Health Service money available for tuberculosis work in such States would indicate.

I think it was an attempt to get at this problem and give the States more flexibility in allocating their health grants-in-aid that the administration proposed the Comprehensive Health Planning and Public Health Services Amendments of 1966. That act consolidated these nine categorical grants into one grant for health purposes.

Mr. FLOOD. It has been in operation about a year.

Dr. CAVANAUGH. We did not receive our first full appropriation until November of last year.

Mr. FLOOD. Very well. Go ahead.

Dr. CAVANAUGH. The purpose of the program is to promote and assure "the highest level of health attainable for every person, in an environment which contributes positively to healthful individual and family living * * *." The program is designed to do two things.

First, consolidates the former categorical grants, both formula and project grants. It also institutes programs of comprehensive health planning at the State and local level. We have authority provided by the Congress to make formula grants to State health planning agencies for the purpose of comprehensive health planning.

Mr. FLOOD. The formula are set up in the act?

Dr. CAVANAUGH. Yes, they are. They are based upon population and per capita income.

We also have authority to make project grants to local, or areawide, groups for the purposes of comprehensive health planning at the local level. The projects for areawide or local comprehensive health planning must be approved by the State comprehensive health planning agency.

Mr. FLOOD. That is the carrot. Do you have a stick in this also?

Dr. CAVANAUGH. Not in the planning area. The formula grants for health services, as well as the project grants for health services, which I will mention in a moment, must be in accordance with the overall State plan.

APPROVAL OF STATE PLANS

Mr. FLOOD. Must each State plan be submitted to you for approval?

Dr. CAVANAUGH. We approve, Mr. Chairman, the State applications for planning funds on a yearly basis. We do not approve and formally review the State's health plan that develops.

Mr. FLOOD. You don't send out a plan and say, "This would be a very good idea?"

Dr. CAVANAUGH. No, sir. Just the reverse. We are looking for local and State initiative in this program to structure planning programs to meet the varying needs of the Nation.

We have indicated that Gov. Hulett C. Smith, of West Virginia, and Gov. John A. Volpe, of Massachusetts, expressed their strong support for the program and wish for its expansion.

Mr. FLOOD. Does this support of Governors Smith and Volpe, so far as you know, represent fairly the reaction of the Governors pretty generally?

Dr. CAVANAUGH. Yes, sir. Representatives of the Department of Health, Education, and Welfare have visited personally with each of the Nation's Governors in describing the partnership for health program and its planning provisions.

Additionally, I might point out that former Governor Bryant of Florida made trips last spring to visit with each of the Governors, and this partnership was highlighted as the number one program to improve Federal-State relations.

Mr. FLOOD. Are any Governors unhappy with what you are doing?

Dr. CAVANAUGH. Not that I am aware of. It may happen at some future date.

In addition to our project grant authority for areawide planning, Mr. Chairman, we also have authority to award project grants for training, studies, and demonstrations leading to new or improved methods of comprehensive health planning. In beginning this effort, we have given priority to the development of health planners through the support of long-term training at a number of select universities across the country and through the support of some short-term training in comprehensive health planning.

STATE USE OF PRIVATE CONTRACTORS

Mr. FLOOD. Are there any private contractors that the State can hire to do this planning?

Dr. CAVANAUGH. It is my understanding that perhaps three or four of the 50 States are currently negotiating with outside contractors or consultants to do short interim studies on how their State governments can best organize for planning.

Mr. FLOOD. Does this bother you?

Dr. CAVANAUGH. At this point; no, sir. We would not foresee the development of outside groups involved in developing plans for the States. As a matter of fact, our regulations provide that no more than 50 percent of the State's grant can be contracted out or used for purposes other than development of a full-time State planning staff. I think there is need to build continuity. I think there is need to build planning into the patterns of State government, planning that involves both the State's many health activities and the voluntary efforts for health that go on in each State as well.

Mr. FLOOD. This is all theoretically sound, as the League of Nations was, and that didn't work.

Where are the separate and several States going to get the people to do this kind of planning that you and the Congress have in mind? I understand this type of personnel is as scarce as hen's teeth.

Dr. CAVANAUGH. They are very scarce, Mr. Chairman, and this is why we are so pleased with the project grant authority which we have for training of planners. We have made grants to eight universities and graduate schools for long term, 1- or 2-year programs for the development of health planners.

Additionally during the past year we have sponsored short term training, varying from 2 days to 4 weeks for over 5,000 persons across the country to receive short term training. The intent is to involve health people with the concepts of planning and to interest people in the planning field in the health sector and involve them in health

planning. We plan to continue and expand both types of training activity this current year. We see this as beginning to develop essential manpower not only for the partnership for health program—the activities at the State and local level supported by this program—but also for the many other Federal health programs that also have a planning component. As a part of this effort, we are also making grants for studies of planning methodology and demonstrations—showing how to do it—in planning.

Mr. FLOOD. Very well. Proceed.

FORMULA GRANTS

Dr. CAVANAUGH. If I may, I would like to indicate the very strong role that the States have in the determination of the expenditure of the formula grant for health services. The requirements imposed by the Congress are that the plan developed by the State health department or the mental health authority for the expenditure of these funds be in accordance with the State plan developed by the State health planning agency.

Mr. FLOOD. We appropriate to you and then what do you do? Do you allocate to the States based upon a congressional, statutory formula?

Dr. CAVANAUGH. On a formula basis.

Mr. FLOOD. And they allocate as they see fit throughout their jurisdiction?

Dr. CAVANAUGH. They do two things. They first develop a plan for the expenditure of the Federal portion of the State health department budget. That plan must be in accordance with the plan developed by the State health planning agencies.

GRANT MATCHING FEATURES

Mr. FLOOD. Is there any matching of Federal funds by the States in this program?

Dr. CAVANAUGH. They cannot use Federal funds under this program to supplant State funds. The State's share varies from one-third in States with lower per capita income up to two-thirds in States with higher per capita income.

The amendments in the last session of the Congress on this portion of the program add one additional requirement and that is that 70 percent of the formula grants be expended for health services in local communities.

LOCAL REACTION TO PROGRAM

Mr. FLOOD. How do the local people react to this?

Dr. CAVANAUGH. They react, Mr. Chairman, very favorably. The local groups, including the cities, the mayors, and the National Association of Counties, strongly supported this amendment.

Mr. FLOOD. How about the local medical societies, the AMA and the United Fund people, the professional welfare workers?

Dr. CAVANAUGH. They, too, are very supportive of the formula grant for health service. I think their big involvement at this point is not in the health services area but more in the area of planning at the State and local level.

There is a great deal of discussion going on in many local communities today about which organization or organizations or groups of people ought to be involved in the activities of the planning agency.

Mr. FLOOD. It is rather "who does it" than any opposition to it?

Dr. CAVANAUGH. That is correct. Precisely so.

PROJECT GRANTS FOR HEALTH SERVICES

I would conclude a summary of my statement by referring briefly to our project grants for health services. These are in addition to the formula grants made to all the States. These are designed to meet problems of States which are of special regional or national significance. Last year, the Congress extended the requirement that all of these project grants must be in accordance with State comprehensive health plans. Project grants in the past have been in categorical areas, heart disease, cancer, venereal disease, tuberculosis control. Congress, in enacting the partnership for health program, removed those categorical restrictions. Now, the project grants can be made for health services generally. They go to State, county, and city health departments, to universities, to hospitals and voluntary health associations and other interested groups. A current trend is to comprehensive family health care centers. In these centers, people will be getting the all-round health service they need. People who have had tuberculosis, for instance, will get the kind of continuing care they need to keep from breaking down again, and mothers will get care before and during their pregnancy so they have the best chance to have healthy babies, and all care will be directed at people, not at diseases or other health problems.

We are moving, I think, with very great strides, to relate these project-grant activities for health services to activities supported by other Federal agencies involved in health programs, as well as numerous local activities.

Mr. FLOOD. Do you have to sell this program, generate demand for it in any way?

Dr. CAVANAUGH. No, sir. I checked this morning before coming up here and I found that by the end of this fiscal year we expect to have approved projects amounting to $16 million more than the total funds available. I would say that $10 million worth of these projects were locally developed.

SUMMARY OF 1969 BUDGET REQUEST

Mr. FLOOD. Taking the reserves, transfers, and carryovers into consideration and assuming you get the proposed supplemental of $20 million for 1968, you are budgeting $200,383,000 for 1969. That is compared with $155,325,000 for 1968. That is an increase of $45,058,000.

Now, I suppose you read newspapers?

Dr. CAVANAUGH. Yes, sir.

ELEMENTS OF REQUESTED BUDGET INCREASE

Mr. FLOOD. I guess you have got the word. We have an extremely serious fiscal situation up here. I am understating it. This emphasis

of mine doesn't appear in the record. There is no sound track here. It is too bad sometimes.

Yet you are asking for an increase in each of the grant programs, and those increases average about 30 percent in dollars. And you also want a 30-percent increase in personnel. So you don't see the battle flags up here.

Now, under the circumstances why should increases of that magnitude in dollars and personnel be allowed?

Dr. CAVANAUGH. Mr. Chairman, I think it is fair to say the largest dollar increase, the 30 percent that you referred to, is in the area of health services, both in the formula grants for health services to the State authorities and in the area of project grants for health services. These are the programs that are designed to get health services to people who, at the current time, do not have them.

These are the programs designed to take real, firm steps to do something about the appalling health record of the American people, particularly the poor and other disadvantaged groups. These are health service programs designed to take steps toward combating, for instance, infant mortality so that the United States will move from the position it is in, with 13 other countries having lower infant mortality rates.

I would say we do have an appalling health record among the American people.

Mr. HULL. What is the matter with it?

Dr. CAVANAUGH. I think the health of the American people as a whole has never been better, but in specific areas it is appalling.

Mr. FLOOD. You are pretty fast on your feet. We can't argue about that one.

All right, go ahead.

RODENT CONTROL PROGRAM

Dr. CAVANAUGH. Let me go back, if I might, and point out one other reason for the increase in health services project grants. The Congress, on the floor of the House, added $20 million to the partnership for health authorization. For rat control programs. That was added on to the project grants for health services. That $20 million is reflected in our request for 1969 for project grants for health services and I think in large part that accounts for the increase. That very dramatic increase that you pointed out.

In the area of personnel, we are requesting positions so that we can undertake the evaluation authorized by the most recent amendments to the partnership for health. These permit the Secretary to use up to 1 percent of the health services appropriation for evaluation of these programs. We are attempting to assure you and the American people that the funds appropriated and used by the States and by the universities and by the hospitals and by the other awardees or grantees of these project grants are achieving the purpose that they were appropriated for and are achieving the purposes they were awarded for.

Mr. FLOOD. Would you develop that thought a little more for the record?

(The information requested is as follows:)

AMPLIFICATION OF REASONS FOR OCHP BUDGET INCREASES

The annual American investment in health now exceeds $50 billion. Costs for health services continue to rise, and health manpower continues in short supply. Sound planning is essential to the effective management of this investment, to the efficient utilization of our limited resources, and for a deescalation in the rise of health care costs. The first three sections of the partnership for health program support comprehensive planning competencies at the State and local levels and the development of personnel to do the planning job. Because these programs were new, only half the base amount was requested in 1968. With these limited funds, promising activities have been started.

A doubling of the appropriaiton for these three sections now is essential to bring support up to the base level and to keep the momentum going.

The requested increase of $12.5 million for developing planning competencies is an investment in cost reduction. We consider this increase as very small in view of the improved use of resources it promises, and we feel that failure to capitalize on the current momentum toward establishing planning agencies will cost many times over any temporary savings, in terms of the total national investment.

The same rationale applies to our request for 53 additional positions. As part of the 1967 partnership for health amendments, the Congress authorized that up to 1 percent of the amounts appropriated for health services grants might be used for evaluation. This provision was included so that subsequent health service projects might benefit from the experience of the past. A majority of the additional positions we are requesting will be used to analyze and evaluate supported health service projects and to advise others of the findings. By identifying within the 1,000 projects our grants support each year, the strengths, weaknesses, and reasons for unusual sucess or failure, etc., we can help State and local planners more often avoid the pitfalls and duplicate successful practices of the past. These analyses, evaluation and advisory positions therefore are another essential investment in improving efficiency and reducing costs across the public health sector.

The other increases requested from the 1968 level of $60,250,000 to $76,032,000 for State formula grants and from $77,500,000 to $89,100,000 for project grants, are for health services. Increased funds for both of these programs will be used to get needed health services to the people who need them most. There are 13 other countries with lower infant mortality rates than ours, and life expectancy for males is longer in 17 other nations. The United States has these low rankings largely because of past inattention to the health needs of the American poor. The baby born into a nonwhite family in this country is twice as likely to die during infancy as one born into a white family, and the mother of that baby is four times as likely to die in childbirth as the average white American woman. Accordingly, in 1965 life expectancy for the nonwhite male was 64.1 years, as contrasted with an expected life of 71 years for the white American male. The requested increases for health services therefore are justified in terms of American lives—lives of infants born to poor families with too little chance to grow up healthy—lives of mothers that would not be risked if they had proper care—lives of men in what should be their prime that are lost to diseases we know well how to control and treat. By and large these are poor people living in city slums, and we have neglected them for generations. We consider this neglect appalling. Federal dollars invested in formula and project grants for health services will stimulate and support the needed State and local attention to the urgent problems of these people.

Accordingly, we feel that funds for starting health service projects, for establishing comprehensive family health care centers, for eradicating rats from the cores of our cities, warrant a very high priority despite other demands on the Federal budget.

STATE PLANS

Mr. FLOOD. What States are there, if any, without an approved State plan this afternoon?

Dr. CAVANAUGH. Only one State, Mr. Chairman, and that is the State of Arizona, which has not yet designated a State agency for comprehensive health planning. The Arizona State government has

been interested in developing an interdepartmental State planning agency and have held up their designation of an organization pending a total reorganization of health and welfare activities within the State government. They had a meeting in Arizona approximately 4 weeks ago which involved 600 health and welfare leaders from around the State to discuss the partnership for health program and the Governor has indicated that they will be notifying us of their designation of a State health planning agency within the next 30 days.

Mr. FLOOD. Then they will have what you call a plan; is that it?

Dr. CAVANAUGH. When they submit the plan to us. First we must have the designation of the State agency. About 30 of the State have designated their State health departments. In the remaining States, the agency is a interdepartmental council or is placed in a planning office or in the immediate office of the Governor.

Mr. FLOOD. Arizona will be in, then, in a reasonable period of time?

Dr. CAVANAUGH. Yes, sir.

AREAWIDE PLANNING GRANTS

Mr. FLOOD. You requested $10 million, an increase of 100 percent over 1968 for areawide planning grants. This program sounds very much to us like our old friend, the regional medical programs. Would you separate the two for us?

Dr. CAVANAUGH. The regional medical programs were conceived as an effort to enhance and improve the care of patients with heart disease, cancer, stroke, and related diseases across the country.

Areawide planning is not to launch a specific operational program. It is designed to assure, on a continuing basis, comprehensive health plans for all health services, for the manpower required to carry out those services, for the facilities required to carry out those services. As such, it will need to involve such federally sponsored programs as the regional medical program, the maternal and child health program, the neighborhood health centers of OEO, mental retardation planning, and mental health planning. In addition, it must involve all the plans and efforts in behalf of health that go on without Federal grant support.

Mr. FLOOD. How much geography would be in one of your areas?

Dr. CAVANAUGH. I don't believe we could provide a realistic average. Greater New York City, for instance, is one region; 20 counties in Iowa might form another region. The northern half of Wisconsin might form another.

Mr. FLOOD. You use the word "area" as distinguished from region?

Dr. CAVANAUGH. Yes, sir.

Mr. FLOOD. But they are synonymous?

Dr. CAVANAUGH. Very much so.

Mr. FLOOD. These actually complement each other for the purposes of this program?

Dr. CAVANAUGH. For the purposes of this program, they do. Just as this program complements other activities, such as mental health, mental retardation, other State programs, and the local and voluntary programs that are underway. Again we are interested in assuring a continuing planning process, rather than planning to launch a specific program, or planning to operate a specific program. This a program

that is going to take a look at the community health facilities that are needed, determine the types of services, the types of people, for instance, that will be needed to carry out State medicaid programs by 1972.

Mr. FLOOD. The planning isn't a one-shot thing? You can plan and set up an operation and then amend and add to it as the situation develops.

Dr. CAVANAUGH. Precisely.

RAT CONTROL PROGRAM

Mr. FLOOD. How many States are now active in this rat control program that you mentioned and how much money is involved in these States?

Dr. CAVANAUGH. Most States are using a proportion of their formula grants for health services, for environmental health programs that include rat control activities. Specific amounts directed to rat control were not identified since these broader activities were started prior to the passage of the expanded project grant authorization last fall.

At the current time none of the funded project grants for health services are for rat control programs.

Mr. FLOOD. When did that money first become available?

Dr. CAVANAUGH. It has not become available as yet, sir. It is in the President's budget as a first request for funds for that program.

Mr. FLOOD. How many projects are under development for rat control programs?

Dr. CAVANAUGH. We have a preliminary survey that has revealed a total of about $26 million in projects that are under development across the country in New York, Chicago, Philadelphia, and Los Angeles, to cite a few.

Mr. FLOOD. Any from any rural areas?

Dr. CAVANAUGH. Only a few that I am aware of at this point. It is primarily an urban concentration of applications.

Mr. FLOOD. Now, you are asking for an increase of over $21 million for project grants. How much of that would be spent on rat control?

Dr. CAVANAUGH. It is very difficult to determine how much will be spent for rat control. The authorization was for $20 million. The President's budget indicated a request for $20 million would be forthcoming for project grants for health services generally. The proviso on our project grants is that each of the project grants must be in accordance with State plans and I think before we could indicate a prescribed dollar figure, the amount that would go for rat control programs, we would have to see the priorities that were established for the use of project grant funds as developed at the State and local level.

FUNDING FOR TUBERCULOSIS AND VENEREAL DISEASE

Mr. FLOOD. We used to appropriate for tuberculosis and venereal disease as such. Would you put a table in the record showing the amounts spent in each of those two areas in 1965, 1966, 1967, and the estimate for 1968?

Dr. CAVANAUGH. We would be very happy to do that.

(The information requested is as follows:)

TB AND VD PROJECT GRANT AWARDS, 1965-68

	1965		1966		1967		1968 estimate[1]	
	Number	Amount	Number	Amount	Number	Amount	Number	Amount
Tuberculosis control	72	$4,998,357	74	$9,446,486	81	$13,555,739	83	$17,200,000
Venereal disease control	71	6,228,656	71	6,228,960	73	6,229,236	61	8,000,000

[1] Under the comprehensive health planning services legislation, funds are not earmarked or appropriated for specific health categories. Rather projects are supported on the basis of their merit and the priority of needs they may be expected to meet. The 1968 estimate therefore is advisory only; it represents a projection from evidence now on hand, not an earmarking of funds.

TUBERCULOSIS CONTROL PROJECTS

Dr. CAVANAUGH. We will be very happy to supply the above for the record, Mr. Chairman, and in response to your question, I can say that the amount of funds being awarded to date in 1968 for tuberculosis control has increased over the amount that was line-item budgeted in 1967.

Mr. FLOOD. Why?

Dr. CAVANAUGH. Because of the priorities again, which some States and some local communities have placed on tuberculosis control problems. I think one of the virtues of this particular program is that it recognizes varying needs between areas. I have been told that more than half of the tuberculosis problem in the United States today is located in about 88 counties. I think flexible use of these funds, moving away from allocation on a State-by-State basis permits more precise targeting of those specific counties.

Mr. FLOOD. I asked the Surgeon General if there had been any flareup in tuberculosis nationwide and he said there had not been. There was intensity in certain areas but in answer to my question, the answer was "No."

VENEREAL DISEASE

How about venereal disease? There is a flareup in venereal disease?

Dr. GEHRIG. I don't have that figure with me, but you are quite right, there has been an increase in venereal disease particularly in the gonorrhea area.

Mr. FLOOD. Dramatic?

Dr. GEHRIG. This has been fairly significant. I would like to quantify it for the record, if I may.

(The information requested is as follows:)

PRIMARY AND SECONDARY SYPHILIS, GONORRHEA, AND INFECTIOUS[1] VENERAL DISEASE—REPORTED CASES AND RATES PER 100,000 POPULATION BY AGE GROUPS

U.S. SUMMARY, CALENDAR YEARS 1964-67

Calendar year	0 to 14 years of age		15 to 19 years of age		20 to 24 years of age		25 years and over		Total all ages	
	Number	Rate per 100,000 population	Number	Rate per 100,000 population	Number	Rate per 100,000 population	Number	Rate per 100,000 population	Number	Rate per 100,000 population
Primary and secondary syphilis:										
1964	292	0.5	3,595	22.7	6,455	53.4	12,627	12.4	22,969	12.1
1965	281	.5	4,039	24.2	6,575	52.5	12,443	12.1	23,338	12.2
1966	242	.4	3,846	22.1	6,033	47.5	11,293	10.9	21,414	11.1
1967[2]	232	.4	3,799	22.1	5,953	43.5	11,124	10.6	21,108	10.8
Gonorrhea:										
1964	4,604	7.8	61,066	386.2	105,807	874.7	129,189	126.5	300,666	158.8
1965	4,525	7.6	66,947	400.8	114,945	918.5	138,508	134.8	324,925	169.3
1966	4,246	7.1	76,032	436.1	126,339	994.4	145,121	140.2	351,738	181.6
1967[2]	4,864	8.1	87,556	508.6	145,521	1,064.4	167,409	159.7	405,350	207.1
Infectious[1] veneral disease:										
1964	4,896	8.3	64,661	408.9	112,262	928.0	141,816	138.9	323,635	170.9
1965	4,806	8.0	70,986	425.0	121,520	971.1	150,951	146.9	348,263	181.5
1966	4,488	7.5	79,878	458.2	132,372	1,041.9	156,414	151.1	373,152	192.7
1967[2]	5,096	8.5	91,355	530.8	151,474	1,107.9	178,533	170.3	426,458	217.9

[1] Primary and secondary syphilis and gonorrhea.
[2] Provisional data.

Morbidity of unknown age has been included on basis of known age distribution.

Dr. GEHRIG. The program people will speak more specifically to this. There have been some problems in connection with resistance strains that have been noted in the past, particularly in the overseas experience. This resistance has not been an overwhelming thing. Penicillin is still very effective therapy.

Mr. FLOOD. Are we also faced with a syphilis problem?

Dr. GEHRIG. Significant amounts of it, yes.

EVALUATION CONTRACTS

Mr. FLOOD. Now, I noticed on page 39 that you expect to spend $30,000 on project contracts this year and that you are budgeting $1,308,000 for this purpose in 1969. That is what even you would call a great difference.

Dr. CAVANAUGH. Yes, sir; it is, and that is to carry out our responsibilities as we see them in the area of evaluation. The last Congress authorized use of 1 percent of the project grant moneys and formula grant moneys for evaluation. This amount for contracts is nearly all for evaluation. We see these contracts going to universities, to certain State health departments and to outside corporations and private contractors for performing evaluation studies of the effectiveness of project grants in meeting the needs for which they were awarded. We feel this is one of the major steps that we are taking in the forthcoming year.

Mr. FLOOD. It is quite an increase.

RESERVES, CARRYOVERS, AND TRANSFERS

Will you set out for the committee at this point in the record your reserves, your transfers, and your carryovers for fiscal years 1968 and 1969?

Dr. CAVANAUGH. We will be happy to, Mr. Chairman.

(The information requested is as follows:)

OCHP RESERVES, CARRYOVERS, AND TRANSFERS, FISCAL YEAR 1968-69

COMPREHENSIVE HEALTH PLANNING AND SERVICES

	1968	1969
Appropriation estimate [1]	$160,676,000	$195,383,000
Transfers	−91,000	
Carryovers:		
1. Grants to States for comprehensive health planning	2,500,000	
2. Project grants for health services development (from supplemental request)	−5,000,000	+5,000,000
Reserves	−2,760,000	
Total obligations	155,325,000	200,383,000

[1] Includes proposed supplemental of $20,000,000 in 1968.

Mr. FLOOD. Mr. Laird.

TIMING OF 1968 SUPPLEMENTAL REQUEST

Mr. LAIRD. Mr. Chairman, have you developed the record with regard to the supplemental request that the administration refused to submit in the first session of the 90th Congress on the amendment to the comprehensive health planning and services program?

Mr. FLOOD. I didn't use that language, and I doubt that I developed it in the same way you would.

Mr. LAIRD. I just discussed it with the staff of the committee and I find that as of 3 o'clock this afternoon, no such supplemental has been received. Evidently this is a very low priority item, is that correct?

Dr. CAVANAUGH. Mr. Laird, I can't speak for the priority. I do know that the President included it in the 1969 budget that he submitted to the Congress in January, stating it would be forthcoming.

Mr. LAIRD. That has been weeks ago. From the standpoint of priorities, this evidently is a very low priority item.

Mr. CARDWELL. Mr. Laird, could I make a comment? We talked about this before when the Secretary was here.

Mr. LAIRD. All I know is that I listened to the President's speech in Miami. He took issue then with Members of Congress that felt that the program shouldn't be in the Department of Housing and Urban Development, and that the so-called rat eradication program shouldn't be a new grant-in-aid program. They felt it should be in the Public Health Service under the already established broad, block grant approach, allowing the States to establish priorities within their overall health program. But, never mind where it should be. I thought, after listening to that speech and some other statements made by the President, that the program itself was a high priority item. Now I find that evidently it has become a very low priority item. There is no possible way that any of these funds would be used in fiscal year 1968, because the supplemental has not yet even been transmitted to the Congress. Is that correct?

Dr. CAVANAUGH. Mr. Laird, I would just like to provide a point of elaboration if I might.

I do know that the time that has been involved in, first, surveying the need across the country, as reflected by the applicants coming in for information——

Mr. LAIRD. There were surveys made before the program was sent to Congress. There must have been.

Dr. CAVANAUGH. Very definitely.

Mr. LAIRD. You are still surveying the need? Is that the reason they are holding up the supplemental request?

Dr. CAVANAUGH. We are surveying the need in terms of the number of applications that will be coming in between now and the first of July.

Mr. LAIRD. Requesting a supplemental so late in the year that there are only 60 days, at most, left to spend the money reflects the worst approach to funding a project basis program. That isn't the way to handle a program like this. It does not operate in an orderly fashion that way. The deadline, as far as I can see, has passed for 1968. Now, I certainly think we should make some funds available for 1969. But the way the executive branch has dragged its feet on this supplemental, I just don't understand it.

Mr. CARDWELL. Mr. Laird, I think I might be able to help a little bit. We visited the Bureau of the Budget Tuesday evening and we discussed with the Budget Bureau staff the question of this and other supplementals. We were advised it is coming up within a day or so to the Congress and that the rat supplement——

Mr. LAIRD. But you were over there really discussing the secondary and elementary education supplemental request?

Mr. CARDWELL. That is right.

Mr. LAIRD. And this rat program was just sort of an afterthought at that conference?

Mr. CARDWELL. No, sir. In fact, I believe you will find that when it comes to the Congress, the request will contain a proposal to extend the availability for about 5 months, to December 31, 1968—in order to solve the problem you cite.

Mr. LAIRD. It seems to me the problem is to make the money available in 1968. You will get your 1969 funds almost as soon as this next supplemental.

Mr. CARDWELL. I would hope we get the supplemental well ahead of the 1969 budget. I would expect the Congress to act promptly.

Mr. LAIRD. The Congress has already received a supplemental request for items the administration felt were urgent and had to be funded in this session of Congress; that supplemental started out in January. It won't be approved before April. The next supplemental will probably start out in May and we will be fortunate if it is approved by the first of July.

Our schedule now for the regular 1969 Labor and Health, Education, and Welfare bill is to report it out of full committee by the 21st of May and have it on the floor on the 23d of May.

I think we might as well forget about the supplemental. Let's see what you need in the 1969 bill to handle this program.

Dr. CAVANAUGH. I think we have indicated in the budget which we have submitted the need for 1969.

Mr. LAIRD. You don't necessarily need any more than that even though you don't get a supplemental.

Dr. CAVANAUGH. The 1969 request was put together with the full knowledge that the 1968 supplemental would be transmitted to the Congress.

Mr. LAIRD. Who gave you that knowledge? Here it is at 3 o'clock in the afternoon and it is the 5th day of March. The authorization bill has been the law of the land for 5 months. This was supposedly a high-priority item. Why did the priorities get changed?

Mr. CARDWELL. It is still being treated by the administration as a high-priority item.

Mr. LAIRD. But not urgent.

Mr. CARDWELL. The definition of urgency on the first request for supplementals had to do only with those programs where there was a commitment to pay money to beneficiaries, and where there was a predictable date at which the Government would run out of money. The President asked for the most urgent action on those items, but that is not to say that all other items are not important.

Mr. LAIRD. Rehabilitation was included in that supplemental. It could have been funded at a later time. That was considered urgent.

Mr. CARDWELL. That program had been initiated in the prior year and at that hour there was no money to carry it out. That was the reason it was included in that first package. There were only three items in the first package.

Mr. LAIRD. That included no payments to beneficiaries and you just indicated to me that the only things included were programs that in-

cluded payments to beneficiaries. There were no payments to beneficiaries in that request.

Mr. CARDWELL. With that one exception. They did meet the criterion of money having run out, or having a predictable date on which it would run out.

Mr. LAIRD. My problem here is that I have seen my colleagues on both sides of the aisle get beat over the head by a—to put it mildly—questionable public relations operation on the part of some people in the administrative part of the Government on this particular issue. The chairman of the full Appropriations Committee was criticized most severely from one end of the country to the other on a statement he made. I didn't happen to be here the day the bill was voted on to make this authorization available to HUD. I saw releases put out by the Secretary of HUD criticizing both Democrats and Republicans in the Congress for voting against the most urgent thing that faced the cities in America. The rat program had been turned down and there weren't going to be funds authorized for that program. Had I been here that day, I would have opposed giving that program to HUD. I wasn't here and I didn't vote on it. But had I been here, I would have voted the same way Chairman Mahon voted, because I feel it is better to have it in the Public Health Service. There you have the trained health people. I think this is where it should be and I voted to put it there.

Mr. FLOOD. As a matter of fact, while the first bill was killed in the House, the gentleman from Wisconsin, who is now speaking, had a great deal to do with getting what we finally got on the second round.

Mr. LAIRD. Right. I did everything I could to see that there was such a program, but there has been nothing but foot-dragging on the part of the administration in requesting funds for it. It is not now the urgent program Mr. Weaver castigated Members of the House of Representatives on both sides of the aisle, including Chairman Mahon, for failing to support when he wanted it in HUD.

It is now the 5th of March. You might as well forget about a supplemental for 1968 because you can't process projects and applications in an efficient manner between the time you would get the money and the 30th of June, even if you get the request up here tomorrow. This isn't the way to handle this kind of a program. I think the executive branch is subject to serious criticism for the manner in which this has been handled. I wanted to make that very clear during the presentation you are making here today, in defense of the Congress in general and in defense of the chairman of our full committee and others who felt the lash of unfair criticism for their votes on this issue.

That is all I have.

Mr. FLOOD. Are there further questions?

NEIGHBORHOOD HEALTH PROGRAMS

Mr. CASEY. I would like for you to tell me a little about your neighborhood health programs in cooperation with the OEO. Do you finance those?

Dr. CAVANAUGH. No, sir; we do not finance and have not financed any of this date. We have been asked to provide in certain communi-

ties some technical assistance in the development of comprehensive health center programs.

Additionally, where our project grants under this program—for instance, in the area of TB or in the area of VD—serve the same people as existing or newly-created neighborhood health centers serve, whether these are sponsored by OEO, by other components of the Department of Health, Education, and Welfare, or by local groups, we think that our project grant money—which is limited—can be better utilized and can have much greater impact if these health services are carried out in connection with other related health activities.

PROJECT GRANTS

Mr. CASEY. You refer to project grants. What is a typical project grant that you make?

Dr. CAVANAUGH. To begin with, the recipient of a project grant may be a State, a county or local health department, a university, a hospital, or a voluntary health association.

Historically, these projects have been made for specific public health purposes, including the control of venereal disease, tuberculosis, or for cancer detection or programs in mental retardation; both training and carrying out the services.

Mr. CASEY. Now, break this down. Training in what? What type of training?

Dr. CAVANAUGH. All related training, Mr. Casey. Let me provide an example. Where we are making a project grant to a particular hospital to encourage it to carry out a cancer detection program and where this particular cancer detection program requires a laboratory technician, with specific skills, in the examination of all cancer tissues, we will provide supplemental funds for training of that technician. The basic purpose of this program is not for training. It is for health services and directly related training.

Mr. CASEY. In other words, yours is more of a supplemental for some existing program; is that right?

Dr. CAVANAUGH. No, sir. In the training area, that is right, but in the Public Health Service——

Mr. CASEY. Your main ones, like your TB detection, your VD, and so forth, that is through the State agencies, is it not?

Dr. CAVANAUGH. It is required that the project be in accordance with the overall State plan. It is not specially through the State agency. It can go to local groups or voluntary groups.

Mr. CASEY. Do you finance them?

Dr. CAVANAUGH. Yes, sir.

Mr. CASEY. In whole or in part?

Dr. CAVANAUGH. In whole and in part, depending upon local conditions.

Mr. CASEY. Is this something that goes on and on, or is it something where somebody decides, "We have an area where we need to put on a big drive in education and detection," and you have a project for a period of time.

Dr. CAVANAUGH. It is the latter, without question. The design of the project grants as we are administering them is to get a service that is not available locally, start it, build it into the regular fabric of

medical practice or of health care within that community and to phase out our support. Most of our projects are made for a term of 3 years with a decreasing amount. The second and third year of the project, the Federal share decreases, and it is picked up by local sources.

Mr. CASEY. Do you have any major cities that don't have an ongoing program, say on VD and TB detection?

Dr. CAVANAUGH. There are no major cities which do not have an ongoing program. There are major cities which do not have a fully effective program because of the unavailability of resources.

Mr. CASEY. And those you supplement, is that it?

Dr. CAVANAUGH. Yes, sir. That is, we provide the means to make their programs more fully effective.

Mr. CASEY. Is that direct to the cities, for example, or the city health agency or the county health agency?

Dr. CAVANAUGH. Yes, sir; direct to the city or county.

Mr. CASEY. But it must be approved by the States?

Dr. CAVANAUGH. It must be in accord with State health planning; yes, sir.

PLANNING GRANTS

Mr. CASEY. Now, the planning grants that you have listed here, what type of grant is that? Statewide or local planning or what?

Dr. CAVANAUGH. We have two types. One is a planning grant to a designated State agency for overall State health planning. The grant can be made to an existing State agency, an interdepartmental agency or a newly created one.

Mr. CASEY. They come to you and they say, "We want to work up a comprehensive health program." Is that what they do? They want to submit to you what they propose to do in the way of developing data to work out a workable plan of comprehensive health, is that what it is?

Dr. CAVANAUGH. Yes, sir. They want a plan to insure availability of health services to the population in the planning area, as well as to insure the most effective use of health resources which are becoming increasingly scarce, both in terms of dollars and in terms of personnel.

Mr. CASEY. And this is strictly just planning money?

Dr. CAVANAUGH. Yes, sir.

Mr. CASEY. There are no funds in there for carrying on any service. Your project grants are for that. Detection and services.

Dr. CAVANAUGH. Yes, sir. Both the formula grants and the project grants for health services.

Mr. CASEY. How long do you think you are going to have to continue to ask for planning money?

Dr. CAVANAUGH. I would hope that we would have a permanent ongoing planning program here. I think the difference, Mr. Casey, is the nature of the planning process that we are attempting to launch here. It is not planning to launch a specific program, or operate a specific program. It is planning on a continuing basis for all health programs going into an area, for all health services to be provided.

Mr. CASEY. Do you mean there will be planning going on from now on; is that right?

Dr. CAVANAUGH. Yes, sir. This year a given State may identify its key area as the shortage of health manpower and will take a special look at the availability of health manpower. In the following year, it may be the availability of other than acute general hospital care. The year after that, the needs of the particular State for nursing homes and extended care. In the year after that, for coming back and taking a look at the manpower area.

Mr. CASEY. These are surveys then that are made.

Dr. CAVANAUGH. A combination of surveys, analyses and planning carried on by all health organizations in the State. It is a process of involving the public for the first time on the State level in the decision-making process. We require that each State have an advisory council and that the majority on each advisory council be consumers of health services.

Mr. CASEY. Do you turn this information over to the health manpower section here that we have? The health manpower education and utilization section? This information you develop?

Dr. CAVANAUGH. Yes, sir. Our regulations provide that the State planning agency make its planning needs and its recommendations available to all health groups within the particular State, and to Federal agencies as well.

Mr. CASEY. I don't think we need any study to determine that we are short of nurses, short of hospital beds, short of technicians, we are short of nonprofessional help as well as the professional help.

Are these planning grants just to determine how short we are and get the people alarmed or what?

Dr. CAVANAUGH. On the contrary. These planning grants are designed with these shortages in mind, to determine how best we can get health services to people and how we best can utilize our health care dollars, what alternatives are there for services that we can't provide now, either because of shortages of dollars, or shortages of personnel or shortages of facilities. What are the alternatives? How can we make the choices? How can we involve the public and Government in this decisionmaking process at the local level?

Mr. CASEY. Do you reach any conclusions in the questions you have raised?

Dr. CAVANAUGH. We have reached one primary conclusion. That is that planning has got to be part of the process in arriving at these decisions.

We made our first planning grants a little over 6 months ago. The States have appointed their advisory councils and are beginning to employ staff.

Mr. CASEY. That is for the State?

Dr. CAVANAUGH. The State health planning agency.

Mr. CASEY. How long do you think it will take them to start bringing back the data?

Dr. CAVANAUGH. Next year I hope to be able to provide examples of what the States have done.

I might point out a number of States have taken State resources and allocated them to launching this planning effort on a very limited basis, pending the availability of Federal funds. They have been in it for about a year from the time the original legislation was authorized.

Mr. HULL. As I look through your justifications, I don't see anywhere where you have educational programs directed at the students who use LSD and sniff glue. Do you have such a program in your organization?

Dr. CAVANAUGH. That type project could be supported under project grants for health services.

Mr. HULL. Could be; but did you have any actual ones that pinpointed this as such?

Dr. CAVANAUGH. There are no projects at this point in time awarded for that purpose. There have been some that are in the developmental stage, as I understand it.

Mr. HULL. Don't you think that is one of the most important things in this field today?

Dr. CAVANAUGH. I think it is very important. I think the States would have to share that view of importance in terms of their priorities established for the use of these funds.

Mr. HULL. Can you be helpful in seeing that the States do share it?

Dr. CAVANAUGH. I think we have activities engaged in this area.

Mr. HULL. That is all. Thank you.

Mr. FLOOD. Thank you, very much.

JUSTIFICATION MATERIAL

AMOUNTS AVAILABLE FOR OBLIGATION

	1968	1969
Appropriation	$140,676,000	$195,383,000
Transfer to "Office of the Surgeon General, salaries and expenses"	−91,000	
Program supplemental proposed for separate transmittal	20,000,000	
Unobligated balance brought forward	2,500,000	5,000,000
Unobligated balance carried forward	−5,000,000	
Total	158,085,000	200,383,000

OBLIGATIONS BY ACTIVITY

	1968 estimate		1969 estimate		Increase or decrease	
	Positions	Amount	Positions	Amount	Positions	Amount
Grants:						
Planning		$14,750,000		$24,750,000		+$10,000,000
Formula		60,250,000		76,032,000		+15,782,000
Project		72,500,000		94,100,000		+21,600,000
National Center for Health Service Research and Development		5,000,000				−5,000,000
Direct operations	180	2,825,000	233	5,501,000	+53	+2,676,000
Review and approval	77	1,260,000	90	1,830,000	+13	+570,000
Program direction and technical assistance	103	1,565,000	143	3,671,000	+40	+2,106,000
Total obligations	180	155,325,000	233	200,383,000	+53	+45,058,000
Unobligated balance reserve	5	2,760,000			−5	−2,760,000
Total, obligations and reserve	185	158,085,000	233	200,383,000	+48	+42,298,000

AMOUNTS AVAILABLE FOR OBLIGATION (NEW OBLIGATIONAL AUTHORITY BASIS)

	1968	1969
Appropriation	$140,676,000	$195,383,000
Transfer to "Office of the Surgeon General, salaries and expenses"	−91,000	
Proposed for separate transmittal: Program supplemental	20,000,000	
Total, new obligational authority	160,585,000	195,383,000

OBLIGATIONS BY ACTIVITY

	1968 estimate		1969 estimate		Increase or decrease	
	Positions	Amount	Positions	Amount	Positions	Amount
Grants:						
Planning		$12,250,000		$24,750,000		+$12,500,000
Formula		60,250,000		76,032,000		+15,782,000
Project		77,500,000		89,100,000		+11,600,000
National Center for Health Services Research and Development		5,000,000				−5,000,000
Direct operations	180	2,825,000	233	5,501,000	+53	+2,676,000
Review and approval	77	1,260,000	90	1,830,000	+13	+570,000
Program direction and technical assistance	103	1,565,000	143	3,671,000	+40	+2,106,000
Total new obligational authority	180	157,825,000	233	195,383,000	+53	+37,558,000
Unobligated balance reserve	5	2,760,000			−5	−2,760,000
Total, new obligational authority and reserve	185	160,585,000	233	195,383,000	+48	+34,798,000

OBLIGATIONS BY OBJECT

	1968 estimate	1969 estimate	Increase or decrease
Total number of permanent positions	180	233	+53
Full-time equivalent of all other positions	687	757	+70
Average number of all employees	840	950	+90
Personnel compensation:			
Permanent positions	$1,712,000	$2,206,000	+$494,000
Positions other than permanent	4,787,000	5,265,000	+478,000
Other personnel compensation	6,000	6,000	
Total personnel compensation	6,505,000	7,477,000	+972,000
Personnel benefits	662,000	775,000	+113,000
Travel and transportation of persons	423,000	577,000	+154,000
Transportation of things	81,000	152,000	+71,000
Rent, communications, and utilities	68,000	127,000	+59,000
Printing and reproduction	54,000	157,000	+103,000
Other services	78,000	284,000	+206,000
Project contracts	30,000	1,308,000	+1,278,000
Supplies and materials	32,000	78,000	+46,000
Equipment	31,000	131,000	+100,000
Grants, subsidies, and contributions	147,361,000	189,317,000	+41,956,000
Total, obligations by object	155,325,000	200,383,000	+45,058,000

Summary of changes

1968 enacted appropriation	$140,676,000
Program supplemental proposed for separate transmittal	20,000,000
Transferred to "Office of the Surgeon General, salaries and expenses"	−91,000
Unobligated balance brought forward	2,500,000
Unobligated balance carried forward	−5,000,000
Unobligated balance reserve	−2,760,000
1968 total estimated obligations	155,325,000
1969 estimated obligations	200,383,000
Total change	+45,058,000

	Base		Change from base	
	Positions	Amount	Positions	Amount
Increases:				
A. Built-in—				
1. Annualization of new positions authorized in 1968				$78,000
2. Annualization of increased pay costs				29,000
3. 1 more day of pay in 1969 (260 days in 1968, 261 days in 1969)				7,000
B. Program:				
1. Planning grants		$14,750,000		10,000,000
2. Formula grants		60,250,000		15,782,000
3. Project grants		72,500,000		21,600,000
4. Review and approval of grants	77	1,260,000	13	496,000
5. Program direction and technical assistance	103	1,565,000	40	2,076,000
Subtotal, program increases			53	49,954,000
Total increases			53	50,068,000

Summary of changes

(New obligational authority basis)

1968 enacted appropriation	$140,676,000
Program supplemental proposed for separated transmittal	20,000,000
Transferred to "Office of the Surgeon General, salaries and expenses"	−91,000
Unobligated balance reserve	−2,760,000
1968 new obligational authority	157,825,000
1969 new obligational authority	195,383,000
Total changes	+37,558,000

	Base		Change from base—	
	Positions	Amount	Positions	Amount
Increases:				
A. Built-in—				
1. Annualization of new positions authorized in 1968				$78,000
2. Annualization of increased pay costs				29,000
3. 1 more day of pay in 1969 (260 days in 1968, 261 days in 1969)				7,000
B. Program:				
1. Planning grants		$12,250,000		12,500,000
2. Formula grants		60,250,000		15,782,000
3. Project grants		77,500,000		11,600,000
4. Review and approval of grants	77	1,260,000	13	496,000
5. Program direction and technical assistance	103	1,565,000	40	2,076,000
Subtotal, program increases			53	42,454,000
Total increases			53	42,568,000
Decreases:				
A. Built-in—				
1. Nonrecurring items of equipment related to new staff in 1968				−10,000
2. Nonrecurring project grants for health services development		5,000,000		−5,000,000
Total decreases				−5,010,000
Total net changes requested			53	45,058,000

EXPLANATION OF CHANGES

Planning grants

A net program increase of $10 million is requested to be distributed among the following areas:

(1) Grants to States for comprehensive State health planning, $2,500,000;
(2) Project grants for areawide health planning, $5 million;
(3) Project grants for training, studies, and demonstrations for comprehensive health planning, $2,500,000.

Formula grants

An increase of $15,782,000 is requested to support grants to assist States financially in establishing and maintaining adequate public health services in a manner consistent with the State comprehensive health plan.

Project grants

An increase of $21,600,000, including $5 million brought forward from the proposed supplemental in 1968, is requested to support grants to nonprofit organizations and institutions, and State and local health agencies to cover part of the cost of providing services to meet health needs, such as rat control programs, and to stimulate and support new public health programs.

	Base		Change from base—	
	Positions	Amount	Positions	Amount
Decreases:				
A. Built-in—				
1. Nonrecurring program costs related to new staff in 1968				−$10,000
2. Nonrecurring project grants for health services development		$5,000,000		−5,000,000
Total decreases				−5,010,000
Total net changes requested			53	37,558,000

EXPLANATION OF CHANGES

Planning grants

An increase of $12,500,000 is requested to be distributed among the following areas:

(1) Grants to States for comprehensive State health planning, $5,000,000.
(2) Project grants for areawide health planning, $5,000,000.
(3) Project grants for training, studies, and demonstrations for comprehensive health planning, $2,500,000.

Formula grants

An increase of $15,782,000 is requested to support grants to assist States in establishing and maintaining adequate public health services in a manner consistent with the State comprehensive health plan.

Project grants

An increase of $11,600,000 is requested to support grants to cover part of the cost of providing services to meet health needs, such as rat control programs, and to stimulate and support new public health programs.

Review and approval of grants

An increase of 13 positions and $496,000 is requested to strengthen the review and approval activities of this program. Additional staff will be assigned to each regional office to meet the increased workload demands caused by the noncategorical nature of the formula and project grant programs. Headquarters staff will be increased by four positions.

Program direction and technical assistance

The key element of the partnership for health which is more efficient utilization of health resources, requires continuing improvement of the planning process

and continuing evaluation of health services program. An increase of 40 positions and 2,076,000 is requested to (1) provide expansion of technical planning assistance to States and communities, acceleration of the development of improved planning procedures and processes, and the collection of program information, and (2) accelerate the development of meaningful evaluation techniques with special emphasis upon pertinent indicators of health status. Of the requested increase, 18 positions and $1,668,000 will support evaluation efforts.

Review and approval of grants

An increase of 13 positions and $496,000 is requested to strengthen review and approval activities. Additional staff will be assigned to each regional office to meet the increased workload demands caused by the noncategorical nature of the formula and project grant programs. Headquarters staff will be increased by four positions.

Program direction and technical assistance

An increase of 40 positions and $2,076,000 is requested to provide expansion of technical planning assistance to States and communities, acceleration of the development of improved planning procedures and processes, the collection of program information, and to accelerate the development of meaningful evaluation techniques with special emphasis upon pertinent indicators of health status. Of the requested increase, 18 positions and $1,668,000 will support evaluation efforts.

Authorizing legislation

Legislation	*1969 authorization*
Public Health Service Act:	
Section 314(a)—Grants to States for comprehensive State health planning	$10,000,000
Section 314(b)—Project grants for areawide health planning	10,000,000
Section 314(c)—Project grants for training, studies, and demonstrations	5,000,000
Section 314(d)—Grants for comprehensive Public Health Services	90,000,000
Section 314(e)—Project grants for health services development	95,000,000

PUBLIC HEALTH SERVICE

TITLE III—GENERAL POWERS AND DUTIES OF PUBLIC HEALTH SERVICE

PART B—FEDERAL-STATE COOPERATION

Grants to States for Comprehensive State Health Planning

"SEC. 314. (a) (1) AUTHORIZATION.—In order to assist the States in comprehensive and continuing planning for their current and future health needs, the Surgeon General is authorized during the period beginning July 1, 1966, and ending June 30, 1970, to make grants to States which have submitted, and had approved by the Surgeon General, State plans for comprehensive State health planning. For the purposes of carrying out this subsection, there are hereby authorized to be appropriated $2,500,000 for the fiscal year ending June 30, 1967, and $7,000,000 for the fiscal year ending June 30, 1968, $10,000,000 for the fiscal year ending June 30, 1969, and $15,000,000 for the fiscal year ending June 30, 1967.

Project Grants for Areawide Health Planning

"(b) The Suregon General is authorized, during the period beginning July 1, 1966, and ending June 30, 1970, to make, with the approval of the State agency administering or supervising the administration of the State plan approved under subsection (a), project grants to any other public or nonprofit private agency or organization (but with appropriate representation of the interests of local Government where the recipient of the grant is not a local Government or combination thereof or an agency of such Government or combination) to cover not to exceed 75 per centum of the costs of projects for developing (and from time to time revising) comprehensive regional, metropolitan area, or other local

area plans for coordination of existing and planned health services, including the facilities and persons required for provision of such services; except that in the case of project grants made in any State prior to July 1, 1968, approval of such State agency shall be required only if such State has such a State plan in effect at the time of such grants. For the purposes of carrying out this subsection, there are hereby authorized to be appropriated $5,000,000 for the fiscal year ending June 30, 1967; $7,500,000 for the fiscal year ending June 30, 1968; $10,000,000 for the fiscal year ending June 30, 1969; and $15,000,000 for the fiscal year ending June 30, 1970.

Project Grants for Training, Studies, and Demonstrations

"(c) The Surgeon General is also authorized, during the period beginning July 1, 1966, and ending June 30, 1970, to make grants to any public or nonprofit private agency, institution, or other organization to cover all of any part of the cost of projects for training, studies, or demonstrations looking toward the development of improved or more effective comprehensive health planning throughout the Nation. For the purposes of carrying out this subsection, there are hereby authorized to be appropriated $1,500,000 for the fiscal year ending June 30, 1967; $2,500,000 for the fiscal year ending June 30, 1968; $5,000,000 for the fiscal year ending June 30, 1969; and $7,500,000 for the fiscal year ending June 30, 1970.

Grants for Comprehensive Public Health Services

"(d)(1) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated $70,000,000 for the fiscal year ending June 30, 1968, $90,000,000 for the fiscal year ending June 30, 1969, and $100,000,000 for the fiscal year ending June 30, 1970, to enable the Surgeon General to make grants to State health or mental health authorities to assist the States in establishing and maintaining adequate public health services, including the training of personnel for State and local health work. The sums so appropriated shall be used for making payments to States which have submitted, and had approved by the Surgeon General, State plans for provision of public health services, except that, for any fiscal year ending after June 30, 1968, such portion of sums as the Secretary may determine, but not exceeding 1 per centum thereof, shall be available to the Secretary for evaluation (directly or by grants or contracts) of the program authorized by this subsection and the amount available for allotments hereunder shall be reduced accordingly.

Project Grants for Health Services Development

"(e) There are authorized to be appropriated $90,000,000 for the fiscal year ending June 30, 1968, $95,000,000 for the fiscal year ending June 30, 1969, and $80,000,000 for the fiscal year ending June 30, 1970, for grants to any public or nonprofit private agency, institution, or organization to cover part of the cost of (1) providing services (including related training) to meet health needs of limited geographic scope or of specialized regional or national significance, or (2) developing and supporting for an initial period new programs of health services (including related training). Such grants may be made pursuant to clause (1) or (2) of the preceding sentence with respect to projects involving the furnishing of public health services only if such services are provided in accordance with such plans as have been developed pursuant to subsection (a). For any fiscal year ending after June 30, 1968, such portion of the appropriations for grants under this subsection as the Secretary may determine, but not exceeding 1 per centum thereof, shall be available to the Secretary for evaluation (directly or by grants or contracts) of the program authorized by this subsection.

EXPLANATION OF TRANSFERS

	1968 estimate	1969 estimate	Purpose
Transfer to: "Office of the Surgeon General, salaries and expenses".	$91,000	.....	Transfer of certain grants management functions formerly performed in the Office of Comprehensive Health Planning to the Division of Grants and Contracts, Office of the Surgeon General. This transfer involves 9 positions and is made under authority of 42 U.S.C. 226.

JUSTIFICATION

	1968 estimate		1969 estimate		Increase or decrease	
	Positions	Amount	Positions	Amount	Positions	Amount
Personnel compensation and benefits	180	$7,167,000	233	$8,252,000	+53	+$1,085,000
Other expenses		148,158,000		192,131,000		+43,973,000
Total	180	155,325,000	233	200,383,000	+53	+45,058,000

GENERAL STATEMENT

The partnership for health program authorized in 1966 and extended and strengthened by the 90th Congress is designed to stimulate comprehensive health planning, to assist States and communities in the coordination of their health programs, and to provide a flexible means of supporting improvement in the delivery of health services.

As a result of this Nation's scientific and technological advances in medicine, the means are available for greatly improving the health of all our people. Yet the health of this country, by any number of indices, lags behind that of many less prosperous countries. Because of imbalances in the delivery of health services and because of ever-higher costs, complete medical care is enjoyed by few, and adequate care is, for all practical purposes, inaccessible to large segments of our population.

The aged, the poor, and those in remote regions are not the only ones who suffer. The cost of overlapping health organizations and fragmented services, like those of uncontrolled disease and our misused environment, are passed on to every citizen. With our national investment in health running at nearly $50 billion a year, it is imperative that maximum health service efficiency be achieved.

Public Law 89-749, the Comprehensive Health Planning and Public Services Act, created a Federal-State-local partnership for health that is now moving toward a maximum utilization of available health resources through rational planning to meet clearly identified health needs. Prior to enactment of this legislation, Federal support for health services has been provided through 16 categorical project and formula grants programs. Now the former categorical restrictions have been removed.

In order to help States and communities identify the most pressing health needs and to make prudent choices between alternate uses of limited resources, the act also provides for formula grants to the States and project grants to areawide agencies for comprehensive health planning.

The comprehensive health planning and services program therefore is moving the decisionmaking process to the States and localities, closer to the people to be served, and closer to the organizations which are most familiar with existing health needs and available health resources.

The partnership for health program also aims at enlisting the cooperation and active involvement of all other health resources, whether public or private, individual or institutional. By coordinating the multitude of health planning and action programs in a State or an area, a more efficient use of health resources can be achieved.

Comprehensive health planning neither negates nor diminishes the need for continued or expanded functional or specialized planning. Operating State agencies and other organizations are continuing to plan for specialized expansion of community mental health programs, regional medical programs, programs in environmental control, and services for the chronically ill and mentally retarded, and increasing the supply and effective utilization of trained health manpower. The comprehensive health planning legislation provides a framework for strengthening these efforts by relating objectives in these specialized areas to each other and to the overall needs and resources of the State or region.

Five separate grant-in-aid programs comprise the partnership for health: (*a*) Comprehensive State health planning formula grants; (*b*) comprehensive areawide health planning project grants; (*c*) studies, demonstrations, and training project grants for health planning; (*d*) formula grants to States for health services; and (*e*) project grants for health services development.

The Public Health Service is requesting $200,383,000 and 233 positions in 1969, an increase of $45,058,000 and 53 positions over the 1968 level, to carry out the provisions of the Comprehensive Health Planning and Public Health Services Act.

PLANNING GRANTS

	1968 estimate	1969 estimate	Increase
Grants to States for comprehensive State health planning	$7,250,000	$9,750,000	+$2,500,000
Project grants for areawide health planning	5,000,000	10,000,000	+5,000,000
Project grants for training, studies, and demonstrations	2,500,000	5,000,000	+2,500,000
Total	14,750,000	24,750,000	+10,000,000

A. Formula grants for comprehensive State health planning

To assist the States in comprehensive health planning, the Surgeon General is authorized to make formula grants to States on the basis of population and per capita income. To qualify for a comprehensive health planning grant, a State must designate a single agency for administering or supervising the administration of its health planning activities, establish a health planning council with consumer representatives constituting a majority on the council, and develop a State plan for comprehensive health planning. Grants made under this section may cover up to 100 percent of the State's comprehensive health planning program costs.

This grant program supports the establishment and operation of the statewide agencies for health planning. The size of agency staff will vary according to the needs, the approach, and the population of each State. At the proposed level of funding, staffs may be expected to range from seven or eight members for base-level States to around 50 for the largest States such as California or New York. These new planning agencies will provide the States, most for the first time, with a mechanism for determining health needs, setting priorities, and allocating resources to meet those needs. In addition, because of program requirements to involve all affected organizations, Federal support under this section is stimulating improved working relationships between governmental, private, and voluntary health agencies within the States.

State health planning agencies also serve as focal points within the States for relating comprehensive health plans to planning outside the field of health, in areas such as urban redevelopment and public housing.

By the close of 1967, official health planning agencies had been designated for 54 of the 55 eligible States and territories, and 24 State plans had been approved. While the State health department has been named as the responsible agency in 35 States, new units, directly responsible to the Governor, have been designated by the other 19. Staffs will not be fully recruited, nor full operation begun by most States until the end of this fiscal year. However, early indications are that the planning supported by this program will be truly comprehensive and that it will have the hoped-for impact on future health activities within the States. Of planning directors appointed to date, one-third have been recruited from "out of State." Of the professional staff members designated so far, half are from outside the traditional health professions and represent management fields such as economics, planning, and public administration. Inclusion of professionals from these fields, coupled with indications that new management tools such as cost benefit analysis and data information systems will be employed, are encouraging signs of significantly improved planning in many States. These factors, together with the progress of plans now underway, strongly suggest that by the end of fiscal year 1968 most States will have made marked progress toward better coordinating the capacities of Federal, State, and local governmental and private agencies and organizations to meet the health needs of their citizens.

In 1969, $9,750,000 is requested for this formula grant program; this is a net increase of $2,500,000 over the 1968 level and includes $2,500,000 brought forward from the 1967 appropriation. This request will permit the States to continue throughout 1969 the full range of planning activities that will be supported under this program during the latter half of 1968.

B. Project grants for areawide health planning

Areawide comprehensive health planning, as created under section 314(b), is a necessary complement to State-level health planning. The broader policy

focus of the State health planning agency both contributes to and is supported by the more localized focus of areawide agencies. The areawide health planning activities concentrate on cross-service patterns, and promote a local involvement, grounded in knowledge of the area to be served that is not available at either the State or national levels.

The Surgeon General is authorized to make project grants to public or nonprofit agencies or organizations, with the Federal share being up to three-fourths of the costs of such projects. The Public Law 89–749 authorization for comprehensive planning grants replaces the more limited areawide facility planning grants previously supported under section 318 of the Public Health Service Act.

Like the State health planning agency, the areawide health planning grant recipient will gather information and data, assess health needs and alternatives, determine gaps and overlaps in existing health programs, and recommend courses of action that may be taken to achieve the targeted priority health goals.

In 1969, all areawide agencies planning projects will require approval of the State health planning agency before being eligible for a grant under this program. In some instances, communities will be able to build upon the work of previously supported areawide facility planning groups. In other cases, entirely new organizations will have to be established to conduct community-level comprehensive health planning activities. In either case, truly effective planning will require the full participation of all interested groups. This will mean heightened cooperation between regional medical program grantees, private health practitioners, hospitals, medical schools and their affiliates, and voluntary health agencies.

Of the funds to be awarded during fiscal year 1968, approximately two-thirds will be used to expand previously authorized section 318 facility planning projects into truly comprehensive planning activities, and the remaining one-third will be awarded to new areawide planning agencies. Included in the comprehensive planning activities will be 12 projects designed to assist in urban ghetto rehabilitation.

There are wide differences among the various areawide agencies in the proposed size, composition, and approach to be taken. An economic development district of Arkansas has budgeted for only one professional while New York City's health facilities program has a staff of nearly 70. Since grants are awarded for both agency organization and for program operation, they may range in amount from $15,000 to $500,000, depending on their purpose and on the size of the community served.

The funds authorized for 1969 would permit (1) continuation of some 33 areawide planning agencies initiated in 1968, (2) completion of organizational activities for some 45 new agencies supported in 1968, (3) initiation of nine new areawide planning agencies, and (4) initiation of organizational activities in 48 other localities.

We therefore request appropriation of the full $10 million authorized for these areawide planning grants for fiscal year 1969, an increase of $5 million over the 1968 level.

C. Project grants for training, studies, and demonstrations for comprehensive health planning.

The comprehensive health planning activities envisioned by Public Law 89–749 call for fundamental changes in administration of health services. The partnership for health, therefore, is more than another program, it is a goalsetting,

objective-changing process. Systems analysis, automated data processing, objective evaluations of accomplishments, and careful monitoring of health systems are essential elements of the process.

Much of the long-term success of both the State and areawide comprehensive health planning agencies will hinge upon the availability of skilled, technically competent, planning personnel. The rapid retraining of present health planners to acquaint them with approaches that differ substantially from those traditionally employed will also be required.

In view of the extreme shortage of professional health planners, funding of training programs again is given highest priority this year. Ten second-year students and 7 first-year students are being supported with 1968 funds. The 1969 request will provide for second-year training of the 70 students beginning training in 1968, and the first-year study for 80 additional students.

Grants also have been made to universities for development of curriculums in comprehensive health planning, and a variety of approaches to training in this new field have been suggested. At the University of Cincinnati, for example, a grant made to the graduate division of community planning will draw upon other departments, colleges, community agencies, and organizations to provide broad health content in the health planning curriculum. At the University of California in Berkeley, where a grant was made to the school of public health, the plan to join forces with the department of city and regional planning on the same campus. In the Graduate School of Business at the University of Chicago, the center for health administration studies, a grant will support the efforts of an interdisciplinary faculty committee and staff to consider alternative possibilities for a health planning curriculum.

Until such time as universities begin to turn out graduates with special qualifications for comprehensive health planning, most of the work of health planning agencies will be conducted by health professionals. To provide some of these people with short-term training a grant was made early this year to the western branch of the American Public Health Association. Through this grant, six 1-week courses in planning currently are being offered to 400 leaders in the health fields in the Western States.

By the close of 1968, it is estimated that training will have been provided for more than 1,200 persons through similar short-term training courses, supported by these grants. It is anticipated that during 1969 this type of program will be provided to an additional 2,000 health planning trainees.

Although training will continue to have priority in the use of 314(c) funds, some study and demonstration projects will be supported in 1969. These will be concerned with the methodology of comprehensive health planning, and the study of both process and organization of health planning agencies.

In 1969, we are requesting $5 million to carry out the training, study, and demonstration projects authorized under this section, an increase of $2,500,000 over the level requested in 1968.

ALLOCATIONS OF GRANTS TO STATES FOR COMPREHENSIVE STATE HEALTH PLANNING

State or territory	1967 allocation	1968 allocation	1969 estimate
Alabama	$52,200	$98,300	$198,400
Alaska	25,000	47,500	97,500
Arizona	25,000	47,500	97,500
Arkansas	31,200	56,600	113,500
California	158,200	309,900	641,900
Colorado	25,000	47,500	97,500
Connecticut	25,000	47,500	97,500
Delaware	25,000	47,500	97,500
District of Columbia	25,000	47,500	97,500
Florida	68,000	130,900	265,600
Georgia	59,200	110,200	219,600
Hawaii	25,000	47,500	97,500
Idaho	25,000	47,500	97,500
Illinois	92,300	174,400	357,200
Indiana	50,700	92,200	188,200
Iowa	30,600	54,800	106,600
Kansas	25,100	47,500	97,500
Kentucky	45,800	83,100	164,500
Louisiana	49,700	93,000	186,100
Maine	25,000	47,500	97,500
Maryland	32,400	64,300	133,200
Massachusetts	47,600	94,200	191,900
Michigan	78,700	148,500	304,100
Minnesota	39,500	71,600	142,800
Mississippi	42,600	77,200	153,000
Missouri	45,600	90,300	189,300
Montana	25,000	47,500	97,500
Nebraska	25,000	47,500	97,500
Nevada	25,000	47,500	97,500
New Hampshire	25,000	47,500	97,500
New Jersey	59,500	113,700	235,400
New Mexico	25,000	47,500	97,500
New York	150,800	297,200	607,200
North Carolina	67,800	130,700	255,700
North Dakota	25,000	47,500	97,500
Ohio	102,200	194,400	396,500
Oklahoma	31,400	57,300	117,400
Oregon	25,000	47,500	97,500
Pennsylvania	116,900	225,000	453,600
Rhode Island	25,000	47,500	97,500
South Carolina	40,500	74,800	146,900
South Dakota	25,000	47,500	97,500
Tennessee	54,600	102,900	202,200
Texas	127,200	245,400	495,300
Utah	25,000	47,500	97,500
Vermont	25,000	47,500	97,500
Virginia	52,500	99,400	201,500
Washington	29,900	54,700	111,000
West Virginia	25,000	47,500	97,500
Wisconsin	43,900	81,500	163,100
Wyoming	25,000	47,500	97,500
Guam	25,000	47,500	97,500
Puerto Rico	48,400	88,500	175,800
Virgin Islands	25,000	47,500	97,500
American Samoa	25,000	47,500	97,500
Trust Territory of the Pacific Islands			97,500
Total	2,500,000	4,750,000	9,750,000

FORMULA GRANTS

	1968 estimate		1969 estimate		Increase or decrease	
	Positions	Amount	Positions	Amount	Positions	Amount
Personnel compensation and benefits		$77,000		$77,000		
Other expenses		60,173,000		75,955,000		+$15,782,000
Total		60,250,000		76,032,000		+15,782,000

Prior to passage of the Comprehensive Health Planning and Public Health Services Act, Federal assistance for health services was provided to the States through a complex variety of formula grants, each relating to a particular disease or other limited segment of public health. Much was accomplished under this pattern of Federal assistance, but the specific categories carried restrictions which often were poorly suited to the particular health needs of individual States and localities. The passage of Public Law 89–749 marked a turning from categorical support for dealing with specific and liimted health problems. From the amount appropriated each year under section 314(d), the Surgeon General now is authorized to make allotments to States, determined on the basis of their population and financial need, which may be used by the States for a full variety of health services.

Under current funding provisions:

(1) Each State will be paid from its annual allotment a Federal share of the expenditures incurred by the State in accordance with its approved plan. The level of Federal matching of State funds will vary from State to State ranging from one-third to two-thirds of the costs incurred, depending on each State's per capita income.

(2) Public health services supported by these grants must be in accordance with plans developed by the State health planning agency created under the provision of Public Law 89–749. The plan for administering these funds must also be approved by the Surgeon General.

(3) At least 15 percent of a State's allotment must be available to the State mental health authority for the provision of mental health services.

(4) The State plan for health services must be administered by the State health authority (or, with respect to mental health, the State mental health authority), and must give assurances that the grants will promote public health services in localities and that there will be maximum local participation. Beginning in 1969, at least 70 percent of the State's allotment under this program must be available for use for the provision of public and mental health services at the local level under the State plan.

The formula grants made under this program will be the principal source of Federal assistance for most ongoing State and local public health projects. This single grant provides a flexible means for supporting services designed to meet the specific health needs of each State, according to priorities established by that State.

During 1968 Federal funds supported activities in a few new areas, but even though categorical restrictions were removed, a majority of the projects were the same as those supported under the former categorical grants programs. This was to be expected since 1968 State plans for using these funds were based on anticipated categorical support, and were largely completed prior to enactment of Public Law 89–749.

In 1968, as in previous years, Federal funds directed to the more traditional categories of health service were matched by State and local funds many times over. Federal, State, and local, public and private funds, budgeted by the 55 States and territories in their 1968 section 314(d) plans for public health services, totaled $309,945,701 (including $87,337,066 for mental health activities). Of this total, only $60,250,000 was provided through grants awarded under this program. However, in an encouraging number of instances (most often where support for projects to attack newly defined health problems or to carry out innovative health service activities was not authorized by State and/or local line item budgets), new activities were initiated this year that would not have been possible under the former categorical programs or under State or local authorizations alone.

State planning for 1969, including broader use of these noncategorical formula grant funds, is now underway. Early indications are that a number of States are ready to promote additional programs this next year, and that most are interested in initiating a variety of new health service activities if support is available.

Among the new kinds of health programs being planned by a number of States are:

(1) Smoking and health: educational programs, directed at the general public and more often at students and educators, are being developed to communicate the dangers associated with smoking.

(2) Family planning: clinics are being established and staff trained under a variety of arrangements tc provide genetic counseling and/or advice on

family planning. Cervical cancer detection efforts are being planned to operate jointly with these family planning centers with increasing frequency.

(3) Alcoholism: educational programs and treatment centers are being established to reach and treat alcoholics, to disseminate information about the disease, and to foster its prevention.

The availability of adequate noncategorical funds under this program, therefore, will do much to help start these and a multitude of other activities, to thereby reduce the time lag between the generation of new health knowledge and its application in service programs at the State and local levels and to speed the appropriation of matching funds in new areas.

A total of $76,032,000 is requested for this grant program in 1969, an increase of $15,782,000 over the 1968 level.

ALLOCATIONS OF GRANTS FOR COMPREHENSIVE PUBLIC HEALTH SERVICES

State or territory	1967 allocation [1]	1968 allocation	1969 estimate
Alabama	$1,192,500	$1,279,400	$1,743,400
Alaska	371,800	378,500	371,800
Arizona	550,500	590,500	854,100
Arkansas	799,200	847,500	1,124,800
California	3,651,100	4,118,800	4,972,200
Colorado	582,600	631,500	869,900
Connecticut	623,100	694,200	967,200
Delaware	364,900	377,600	423,900
District of Columbia	393,500	413,500	471,600
Florida	1,708,600	1,855,500	2,232,700
Georgia	1,301,000	1,411,200	1,897,600
Hawaii	393,500	411,300	498,900
Idaho	421,900	439,100	540,000
Illinois	2,282,100	2,547,200	2,899,200
Indiana	1,226,500	1,348,100	1,669,100
Iowa	816,900	884,800	1,074,700
Kansas	675,500	731,100	969,100
Kentucky	1,090,700	1,169,400	1,496,700
Louisiana	1,105,900	1,195,000	1,654,000
Maine	460,300	484,600	630,100
Maryland	804,000	893,300	1,268,500
Massachusetts	1,252,700	1,385,800	1,696,100
Michigan	1,879,500	2,086,500	2,512,700
Minnesota	989,600	1,078,000	1,338,900
Mississippi	971,300	1,028,800	1,412,900
Missouri	1,202,400	1,313,900	1,677,100
Montana	412,100	429,500	524,200
Nebraska	526,000	562,000	715,400
Nevada	379,000	390,200	406,000
New Hampshire	392,400	409,200	504,600
New Jersey	1,443,900	1,614,400	2,013,000
New Mexico	465,400	490,700	653,500
New York	3,802,500	4,253,900	4,719,200
North Carolina	1,464,700	1,588,300	2,160,200
North Dakota	410,500	426,600	524,900
Ohio	2,373,800	2,628,600	3,185,100
Oklahoma	804,500	865,300	1,153,600
Oregon	584,200	632,500	878,500
Pennsylvania	2,856,900	3,143,200	3,601,400
Rhode Island	406,000	428,200	548,300
South Carolina	874,600	938,500	1,368,400
South Dakota	417,400	434,300	533,800
Tennessee	1,275,300	1,371,300	1,770,800
Texas	2,747,000	3,012,800	3,905,000
Utah	444,500	469,400	645,600
Vermont	378,100	388,100	434,200
Virginia	1,196,300	1,307,700	1,765,900
Washington	773,400	847,100	1,107,200
West Virginia	650,500	694,900	995,600
Wisconsin	1,089,400	1,192,300	1,486,500
Wyoming	373,400	381,500	395,900
Guam	304,200	306,200	325,600
Puerto Rico	1,026,700	1,092,700	1,578,500
Virgin Islands	265,700	266,800	265,700
American Samoa		88,700	265,700
Trust Territory of the Pacific Islands			332,500
Total	55,250,000	60,250,000	76,032,000

[1] Totals shown represent a combination of grants for cancer control, chronic illness and aged, dental health, general health, heart disease control, home health services, mental health, radiological health, and tuberculosis control.

PROJECT GRANTS FOR HEALTH SERVICES DEVELOPMENT

	1968 estimate		1969 estimate		Increase or decrease	
	Positions	Amount	Positions	Amount	Positions	Amount
Personnel compensation and benefits		$4,940,000		$5,330,000		+$390,000
Other expenses		67,560,000		88,770,000		+21,210,000
Total		72,500,000		94,100,000		+21,600,000

The Surgeon General is authorized to award project grants for provjding services (including related training) to meet health needs of limited geographic scope or of specialized regional or national significance, and for developing and supporting new programs of health services (including related trainings). Health services project applications, to be supported under this program, must be reviewed by the designated State health planning agency.

In fulfilling its responsibilities under the partnership for health, the Federal Government is expected to (1) support needed projects in areas unable to provide adequate support themselves, and (2) assist in the initiation of new and developmental projects, subsequently to be supported with State and local funds. As a supplement to State formula grants, project grants for health services development provide a national mechanism for directing funds to where they are most needed, to where they will be used most effectively, and to where they will develop those new and innovative public health programs which promise the most far-reaching effects.

Most support provided under this section during early 1968 was used to complete programs initiated under previous categorical authority, and the effect of removing the categorical restrictions is only now beginning to be felt. However, encouraged by the new noncategorical authority of this act, requests for initial support for a wide array of new activities are now being received. Representative of the new areas in which proposals have been received are: health counseling, family planning, comprehensive health information and referral services, alcoholism programs, dental health programs, and draft rejectee health referral programs. Of particular interest is the attention being directed to rodent control programs. By the close of calendar 1967, declarations of intent to submit proposals for development and support of rodent control projects had been received from 29 agencies. Additional communities are expected to submit proposals before the end of the fiscal year.

Of perhaps even greater consequence are the comprehensive public health service projects, now being planned for a number of areas with particularly high incidence of health problems. These are being designed to obtain for those segments of the population now receiving little if any health care a full continuum of service, including prevention, diagnosis, treatment, chronic care, and rehabilitation.

Typical of such projects to be started in 1968 and to be continued in 1969 are:

1. A city health department will establish, as a component of the pilot neighborhood service program, a comprehensive family health center to serve 20,000 medically indigent. This project will allow for the integration of tuberculosis control activities, cancer control, immunization, school health, maternal and child health, and venereal disease control as well as all public health nursing activities into one program designed to serve the entire family.

2. A city health department will establish, as a component of the model cities programs, five neighborhood-based family health clinics. Each clinic will be staffed by an internist, a pediatrician, a public health nurse and health aides. These clinics will serve as a focus for the integration of all public health activities in the neighborhood.

3. A volunteer organization will develop a project with a voluntary hospital to reoganize its outpatient and emergency services into a comprehensive family centered outpatient service, and in cooperation with the local medical society will develop two rural family health clinics linked to the hospital by an adequate transportation system.

4. A medical society, in association with the local health department will develop as a component of the model city effort, a group practice,

extended care facility, and neighborhood service center in a major urban ghetto.

5. A neighborhood corporation, consisting of consumers and physicians, will develop a prepaid group practice to serve 30,000 medically indigent in a major urban ghetto. This project is being developed with the city health department which will coordinate and expand public health activities as part of the group practice and will contract with the neighborhood corporation on a per capita basis for payment of medical care services under title IX (medicaid).

Activities such as these, integrated with related programs for improving education, welfare, and employment, are essential for a comprehensive assault on the conditions and the consequences of poverty.

It is expected that initial support will be provided during 1968 for comprehensive public health projects in 14 cities. The $94,100,000 requested for 1969 would continue these projects, would continue support at the 1968 level for projects to develop new programs (to include rat control activities), and would permit initiation of 23 new comprehensive health projects. This request includes $5 million brought forward from the proposed 1968 supplemental which will provide funds for expanded support for rat control and related project grants and will permit the availability of funds through December 31, 1968.

NATIONAL CENTER FOR HEALTH SERVICES RESEARCH AND DEVELOPMENT

	1968 estimate	1969 estimate	Increase or decrease
Grants, subsidies and contributions	$5,000,000	----------	—$5,000,000

The Public Health Service proposes to establish a National Center for Health Services Research and Development as a focal point for studying means for improving the delivery of health care. The Center will award grants to, or make contracts with, States, political subdivisions, universities, hospitals, and other public and nonprofit private agencies to conduct research, experiments, demonstrations, and related training for improving methods of organization, delivery, and financing of health services.

In fiscal year 1968 funds were authorized for this program under section 314(e)(3) of Public Law 89–749. The 1967 Partnership for Health Amendments (Public Law 90–174) transferred authority for these activities to section 304 of the Public Health Service Act. Therefore, grants and payments previously included under this appropriation are budgeted for 1969 as part of the appropriation account for "Community health services."

DIRECT OPERATIONS

	1968 estimate		1969 estimate		Increase or decrease	
	Positions	Amount	Positions	Amount	Positions	Amount
Personnel compensation and benefits	180	$2,150,000	233	$2,845,000	+53	+$695,000
Other expenses	----------	675,000	----------	2,656,000	----------	+1,981,000
Total	180	2,825,000	233	5,501,000	+53	+2,676,000
Subactivities:						
Review and approval	77	1,260,000	90	1,830,000	+13	+570,000
Program direction and technical assistance	103	1,565,000	143	3,671,000	+40	+2,106,000
Total	180	2,825,000	233	5,501,000	+53	+2,676,000

To provide the necessary direction and support for such activities as technical assistance, planning consultation, and program analysis and evaluation, a complete professional staff is essential. An increase of 53 positions and $2,676,000 is requested for 1969 to meet the increased demands of this rapidly developing program.

Review and approval

Responsibility for coordinating the partnership-for-health grant programs within each region has been assigned to the regional health directors. Accord-

ingly, applications for section 314 (a) and (b) formula grants and for section (b) and (e) project grants are received, reviewed, and approved or disapproved in the regional health offices. However, because their scope is national in nature, all applications under section 314(c) are reviewed and rated at headquarters. Final funding decisions for all project grants for health services development, in which the priority determinations of the regional health office are weighed against national priorities and needs, are also made at headquarters.

Both the volume and complexity of review and approval activities have increased significantly since the creation of the new comprehensive health planning grants programs. Increased numbers of applications for areawide health planning grants will be submitted in 1969. In addition, since the categorical limitations have been removed and the health areas which may receive support are considerably more inclusive, the number of applications for health services grant support are increasing correspondingly.

In order to provide a thorough review and evaluation of this growing number of complex applications, additional review and approval personnel are required. Accordingly, an increase of 13 positions, nine in the regional offices and four at headquarters, and $496,000 is requested to strengthen the review and approval activity.

An additional increase of $74,000 provides for built-in changes due to the annualization of nine positions new in 1968, annualization of increased pay costs, and one more day's pay in 1969.

Program direction and technical assistance

The need for skilled and experienced planning personnel has become increasingly apparent as the States and communities begin implementation of their comprehensive health planning programs. Since enactment of the partnership-for-health legislation, the regional health directors have received requests at an accelerating rate to provide States and communities with technical planning assistance and guidance, particularly for the development of new and comprehensive health projects. In order to provide a portion of the help needed, 15 positions and $243,000 are required for assignment to the regional offices and for headquarters-based, regional health office support.

A careful analysis of activities supported under both State formula grants and individual project grants is essential if we are to gain a clear picture of the status, scope, and direction of the national health effort. As the number, variety, and complexity of projects increase under these new, noncategorical authorizations, so too does the difficulty of analysis. A computer-based system for assembling and processing comprehensive data on these federally supported projects and activities now has been developed and is ready for implementation. Seven additional staff for coding data, for programing of the data, and for analyzing statistical outputs, and $165,000 are requested in 1969.

Program evaluation

Finally, there is need for initiating an activity for carrying out a thorough evaluation of comprehensive health activities. In enacting the 1967 partnership-for-health amendments, the Congress gave special attention to the role evaluation must play in assuring the best possible use of Federal grant moneys. In recognition of the scope of this undertaking, the amendments provided that up to 1 percent of the funds appropriated under section 314(d) and 314(e) of the act would be available for program evaluation.

In authorizing evaluation funds, the Congress anticipated that the Public Health Service would be able to gather data required to:

(1) Assure that those activities supported fully accomplished their purposes;

(2) Assure that the best means for accomplishing stated objectives were employed;

(3) Identify strengths and weaknesses in methods applied and approaches taken under funded programs; and

(4) Assess and determine which approaches were most effective, most efficient, and most economical.

Plans are underway to establish an evaluation unit within the Office of Comprehensive Health Planning. This unit will conduct, both directly and through contracts, studies to (1) measure progress toward both national and project objectives, (2) assess the impact of both projects and programs on health service recipients, and (3) determine means for providing services more effectively and

more efficiently. Activities will also be initiated on the development of evaluation model prototypes and the establishment of special health status indicators. A total of $1,668,000 and 18 positions is requested to support a combination of direct studies and contractual evaluations.

The formula and project grant programs were allowed $76,800,000 and $90 million, respectively. These allowances were reduced by 1 percent, $768,000 from formula and $900,000 from project grants, and the total amount is carried here in direct operations to support evaluation activities.

An additional increase of $40,000 provides for built-in changes due to annualization of six positions new in 1968, annualization of increased pay costs, and more day's pay in 1969. This is partially offset by a decrease of $10,000 for nonrecurring program costs.

THURSDAY, MARCH 7, 1968.

HEALTH MANPOWER EDUCATION AND UTILIZATION

WITNESSES

DR. LEONARD D. FENNINGER, DIRECTOR, BUREAU OF HEALTH MANPOWER
DR. JOSEPH A. GALLAGHER, DEPUTY DIRECTOR
DR. CHARLES H. BOETTNER, ASSOCIATE DIRECTOR
DR. FRANK W. McKEE, DIRECTOR, DIVISION OF PHYSICIAN MANPOWER
DR. VIRON L. DIEFENBACH, DIRECTOR, DIVISION OF DENTAL HEALTH
MISS JESSIE SCOTT, DIRECTOR, DIVISION OF NURSING
FREDERICK ERICKSON, ACTING DIRECTOR, DIVISION OF ALLIED HEALTH MANPOWER
RAYMOND F. DIXON, DIRECTOR, DIVISION OF HEALTH MANPOWER EDUCATIONAL SERVICES
JOHN W. HAMBLETON, FINANCIAL MANAGEMENT OFFICER, BUREAU OF HEALTH MANPOWER
DR. WILLIAM H. STEWART, SURGEON GENERAL
CHARLES MILLER, CHIEF FINANCE OFFICER
JAMES B. CARDWELL, DEPUTY ASSISTANT SECRETARY, BUDGET

OBJECT CLASSIFICATION (IN THOUSANDS OF DOLLARS)

	1967 actual	1968 estimate	1969 estimate
Personnel compensation:			
Permanent positions	5,770	7,019	7,744
Positions other than permanent	190	443	524
Other personnel compensation	22	31	32
Total personnel compensation	5,983	7,493	8,300
Personnel benefits	609	710	771
Travel and transportation of persons	594	775	899
Transportation of things	49	71	86
Rent, communications, and utilities	334	276	361
Printing and reproduction	143	198	265
Other services	524	522	642
Project contracts	5,026	3,154	5,382
Services of other agencies	41	55	55
Payment to—			
National Institutes of Health management fund	38	38	38
Health professions education fund	2,380		
Nurse training fund	6,347		
Supplies and materials	211	163	249
Equipment	247	163	199
Investments and loans	11,776	34,356	45,204
Grants, subsidies, and contributions	81,232	127,473	168,136
Total obligations	115,534	175,447	230,586

PERSONNEL SUMMARY

Total number of permanent positions	723	762	813
Full-time equivalent of other positions	32	71	82
Average number of all employees	643	752	821
Average GS grade	8.8	9.0	9.1
Average GS salary	$9,346	$10,160	$10,380

PROGRAM AND FINANCING (IN THOUSANDS OF DOLLARS)

Program by activities:			
1. Institutional support:			
(a) Medical, dental, and related	32,649	52,675	70,000
(b) Nursing	6,587	7,000	7,000
(c) Public health	8,436	8,500	10,054
(d) Allied health professions	3,485	10,750	19,100
2. Student assistance:			
(a) Traineeships	18,273	22,703	32,732
(b) Scholarships and opportunity grants	7,025	20,268	22,650
(c) Loans	20,508	34,356	45,204
3. Manpower requirements and utilization:			
(a) Grants	4,775	5,578	6,600
(b) Direct operations	12,566	12,318	15,871
4. Program direction and management services	1,230	1,300	1,375
Total program costs, funded—obligations [1]	115,534	175,447	230,586
Financing:			
Comparative transfers from other accounts	−106,667		
Unobligated balance available, start of year			−250
Deficiency, start of year		6,382	
Unobligated balance available, end of year		250	
Deficiency, end of year	−6,382		
Unobligated balance lapsing		3,012	
Appropriation available from subsequent year	−1,985	−29,014	−61,950
Appropriation available in prior year		1,985	29,014
New obligational authority	500	158,063	197,400
New obligational authority:			
Appropriation	500	164,663	197,400
Transferred to other accounts		−6,600	
Appropriation (adjusted)	500	158,063	197,400
Relation of obligations to expenditures:			
Total obligations	115,534	175,447	230,586
Receipts and other offsets (items 11 to 17)	−106,667		
Obligations affecting expenditures	8,868	175,447	230,586
Obligated balance, start of year		8,360	108,549
Obligated balance, end of year	−8,360	−108,549	−218,055
Expenditures	508	75,258	121,080
Expenditures are distributed as follows:			
Out of current authorizations	508	75,258	41,545
Out of prior authorizations			79,535

[1] Includes capital outlay as follows: 1968, $163,000; 1969, $199,000.

Mr. FLOOD. We now have Dr. Leonard Fenninger, Director, Bureau of Health Manpower. He will make a presentation for the Public Health Service on the appropriation request for "Health manpower education and utilization."

BIOGRAPHICAL SKETCH OF PRINCIPAL WITNESS

Name: Leonard D. Fenninger, M.D.
Position: Director, Bureau of Health Manpower.
Birthplace and date: Hampton, Va., October 3, 1917.
Education: A.B., Princeton, 1938; M.D., University of Rochester, 1943.
Experience:

Present—Director, Bureau of Health Manpower, PHS.

1961–66—Medical director, Strong Memorial Hospital, Rochester, N.Y.; associate dean, professor of medicine, professor and chairman, department of health services, University of Rochester, School of Medicine and Dentistry.

1958–61—Associate dean, associate professor of medicine, University of Rochester.
1954–58—Assistant dean, professor of medicine, School of Medicine and Dentistry, University of Rochester.
1953–54—Research associate, parttime, George Washington University, School of Medicine.
1953—Surgeon (R), USPHS.
1952–53—Senior assistant surgeon (R), USPHS.
1948–52—Fellow, cancer research, Rochester.
1947–52—Instructor in medicine, Rochester.
1946–47—Assistant resident physician, Rochester.
1945–46—Assistant, pathology, Rochester.
1945—Assistant, radiology, Rochester.
1944—Assistant, medicine, School of Medicine and Dentistry, University of Rochester.
1944—Intern, medicine, Strong Memorial Hospital, Rochester.

Association memberships:
American Medical Association.
American Association for the Advancement of Science.
Association of American Medical Colleges (assistant secretary, 1956–57).
New York State, Monroe County, Medical Society.
New York Academy of Sciences.
Rochester Academy of Medicine.
American Association of Cancer Research.
Phi Beta Kappa.
Sigma XI.
Alpha Omega Alpha.

Special awards, citations, publications:
Citation, University of Rochester Alumni Federation, 1960.
Diplomate, American Board of Internal Medicine.

General Statement

Dr. Fenninger. Mr. Chairman and members of the committee, I am pleased to have this opportunity to present the budget of the Bureau of Health Manpower.

The Bureau of Health Manpower has been in existence a little more than a year. Its major tasks are to assure that men and women in medicine, dentistry, nursing, and practitioners of the other important health professions and occupations are well prepared to bring the fruits of modern knowledge in the fields of health to all Americans. To accomplish these tasks the Bureau works in concert with educational and training institutions and other agencies and organizations, both public and private, to attract able students into careers in health, to aid them financially in preparation for their careers and to provide opportunities for advanced and continuing education so that they may become and remain skilled practitioners, outstanding teachers, strong administrators, and seekers of new knowledge.

To further sound educational opportunities the programs of the Bureau provide support to strengthen the curriculums in existing schools, to improve their faculties and the facilities in which teaching and learning occur. Programs are also aimed at the development of new schools, of new courses, and of persons with new types of skills, particularly those who will provide services to the poor in urban and rural settings, who will participate in the improvement of the environment and in the prevention of illness. It also assists in the establishment of educational programs in educational institutions to prepare people in planning for health services and in administering them. Among its most important functions is the assessment for health manpower needs, types of educational and training programs which will increase the

quality and quantity of health services and will aid in making health services available to all who need them.

The people of the United States, acting through the Congress have determined that financial barriers should not limit access to health care. The enactment of medicare and medicaid are clear indications of this determination.

People expect to have access to health care when they need it. More and more they are using the services provided by physicians, nurses, dentists and other important practitioners of the health professions. They are seeking help in hospitals, in clinics, in emergency departments, in neighborhood centers, and in doctors' offices.

AVAILABILITY OF HEALTH SERVICES

Mr. FLOOD. Do you get the impression there are a lot of people in a certain class, an economic level, who are not covered by this designed web of the Congress and the country, that is aimed at making health services available to all who need them? Of course, the wealthy have no problem and the poor have no problem. But is it so that there are quite a lot of people who are not affluent or poor, who have difficulty in getting these services?

Dr. FENNINGER. I think this depends more on the geographic location and situation in many instances than it does on strictly economic grounds. There are people who are provided for at every economic level and there are people who have difficulty in having care available to them at every economic level.

Mr. FLOOD. Do you think the group you speak of have pension plans or Blue Cross or insurance programs?

Dr. FENNINGER. I think in some cases this is true. I think there are plans for the very poor in certain settings that don't apply to poor in other settings. In other words, I think there is a great geographic difference——

Mr. FLOOD. I do not speak of the very poor. I am speaking particularly of the so-called lower middle class.

Dr. FENNINGER. There is no question that the burden of paying for care is often great and the access to it, for this group of people, is in many instances limited.

Mr. FLOOD. And hence the services are limited?

Dr. FENNINGER. And the services are also limited. They seek advice on how to remain well and they seek help when illness overtakes them. Yet health services are not available to all who need them. There is an increasing disparity between the demand for health services and the availability of people in the health professions and occupations who can render services of high quality. We are aware of shortages; in some cases of critical proportions, in most categories of health manpower. In some circumstances inadequately prepared people must be used instead of those who are skilled. Distribution of services is uneven among socioeconomic groups and geographic locations. Lack of qualified staff has caused some hospital and nursing home beds to be shut down and prevented new facilities from being opened.

The public and private sectors of this Nation are striving to improve health services through new and expanded health insurance, through construction and renovation of facilities for health care, education, and research. Increasing support is being provided for educational

programs and research. Planning for health services is now being widely undertaken so that they may be more available and effective.

The essential ingredient of all these efforts—public and private—is manpower, able individuals drawn from every portion of our society who are provided with the highest quality of education and training so that they may serve others skillfully.

ROLE OF THE FEDERAL GOVERNMENT IN DEVELOPING HEALTH MANPOWER

The Federal Government has become a supporting partner with many institutions and organizations in developing qualified people to provide health services. It has clearly recognized the national needs and purposes which the schools of the health professions serve.

Federal programs have therefore been aimed at the urgent needs for: (1) teachers to prepare additional students and qualified people with special skills for supervisory roles in education and patient care; (2) mechanisms to encourage, stimulate, and support more programs of high quality for education in the field of health; (3) support of the efforts of institutions to improve the quality of training while increasing their enrollments; (4) support for the study, development, and establishment of new curriculums and new approaches to education in the health professions and occupations; (5) programs to improve the quality of those in practice and to prepare them for changes in knowledge and technology; and (6) the attraction of able candidates in all health professions and occupations.

SUMMARY OF BUDGET REQUEST

The 1969 budget estimate, amounting to $197,400,000, represents an increase of approximately $42 million over funds available in 1968. It includes provisions for programs which will reduce the manpower deficiencies in each of the major disciplines. The principal increases needed are for institutional support, for which an increase of $27,229,000 is requested, and for student assistance, for which an additional $10,470,000 is requested. Other major increases are for research in physician education, $702,000; $1,445,000 for a nurse refresher training program, and $900,000 for a health manpower data bank, intelligence system, and information clearinghouse.

REFRESHER TRAINING FOR NURSES

Mr. FLOOD. Do you get many older women taking refresher programs?

Dr. FENNINGER. A number have returned. I think it is about 8,000.

Miss SCOTT. The first part of this year about 8,000 have taken the refresher training and 80 percent have returned to work.

Mr. FLOOD. Is this a good number?

Miss SCOTT. I think so in relation to the numbers that took the training and who are now working.

Mr. FLOOD. Why would they take the training if they did not go back to work?

Miss SCOTT. Sometimes it has to do with the availability of jobs in the area. In some instances nurses who undertook refresher training found no jobs available to them. They are married and they cannot

travel very far to work. The jobs have to be in the immediate vicinity. This is the prime reason they have not returned.

Hopefully, they will.

INSTITUTIONAL SUPPORT

Dr. FENNINGER. The schools of the health professions and occupations constitute major national resources. Basic educational improvement grants represent the minimum Federal investment to assure the continued operation and growth of these vital institutions. They have already resulted in strengthening the educational programs of the eligible schools which have received them. The schools have been able, through these grants, to increase their enrollment in the fall of 1967. These funds have added stability to schools and have made advanced budgetary planning possible. Several schools have been able to initiate curricula that had been planned for several years but required additional funds to implement them. Others have been able to develop visual educational programs to purchase much needed equipment for teaching. Most schools have used their funds to strengthen their faculties and to maintain existing programs.

But maintenance of existing programs is not sufficient to meet our present needs, to say nothing of the needs of the future. New courses must be established. Teaching methods must be improved through research in education in the fields of health. The Federal Government has an obligation to encourage and participate in these programs. The health professions special improvement grants provide the means for such participation. Until fiscal year 1968, funds were not available for these grants. We are now reviewing the first applications. We can see the great contributions to the quality of health professions education that can be expected from these grants in the future. Of the eligible schools, 135 have submitted applications. Had it not been general knowledge that the funds were limited and highest priority would be given to schools having the most critical financial problems, we believe all of the schools would have applied.

The schools propose to use the funds they have requested in various ways. The applications from some schools in serious financial straits reflect careful planning to offset their most critical weaknesses. Other schools are improving their curricula by adding new courses. Some of these new courses will prepare students in community health. Others represent a new body of knowledge that has come from breakthroughs in research.

What is most exciting is the thoughtful and imaginative planning which the schools are doing and the fact that for the first time the Federal Government is assisting the schools to meet some of the critical problems which confront education in the health professions. A major portion of the increase in funds requested for fiscal year 1969 is for health professions special improvement grants.

Increases amounting to $16,325,000 are requested for basic and special improvement grants to health professions schools of medicine, dentistry, osteopathy, optometry, and podiatry; and $7,250,000 for basic improvement grants for the allied health professions; and $1,554,000 to enable institutions to improve and enlarge their programs relating to the training of public health personnel.

STUDENT ASSISTANCE

Provision of scholarships and loans to students with serious financial need is an essential component of any program designed to overcome the shortage of trained health manpower. Our requested increase of $10,470,000 for student assistance includes $8,290,000 for scholarships and loans to be made to more than 14,000 additional students.

It is equally essential to prepare teachers, supervisors, and administrators of health services. Within the balance of the increase are funds to assist men and women to undertake advanced or special study to become teachers, administrators, and clinical specialists. These are teachers of medicine, dentistry, nursing and other health disciplines. They are teachers and administrators who will function in the preservation of health, in the prevention of illness and in planning for improved and more realistic health services. Funds are also requested to enable workers in the allied health disciplines to improve their level of competence to meet the changing demands of new health technologies. Under these provisions more than 2,500 additional persons will be trained in 1969.

An increase of $702,000 in research grant funds is requested to explore new methods in premedical and medical education. These funds will enable the medical schools to increase their effectiveness in educating more physicians and in preparing them to provide comprehensive care within the changing patterns of community health services.

REFRESHER TRAINING FOR NURSES

There are approximately 1 million registered nurses in the United States but only about two-thirds of them are in active practice.

Mr. FLOOD. How many would you like to see?

Dr. FENNINGER. Estimates vary depending on where one starts to look at the problem, whether it be from the professional point of view or from a labor point of view. But the estimates at the present time range between 860,000 and a million registered nurses needed in active practice by 1975. There are only about 640,000 at the present time. We are talking an immediate shortage of somewhere in the neighborhood of 135,000 active practicing nurses.

NURSING WAGE SCALES

Mr. FLOOD. Do the wage scales differ very much for an RN?

Dr. FENNINGER. I think there is considerable variation from one region to another and from one metropolitan area to another in the United States at the present time. Miss Scott may have more precise information.

Miss SCOTT. They do vary considerably from one sector of the country to another and within the States there is also considerable variation. I think with the activities on the part of nurses in the past year salaries are on the rise and we see different patterns of nursing practice in the country and different ways in which nursing skills are being used as a result of the change in the economic situation. The salaries are going up.

Dr. FENNINGER. Approximately 25 percent of the nurses in practice are working part time, which is another aspect of the provision of nursing care.

Many nurses leave active practice each year, particularly young women with family responsibilities. Of these a substantial proportion later return to active practice. Because of the rapid changes in medical knowledge and technology, these nurses must learn new techniques and acquire new knowledge when they return. Refresher courses will encourage a greater number of nurses to return to practice each year by updating their skills in providing modern nursing care. The sum of $1,445,000 is requested for this program.

HEALTH MANPOWER DATA BANK, INTELLIGENCE SYSTEM, AND INFORMATION CLEARINGHOUSE

The planning and development of health manpower programs to best serve the Nation's needs must have a base of accurate and current information on the supply, distribution, and utilization of health manpower, on the needs, capabilities, and resources for health manpower training, and the availability of financial assistance for students, together with basic reference materials.

Information in these areas is fragmented and incomplete. Much better data are required if we are to direct our efforts most effectively. The establishment of a health manpower data bank and information clearinghouse will provide a central place for storage and retrieval of health manpower information derived from many sources, private and public. Such information is needed for planning by institutions, organizations, and agencies which must develop and support education for the health occupations. The sum of $900,000 is requested for this activity.

I might also say the major purpose of education is to prepare people to give health services in the community. So the planning for education is related to the planning for health services in communities.

The funds requested for institutional support, for student aid, and for development of new curriculums and new methods of education in the fields of health will further our progress in preparing able students to serve health needs of all Americans in the future.

I shall be glad to answer any questions.

SUMMARY OF 1969 BUDGET REQUEST

Mr. FLOOD. Taking into consideration several adjustments for comparability, the budget for 1968 is $155,301,000. The request is for $197,650,000. That is an increase of $42,349,000.

INSTITUTIONAL SUPPORT FOR NURSES

Now you have 10 activities set forth in your appropriation, and you are asking for increases in all but one, "Institutional support, Nursing." Why do you discriminate against nurses?"

Dr. FENNINGER. Mr. Flood, I don't believe this represents discrimination against nurses.

Mr. HAMBLETON. There are two items that make up the institutional support for nurses, totaling $7 million. One is "Project grants

for improvement of nurse training," $4 million; and the other is the formula grant for "Payments to diploma schools of nursing," $3 million. The $4 million item is the full amount of the authorization. That is all we could request.

The $3 million item is based on the best estimate of what the schools will ask for in 1969. Miss Scott can give us more information on this point.

Miss SCOTT. I think there are two factors in operation not in support of each other, Mr. Chairman. Although the numbers of diploma schools in the country are decreasing, their enrollments are maintained at the same level. On the other hand, the requirement for the school to be eligible for payment under this particular provision is that the school increase its enrollment, and diploma school enrollments are not on the increase. Therefore, the formula itself is not helpful to the diploma program at the moment.

Mr. FLOOD. Do you think the nurses are being discriminating against?

Miss SCOTT. No; I do not think so.

Mr. FLOOD. I am pronurse.

Dr. FENNINGER. So are we.

SHORTAGE OF HEALTH MANPOWER

Mr. FLOOD. Just so we know. This appropriation has to do primarily with trying to alleviate the shortage of health and medical personnel. Believe me, we hear this story day after day, hour after hour, year after year at these hearings. Will you give us your estimate of just how serious this is? And will you put in the record a detailed set of facts and figures on this problem?

Dr. FENNINGER. Let me say a word or two about the general problem of shortage in the field of health manpower. In the first place, shortages are quite uneven in their distribution. We may have differences within a few blocks of each other in the same city. We may have considerable difference from one community to another in shortage. What is more, there are great variations in the kinds of people who may be working in any given community. So, although one can speak of the national problem, and there is no question about the national problem and its magnitude, there is considerable variation and unevenness geographically throughout the United States and even within one community.

There has been improvement in the training of certain kinds of people, both in the short-term training and also in the most highly skilled professional people that take the longest period of training. A number of agencies, both in the Federal Government and State governments, and private and local public agencies, have become increasingly aware of the problem.

Mr. FLOOD. But you are just restating the question. What is the answer? I certainly do not have the impression that for a problem that is described as so dramatic that we are meeting it dramatically. What do you do about that? How do you take the lid off this?

Dr. FENNINGER. I think there are a number of ways of taking the lid off. In the first place, there are people in bed today that require care and people in communities that require care and we are not suddenly going to produce a large new number of people. So we have

to make use of the resources we have, which has to do with the best possible organization and utilization of existing skills. This means a different kind of planning from what we have done in the past for health services and a different kind of arrangement for the use of the skills that are available.

At the same time, we must be concerned for the future, and the programs for the future are the ones in education that we are outlining here. In addition, there are the immediate short-term training programs for people who already have certain skills but need additional skills to be supervisors of people whose jobs require shorter term training.

Mr. FLOOD. I repeat for the purpose of emphasis, if this is as bad as everybody says it is, and I believe it is, it is not getting the dramatic attention that other very serious problems are getting.

You will prepare a statement for the record?

Dr. FENNINGER. Yes, sir.

(The information follows:)

Health manpower needs[1]

Many social, economic, and technologic factors have contributed to the marked increase in demands for health services. Perhaps the most important factor has been the increase in the population and the change in its nature. It has been estimated, for example, that 15 years from now there will be at least 50 million more people in the United States, of whom 5 million will be 65 years or older. In addition, we have a much larger young population. So not only have we had an increase in the total size of the population, but we have had bulges at the two ends of it. These two population groups require considerably more—much more—in the way of health care and services than do people in the middle years. People in the 65 and over age group, for example, receive twice as much service from physicians as do those in the general population and use over twice as many days of hospital care annually.

A second very significant factor has been the tremendous development of medical knowledge that has taken place in the United States, and in the Western World at large, in the last 20 to 25 years.

A third major factor that contributes to the present demands for health care has to do with the education of the public. We have a much better informed general public than we had 50 years ago, or even 25 years ago, particularly in matters of health. With their education comes a rising expectation, as in any other field. So we now have great expectations and a great demand for health services from a large and informed public.

Another very important additional factor in the marked increase in demands for health services has been changes in social attitudes. Now we are coming to believe that everyone should have quality-medical care and that financial barriers should not stand in the way of people who are in need of health services. This has led to the development of social insurance, first of all in the private sector such as Blue Cross and Blue Shield, and secondly, in the enactment of title 18 and title 19 of the Social Security Act to provide the resources to pay for care for people over 65 years of age (under title 18) and to provide for the payment of care for those who could not otherwise afford it, regardless of age (under title 19).

The need for more and better health care for low-income families has been repeatedly demonstrated. The National Health Survey shows that members of families with annual incomes below $2,000 have more than twice as many days of restricted activity because of illness as those in families with incomes over $7,000. At the same time, low-income families receive the smallest amount of medical and dental care.

Mortality rates reflect differentials in health status between the white and nonwhite population. In 1964, the maternal mortality rate for the U.S. white popula-

[1] The material in this section is drawn primarily from U.S. Department of Health, Education, and Welfare; Public Health Service; Bureau of Health Manpower, "Health Manpower Perspective: 1967," Public Health Service Publication No. 1667, Washington, U.S. Government Printing Office, 1967, 81 pages.

tion was 2.2 per 10,000 live births; for nonwhites, 9. In 1964, the mortality rate for infants (under 1 year) was almost twice as great for nonwhite (41.1) as for white infants (21.6).

Coupled with the increase in the development of knowledge and the increase in expectations, we have seen a variety of new skills required on the part of those who are going to serve the sick and keep people well. The expected increase in the supply of physicians and other health personnel will not be sufficient to meet the increased demand, when one takes into account the impact of new medical discoveries, rising expectations on the part of the public, shifts to hospital-centered medical care, and increased availability of services.

It is estimated that, between 1965 and 1975, population growth; changes in the age, sex, and social distribution of the population; urbanization; and migration may together raise total demand for medical services by 13.9 to 16.3 percent.[2] Rising levels of income and education may add another 7 to 7.5 percent to demand; and medicare another 1 or 2 percent. The total increase in demand from all of these factors may be between 22 to 26 percent.

All the assumptions we are making about the numbers of people needed in the health field at the present time are based on current practice, current technology, current organization of delivery of service, and current means of education and training. That is what our numbers say at the moment. The need, however, is going to change tremendously with the development of better methods of using the skills that people have—skills at all levels in the health field.

Physicians

There is a critical shortage of physicians in the United States today. Although there are approximately 305,400 physicians in active practice in the United States (December 1967), we need about 50,000 more. Long waiting periods for medical care are common. Recognition of the need for physicians is so widespread as to hardly need further documentation.

Looking ahead, and taking into account population growth, social and economic changes, and advances in medical science, we see a need for 400,000 physicians by 1975. The output of U.S. medical schools, together with the continued immigration of foreign physicians, will provide no more than 360,000 physicians by that time, some 40,000 short of meeting those needs.

Two recent statements, however, are worthy of note:

Last year the board of trustees of the AMA reported that the Nation's shortage of physicians was reaching "alarming proportions," and called for an "immediate and unprecedented increase" to meet the need.[3]

In November 1967 the report of the National Advisory Commission on Health Manpower stated: "The production of physicians should be increased beyond presently planned levels by a substantial expansion in the capacity of existing medical schools, and by continued development of new schools."

Dentists

There are about 96,700 active dentists in the United States (1967). The supply of dentists in relation to population has been declining for some time, aggravating an already critical situation. Looking ahead, we see a continuing worsening of the situation unless there is a very sharp increase in dental school enrollment. The National Advisory Commission on Health Manpower (in November 1967) stated:

"Our calculations, based on the experience of the last decade, indicate that the demand for dental services (in current dollars) will increase between 100 and 125 percent in the period 1965–75. The supply of dentists is expected to increase by only 16 percent; however, as a result of a continued increase in the use of auxiliary personnel and further improvements in dental technology, the total productivity of dentists will increase much more—perhaps by as much as 50 percent. Such an increase would, however, still fall short of the expected increase in demand.

"In order to meet the growth in demand, the number of dentists needs to be increased above planned levels."

The use of auxiliary workers makes it possible for dentists to give more effective service to greater numbers of people. Another development, the use of

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[2] Fein, Rashi, "The Doctor Shortage: An Economic Diagnosis," Washington, Brookings Institution, May 1967, 199 pages.

[3] Janson, Donald, "AMA Panel Asks Drive To End Doctor Shortage," New York Times, June 20, 1967, p. 1.

"House of Delegates Accepted a Report From Board of Trustees," Medical News, JAMA, vol. 201, No. 2, July 10, 1967, adv. p. 27.

fluoridation, is having a substantial impact in the prevention of dental caries. But even when these advances are taken into account, we estimate that by 1975 the need for dentists will reach about 137,000; with a total supply of about 108,000. Thus the unmet need will be of the order of magnitude of 30,000.

Nurses

A shortage of registered nurses exists in all regions of the United States. Some badly needed hospital beds stand empty because there are no nurses to care for the patients they would hold. An estimated 659,000 registered nurses were practicing in the United States at the end of 1967. An additional 135,000 nurses are needed today. To provide safe, therapeutically effective, and efficient care to the population in 1975 will require nearly 1 million nurses. The estimated supply at that time, however, will be between 800,000 and 900,000.

The number of practical nurses has increased at a rapid rate. Between 1950 and 1965, the total more than doubled. The supply in 1966 was 300,000. In 1966, hospitals reported needs for some 41,000 more practical nurses, and needs in extended care facilities were estimated at 9,000. Thus, present unmet needs are probably not less than 50,000. The total need by 1975 may reach 550,000, with the expected supply of 450,000.

Allied health workers

There is a great variety of allied health workers with a range of preparation from graduate university to a few weeks; all are in great demand under the pressure of new technologies. Studies in five fields—medical record library science, medical technology, occupational therapy, physical therapy and radiologic technology—indicate that, from the professional viewpoint, needs are about double the present supply.

A 1966 study of hospital staffing needs (see below) shows that hospital administrators also see subtantial immediate need in these, as in many other occupational fields:

	Hospital employment	Additional needed for optimum care	Percent additional
Medical record librarian	6,300	1,800	29
Medical technologist	54,500	9,200	17
Occupational therapist	4,100	2,300	56
Physical therapist	8,500	2,900	34
Radiologic technologist	24,000	3,900	16

Dental hygienists, dental laboratory technicians, and dental assistants are needed in vastly increased numbers, to enable dentists to make the most effective use of their knowledge and skills.

Institutional needs

To provide "optimum care," hopsitals need 257,000 more professional and technical workers in addition to the 1,332,000 employed, according to findings of a 1966 study by the Public Health Service and the American Hospital Association.

The needs for optimum care represent an average increase of 19 percent. In general, the needs for professional workers are proportionately higher.

Nursing homes and other extended care facilities need to increase their present staffing total by about 12 percent to give "optimum care," according to preliminary findings of a study conducted by the Bureau of Health Manpower. In view of the serious shortage of nursing home beds, these figures probably understate the problem.

Regional differences

The disparities among the States and regions in the supply of physicians and other health manpower have long been of concern. The East South Central States, with the highest infant mortality rate, have only 89 physicians per 100,000 population, in contrast to a rate of 171 for the Middle Atlantic States. There are similar disparities in the distribution of dentists and nurses.

The number of dentists per 100,000 civilians varies from 58 in the Middle Atlantic States to 31 in the East and West South Central States.

In relation to population, nurses are most numerous in the New England States (470 per 100,000 population) and fewest in the East South Central States (165 per 100,000).

The difference in manpower supply between the regions with the highest and lowest ratios to population is greatest for professional groups and smallest for the groups which require the least training. The Middle Atlantic States have almost 90 percent more physicians and dentists in relation to population than the East South Central States, and the New England States have over 180 percent more nurses than the East South Central States. On the other hand, for practical nurses and for aides, orderlies, and attendants, the differences are only 31 and 45 percent.

Summary

The following table shows three series of projections of 1975 needs for health manpower, based (1) on professional judgments, (2) the level of supply in the highest of the four regions of the United States, and (3) an econometric model. These three series are quite similar.

The figures drawn from professional sources indicate a total need of more than 3.7 million health workers by 1975. A higher estimate, 3.8 million, is arrived at by projecting the present health manpower supply levels in the highest region to the total country in 1975. The Bureau of Labor Statistics projections, using an econometric model, indicate total 1975 employment in the health occupations of almost 4 million.

Each of these projections would require a net increase of between 100,000 and 130,000 health workers a year in the decade ending in 1975, or a rate of increase 50 percent higher than that of the past decade.

PERSONS IN THE HEALTH OCCUPATIONS, 1966 AND 1975 ESTIMATES

Category of personnel	Number of active workers 1966	1975 estimates		
		Professional judgments	Highest region [1]	Bureau of Labor Statistics projection
All categories	2,786,200	(3,735,000)	3,797,700	(3,977,600)
Physician (M.D. and D.O.)	297,000	400,000	425,000	390,000
Dentist	95,400	137,000	134,900	125,000
Dental hygienist	16,000	42,000	[2]	[2]
Optometrist	17,000	[2]	27,500	20,000
Podiatrist	8,000	[2]	17,500	9,000
Nurse—R.N.	640,000	1,000,000	964,500	860,000
Licensed practical nurse	300,000	550,000	429,700	465,000
Aide, orderly, attendant	700,000	500,000	814,600	1,080,000
Medical technologist [3]	40,000	70,000	52,400	75,000
Occupational therapist	6,500	54,000	12,500	19,500
Physical therapist	12,500	54,000	17,700	27,000
Speech pathologist and audiologist	13,000	29,000	18,400	[1]
Radiologic technologist	72,000	100,000	92,400	100,000
Pharmacist	120,000	[2]	162,700	126,000
Medical record librarian	12,000	16,000	12,100	18,000
All other	436,800	[4] (783,000)	[4] 615,800	[4] (666,100)

[1] Based on the 4 major regions of the United States.
[2] Separate data not available; included in all other.
[3] ASCP registered. Hospitals reported 22,000 employed in 1966 who were not ASCP registered.
[4] Estimated at the same rate of increase as the sum of the specified categories.

Soure: Estimates prepared by the Public Health Service and the Bureau of Labor Statistics based on: "Health Resources Statistics: Health Manpower, 1965," Public Health Service Pub. No. 1509. Washington, U.S. Government Printing Office, 1966, 182 pp.

INSTITUTIONAL SUPPORT

Mr. FLOOD. Over half the total increase you are requesting is $27,229,000 for institutional support. You made quite a pitch on that in your affirmative statement. That is an increase of more than one-third over 1968.

Everybody this year is supposed to do the best they can to reduce the budget. Why should the committee allow an increase of this magnitude, one-third?

Dr. FENNINGER. The increases are being requested for institutional support because indeed not only the present supply of people and their

competence comes from the existing institutions, but next year's supply, the year after that, the supply of health manpower 10 years from now. The increases are in two major areas; in the special project grants for the schools of health professions and to provide adequate funds for the basic grants up to the limit of the authorization for the allied health professions, which is a very important group of people in health care. As you know, these institutions are the major national resource for the preparation of people who will provide the services which the public expects and should have. The support to the institutions will enable them to expand their programs, improve their programs, produce more people who are better qualified, not only better qualified as of today, but able to make the necessary adaptations and changes in their knowledge in the future, as medical knowledge and technology change.

The funds also are necessary for the solution to some of the dire problems that schools of the health professions face at the present time. Some are in serious financial straits. The special project grant is the particular mechanism which can be used most effectively in dealing with the issues which some schools face and in relieving the dire distress of some of these institutions.

ALLIED HEALTH GRANTS

Mr. FLOOD. You tell us you have activities carried out under what you call "Allied Health New Method Grants."

Despite all the storm signals, you want to double this one in 1969 from $1 million to $2,100,000. You want to double it just as though everything in the papers and television and radio you hear is not true.

Dr. FENNINGER. As I said earlier, Mr. Chairman, the most important way in which we can improve the health care and health services and also the preventive and environmental aspects of health is through the development of highly competent people with the new skills that are evolving as a result of the change in knowledge. The new methods grants in the allied health professions are particularly aimed at the groups of people who are concerned with the environment, the delivery of services, the supporting services that assist the physician in the care of the patient. We have several of them in progress at the present time.

Mr. Erickson might like to speak to one or two of these examples.

Mr. ERICKSON. The stress here, Mr. Chairman, has been in large measure on the new types of assistant to enable the highly trained specialist to be more effectively utilized.

Mr. FLOOD. You mean something like taking this load of paperwork off the backs of nurses. Stopping nurses from running around hospitals answering bells like maids or something.

Mr. ERICKSON. Yes, sir. One of the projects that we have awarded this past year deals, for instance, with the extra corporeal circulation technician. This is a technician who supports the functions of the physician.

Mr. FLOOD. You are speaking now of a pretty high level technician?

Mr. ERICKSON. No, sir. This is a program at the 2-year junior college level.

Mr. FLOOD. You can utilize these junior colleges and community colleges for this kind of thing?

Mr. ERICKSON. Yes. This has been the thrust of our new methods program and its major area has been the development of assistants who can be trained in a much shorter time to help relieve the highly trained physician, dentist, and others in the performance of their work.

Dr. FENNINGER. I think it might be worth citing a couple of other projects which include the health care administrators who are involved in coordinating services. We are also supporting a project which brings together systems engineering with the management of hospitals to improve the distribution of resources and services. These are administrators of health services who might serve in hospitals or a community agency. They might serve in a number of settings.

SPECIAL PROJECT GRANTS

Might I say another word about the special project grants and the dire straits of the schools? The funds are particularly useful for such schools in attracting faculty and holding and improving faculty salaries, so that they can strengthen the educational programs for which they are responsible to their students and ultimately to people who require a broad range of health services. A number of schools have indicated in their special improvement grant applications that they will use such funds to strengthen their faculty resources, to improve faculty salary scales where their scales are considerably lower than other institutions.

Mr. FLOOD. Is there a lot of piracy among these institutions and hospitals for this type of personnel?

Dr. FENNINGER. I cannot speak to the degree of piracy that is going on at the present time.

STUDENT ASSISTANCE

Mr. FLOOD. The second major category in this appropriation is student assistance which is budgeted for $57,180,000 in 1968 and $67,650,000 for 1969. You have increases for eight of your nine subactivities.

Dr. FENNINGER. Yes, sir.

DEFINITIONS: FELLOWSHIPS, TRAINEESHIPS, OPPORTUNITY GRANTS, AND SCHOLARSHIPS

Mr. FLOOD. You can do this now briefly and then if you wish to elaborate in detail for the record you can do that. I would like your definitions of fellowships, traineeships, opportunity grants, and scholarships. They are all financed from these funds.

Dr. FENNINGER. Traineeships by and large apply to people who have received their first professional degree and go on for advanced training. The term may be used interchangeably with fellowships although fellowships are usually for those going on to a more advanced degree.

They are similar in nature and by and large are given to people who have had a formal professional education. Scholarships and opportunity grants are similar to one another. They are scholarships given to students in the school of that particular profession prior to receipt of their first professional degree.

Loans I think speak for themselves.

Mr. FLOOD. Why do we have the four categories, fellowships and traineeships being the same thing?

Is that academic tradition or what?

Dr. FENNINGER. I think there is some difference between our fellowships and traineeships. Fellowships in dentistry and nursing are aimed particularly toward the preparation of people in research and people who will serve in educational institutions. The traineeships are in some cases somewhat shorter in duration. They may or may not lead directly to a degree.

Mr. FLOOD. What is a scholarship as distinguished from an opportunity grant?

Is a scholarship an opportunity grant with silk stockings or what?

Dr. FENNINGER. They are essentially both scholarships.

Perhaps someone else can speak to the origin of the term "opportunity grants."

Can you, Miss Scott?

Miss SCOTT. I think, Mr. Chairman, when the educational opportunity grant was added to the Nurse Training Act, it was modeled after the educational opportunity grants which existed in the Office of Education. The nursing educational opportunity grant is to provide sums of money to students who, but for this money, could not enter the nursing program.

Mr. FLOOD. Actually, for a change, I think Congress is at fault at this time. I suspect this is the language in the statute.

Mr. HAMBLETON. A large amount of the money for traineeships is to train teachers, supervisors, administrators, and clinical specialists.

(The requested additional information follows:)

Traineeships, in general, are awarded to support, during a period of advanced or specialized training, a student who has completed his basic professional training. A traineeship usually provides a stipend allowance, tuition and fees, a travel allowance, and an allowance for dependents. For example, public health traineeships are awarded to physicians and other professional health personnel who are enrolled in schools of public health to prepare for careers in public health settings.

Fellowships are similar to traineeships in that they support an individual during a period of advanced training and provide for similar allowances. However, through usage, the term "fellowship" is usually restricted to support of individuals preparing for careers in research.

Scholarships are nonrepayable awards granted to individuals. In the health professions scholarship program, scholarships are awarded to students from low-income families who, without such support, could not pursue their course of study. These awards support individuals during the period of their basic professional training.

Nursing educational opportunity grants were patterned after the educational opportunity grants program, administered by the Office of Education. These awards are a type of scholarship in that they are nonrepayable and are awarded to students who (a) show evidence of academic or creative promise and capability of maintaing good standing in the course of study in nursing education, and (b) are of exceptional financial need.

Loans are sums made available to students, usually for support of basic professional training, which are repayable at a specified interest rate over a given period of time.

STUDENT LOAN PROGRAM

Mr. FLOOD. Under the nurses and health professions student loan program, as I understand it, a school may choose either the Federal capital contribution plan or the revolving fund plan, or both. Will you

describe these two and tell us the advantages, if any, of having both of them.

Dr. FENNINGER. I think Mr. Dixon should.

Mr. DIXON. Yes, Mr. Chairman, the Federal capital contribution method was the initial method that was authorized by the Health Professions Educational Assistance Act of 1963 whereby funds were appropriated directly to the Public Health Service and they were in turn allocated to schools who used them to capitalize their student loan funds. The schools were required to match this money with $1 of local money, non-Federal, for each $9 of Federal funds.

In 1967 the revolving fund method of financing was authorized. This method became available this year for the first time as an alternative method of capitalization. The principal difference is that under this method the institution borrows funds from the Federal Government. The school signs a promissory note that bears interest. The Public Health Service transfers title of these promissory notes to the Federal National Mortgage Association, and they stand as collateral for the participation certificates that are sold by FNMA. The schools' promissory notes are eventually retired by repayments of loans made to students by the schools.

So, there are two different methods of financing. The potential of the revolving fund method is that the money can be turned over and the funds recouped. The program envisions that the funds may be turned over more than once during a year.

Mr. FLOOD. But you can take both. What is the gimmick?

Mr. DIXON. I am sure you are more familiar than I with what happened in the Halls of Congress, but there was some discussion about this and it was agreed in connection with the authorization of the alternative method, that is the revolving fund method, that a school should have a choice as to which method it preferred. One would not be used to the exclusion of the other. It is for that reason that we have both methods.

Mr. FLOOD. Would this depend upon the circumstances peculiar to each institution?

Mr. DIXON. Yes, particularly since the revolving fund method does not require matching by the institution. This is one advantage to a school which has little or no matching money over the Federal capital contribution method. The ability of a school to borrow is another consideration. There are some schools which are prevented by laws in their States from borrowing and they cannot participate in the revolving fund.

Mr. FLOOD. Of course, in that case where you are prohibited by a matter of State law that is a good answer. That is the end of that argument.

Mr. DIXON. Yes.

RESEARCH GRANTS

Mr. FLOOD. I repeat again for the purpose of emphasis, it should be pretty obvious to everybody in the room that this is not the season for big increases in research. Yet you are asking for more than double the level for research grants from $646,000 to $1,348,000.

Dr. FENNINGER. I would be glad to comment on this, Mr. Flood. This particular request is aimed primarily at the development of new

programs of medical education and the relationship of premedical education to the medical curriculum itself.

As I am sure you realize, one of the great needs is to develop and devise different ways of educating students of medicine and students coming through college, which may indeed decrease the time required without altering in any way the quality of the education that the person receives.

Mr. FLOOD. I am sure what you say could not be intelligently debated or contradicted.

I said what about this year? Couldn't the funding be delayed for 1 year?

Dr. FENNINGER. I think there are two things happening. This is a very urgent piece of business which takes time to develop and which will have a long-range effect. The other is that the medical schools have indicated to us their increasing interest in undertaking these kinds of studies.

Mr. FLOOD. I am sure of that.

Dr. FENNINGER. So that the time is appropriate both from the point of view of long-term public need and also the readiness of schools to undertake it.

I believe this should be supported this year. This is a crucial area starting from a very small base, sir.

PERSONNEL INCREASES

Mr. FLOOD. What would you like to say about the increase of 51 jobs in your direct operation?

Dr. FENNINGER. We are asking for four additional positions in the Division of Physician Manpower. They will be concerned primarily with the improvement of educational facilities and the utilization of physician skills, in efforts to determine what can be delegated to other kinds of people in providing medical care. Such studies are a necessary preparation for the development of new or additional types of health workers and will also influence the medical curriculum itself. As schools develop curricula, as they develop plans for new facilities, it takes an increasing amount of staff time to work with the schools, to help them improve their applications and to make the best use of the resources which they are putting in the institutions.

This is primarily the area of planning and development of educational facilities and the examination of and modification of the utilization of the physician's skill as it applies to the teaching program and as the physician renders services to patients along with other people in the health professions.

The dental positions are related to continuing education, the development of new methods, the development of new teaching media, particularly to bring recent advances in dentistry to practicing dentists.

There are also positions requested for dentistry that relate to further studies of oral cancer, an important problem.

Positions are requested in connection with the studies that are going on at Louisville in the productivity of the dentist in working with other kinds of people with technical skills.

The nursing positions are primarily related to the recruitment of students into nursing, aiding those who are entering the field,

helping identify people of potential ability and helping them to get what might be called remedial or "strengthening" education prior to their coming into nursing school, that is, to help the schools develop these kinds of plans and relationships.

Positions are also requested for field work, particularly in connection with the retraining of inactive nurses and bringing them back into nursing practice.

In the Division of Allied Health, the positions are aimed primarily at the development and training of new and existing types of people, helping institutions in planning their educational programs for preparing people for administration of health services and for comprehensive planning. Two positions are related directly to the grants to schools of public health and the evaluation of their teaching program.

In health manpower education services, we are asking for positions that have to do with development of the intelligence system and the clearinghouse for information.

We are also requesting major increases in the special improvement grants and we require extra help in the administration of the expanded program. In the Office of the Bureau Director, the positions are for people who are involved in planning for the long-range aims and goals of the Bureau, sharing with other agencies and outside organizations in planning and the development and dissemination of information, which has been one of the very serious lacks in all of education in the fields of health.

We should develop ways of sharing information gained by one group with another group as rapidly as possible, so that both the quality and the breadth of education in the health professions can be improved.

NATIONAL HEALTH MANPOWER INTELLIGENCE SYSTEM

Mr. FLOOD. You are asking for an increase of $750,000, and I quote, "to begin a long-range plan to establish a national health manpower intelligence system."

Tell us what you plan to do with the $750,000. What is your long-range plan?

This is getting your foot in the door. Give us an approximation of what the future costs will be.

Dr. FENNINGER. The bulk of this money is for the purchase of information to be supplied by the organizations and agencies which will be developing the information in concert with us, so that we may have compatible information and definitions.

This is a long-range plan which involves in part direct effort of the Bureau staff in the development of information which is needed, looking for sources of such information that can be purchased on contract, and an analysis of the system itself.

As I say, we must look at the needs for information, the kinds of information which are available, what kinds of information should be developed, what kinds of information can best be developed within the Bureau, what are better developed by contracting, and payment for information derived from outside sources.

This includes also the codification of educational requirements, information about where educational programs are offered, what courses are available, what new methods of education, what new courses have developed for dissemination among other institutions so they may

indeed modify their educational programs making use of the experience of others.

This is one of the ways in which we can have a multiplying effect, experience in one institution being rapidly spread to another institution.

As we gain experience, we shall be better able to determine the eventual cost of operation. In all likehood it will be four or five times the initial cost.

Mr. FLOOD. You cannot wait another year?

Dr. FENNINGER. I think we have waited too long already.

PROJECT CONTRACTS

Mr. FLOOD. How do you account for the big increase on these project contracts? We are talking about $3,153,000 for 1968, and the request for 1969 is for $5,381,000.

Dr. FENNINGER. The largest single element is in the nurse retraining program, which is $1,274,000 and another sizable portion has to do with the recruitment of nurses. A large portion is for the intelligence system which would be the general reference system I have been speaking to.

The other major items have to do with the training of inactive physicians and studies of physician utilization. I think that takes care of the largest items that are included in the increase.

We would be glad to supply further information for the record.

(The information follows:)

Contract funds—Increase requested

1968	$3,153,500
1969 request	5,381,500
Increase	2,228,000
Division of Physician Manpower:	
For 1 additional project for retraining inactive physicians	50,000
For 3 projects in physician utilization	50,000
Division of Dental Health:	
For needed information on patient education system	10,000
With State board of health to demonstrate cytological testing techniques (oral cancer)	4,000
With an educational institution (to be selected) in an area with a high incidence of cleft lip and palate to determine possible causes of the occurrence	24,000
For further studies in the Louisville program leading to innovations in the dental team concept	4,000
Division of Nursing:	
For the nurse refresher training program	1,274,000
For the nursing student recruitment program	129,000
Division of Health Manpower Educational Services:	
For the health manpower intelligence system survey	250,000
For buying and evaluating data for the health manpower intelligence system	377,000
For the information clearinghouse and reference room	56,000

Mr. FLOOD. Mr. Casey.

RELATIONSHIP TO COMPREHENSIVE HEALTH PLANNING

Mr. CASEY. In your statement on the bottom and top of the second page, or rather the top of the second page, "Among the most important functions is the assessment for health manpower needs, type of educa-

tional training programs, which will increase the quality and quantity of health services and making health services available to all who need them."

We heard practically the same thing from the gentleman who preceded you in his planning grants.

That is the purpose of the planning grants, to assimilate the data, to determine the very same things you are talking about here. Is there any duplication in this program?

Dr. FENNINGER. I think they are related but not duplicated in the sense that our particular programs for getting information are aimed primarily at improvement in education, utilization, and distribution of physicians, as well as the improvement ultimately in the quality of services given.

We have four experimental grants to States at the present time for the development of information on health manpower needs within the States.

Mr. CASEY. Would you do this for me? Why don't you get with the gentleman that preceded you and just put in the record the difference between your two programs?

Dr. FENNINGER. We will be glad to do that.

Mr. CASEY. So there is a distinction. The broad statements do not leave any distinction.

Dr. FENNINGER. We will be glad to submit that.

(The information follows:)

The partnership for health law authorized grants to assist the States in comprehensive and continuing planning for their current and future health needs. States are required to have a comprehensive plan for health. Such a plan must include the establishment of a State health planning council to include representatives of State and local agencies and nongovernmental organizations and groups concerned with health and representatives of consumers of health services.

Any comprehenssive State planning for health services, both public and private must, of course, include planning for the facilities and personnel required for the provision of the health services needed by the people of the State. A State plan encourages cooperative efforts among governmental and nongovernmental agencies, organizations and groups concerned with health services and the facilities and health manpower required to provide them.

Diversity of health needs and the resources to meet them exists in the various localities within the State. The partnership for health legislation recognizes this diversity both in the planning and funding of health services. Local planning is an essential base for statewide planning. The comprehensive health planning agency addresses itself to review of the total health problems and programs of the State. Its function is not to develop operational plans for health resources within the State, whether they be medical schools, dental schools, nursing schools, other institutions for training health personnel, hospitals, voluntary health agencies or private practitioners. Rather, its role is to gather information, assess needs, evaluate alternatives and to recommend courses of action that may be taken to achieve the health goals as identified and expressed by the public.

A State planning agency, for example, would take a look at where the doctors, dentists, nurses and other health personnel in the State come from, where they practice, how the health needs of the residents of the State are being met and what needs are not provided for. The State planning agency might then look at developments being planned in the State for the next 10 years (and in other States perhaps, if the agency is engaged in regional planning). It might then assess the many complex factors in determining whether a new medical school, a new school of nursing, or other schools to educate health personnel were needed. But the comprehensive State plan would not be the determining factors. While it will lay out priorities and choices, there is nothing in the Federal law that gives the State comprehensive health planning agency the authority to require any particular institution or organization to undertake a specific program or operation. Nor is there anything in the partnership for health legislation that

would be construed as vesting any new authority in Federal, State or local officials that would limit or curtail the funding or circumscribe the activities of medical schools or their teaching hospitals or the functions of other schools of the health professions and occupations.

Particular competencies are indeed required by those who direct and carry out comprehensive health planning. Under the authority in section 314(c) of the legislation, a number of universities are developing curricula in comprehensive health planning and are providing consultation to State and areawide agencies.

The responsibilities of the Bureau of Health Manpower include the assessment of national needs for health personnel, projections of future needs, assistance to public and private nonprofit institutions and agencies in studies and the development of methods for such studies of health manpower needs and utilization. This includes technical assistance and cooperative efforts with other Federal agencies. The Bureau develops and disseminates information concerning needs and educational and training programs and provides support for the planning for and development of the increased personnel required to provide health services of high quality. It has major Federal responsibility to assist in the recruitment of capable young men and women into the health professions and occupations and to assist them in their training and education through loans and scholarship for those professions specified in the Health Professions Educational Assistance Act, the Nurse Training Act, the Allied Health Professions Act, and the Public Health Training Act. The Bureau also supports through fellowships and traineeships the education of teachers, investigators, supervisors, and administrators in the fields of health. Its programs assist eligible schools in sustaining and improving their curricula, in developing new educational methods and programs of continuing education. It also assists institutions in the improvement of existing and the creation of new facilities. In summary the programs of the Bureau of Health Manpower are aimed at the improvement in quality, quantity, and distribution of health personnel on which all health services depend. Its relationships are primarily with junior colleges, schools of nursing, colleges and universities which educate and train health personnel, and with agencies concerned with planning for and development of the manpower resources for health services.

MEDICAL STUDENTS

Mr. CASEY. One of your roles is to attract able candidates in all health professions and occupations. How many M.D.'s are we training at the present time?

How many students do we have seeking a degree in medicine?

Dr. FENNINGER. The total enrollment of students in medicine estimated this coming fall is 35,540 students.

Mr. CASEY. This year.

Dr. FENNINGER. That is the total enrollment.

Mr. CASEY. How many was it last year?

Dr. FENNINGER. 9,570 to be admitted in the fall of 1968.

Mr. CASEY. Is there any increase over last year?

Dr. FENNINGER. In 1966 there were 33,449 students enrolled. In 1967, there were 34,314. The estimate for this fall in 1968 is 35,540.

Mr. FLOOD. How many should be there if you had your way?

Dr. FENNINGER. There should be about 15,000 in each entering class, to make a total enrollment in the schools of somewhere around 55,000 or 60,000.

NURSING AND DENTAL SCHOOL ENROLLMENT

Mr. FLOOD. Since you are giving the committee statistics on doctors, you may as well provide them for the record on nurses and dentists.

(The information follows:)

TOTAL ENROLLMENT OF NURSING AND DENTAL STUDENTS

	1966	1967	1968	
			Estimate of enrollment	Preferred enrollment
Dental students	14,421	15,000	15,600	23,000
1st year				6,000
Nursing students	139,070	141,900	146,000	240,000
1st year				80,000

MEDICAL SCHOOLS

Mr. CASEY. You talk about the attraction of able candidates, the letters I get from candidates are those who cannot get in.

They think I have some influence with the dental schools or medical schools or even a nursing school.

Mr. FLOOD. I will join with the gentleman on that. I get a lot of mail on precisely that.

Mr. CASEY. Every year. When they start getting the rejection notices, start hearing from parents thinking that I can tell them to put in another desk.

Mr. FLOOD. If you are not straight A or the son of a doctor, you are out.

Mr. CASEY. I was not going to say that myself, Mr. Chairman, but it does seem that some of them have a little more influence in that regard, if they do have a history of the medical profession in back of them.

There was a discussion here yesterday, I believe, that there are a couple of medical schools that are going to close their doors. Is there any money in here to help them?

These are not brandnew medical schools.

Dr. FENNINGER. I do not know any medical schools that have actually announced plans to close. I understand that there are two dental schools that plan to do so.

Mr. FLOOD. I thought there was only one.

Dr. FENNINGER. There is one that has announced its plans to close.

Mr. CASEY. Is there any money in here that would assist them?

Dr. FENNINGER. We have no legislative authority at the moment which could assist this particular school.

Under the present legislative authority, in order to get a basic improvement grant, the school must maintain or increase enrollment, and in order to get a special improvement grant, it must be eligible for a basic improvement grant. So the present legislation does not allow us to provide funds to the school that has announced that it is closing.

We have no legal means of doing so.

Mr. CASEY. Did they get support before?

Dr. FENNINGER. Yes, they have received support in the past. But they are not eligible for funds under existing legislation this year.

Mr. CASEY. That was my next question because you state in here

eligible schools under your institutional support. I was wondering what the eligibility requirements were.

Dr. FENNINGER. Schools must increase their enrollments to be eligible. A waiver can be granted only because of inadequacy of physical facilities.

This waiver would not apply to the dental school mentioned.

Mr. CASEY. In other words, if the enrollment is static, they do not qualify.

Dr. FENNINGER. If the school's enrollment is declining, which this school has already announced, it is not eligible for the basic improvement grants and therefore is not eligible for a special improvement grant, since only schools with basic improvement grants are eligible to apply for special improvement grants.

Mr. FLOOD. Should that law be changed?

Dr. FENNINGER. I believe the bill that has been introduced in the House, the Health Manpower Act of 1968, makes such a provision which would be effective this year.

I might say that our request for appropriations last year anticipated that this school would be eligible for funds this year. There would be money available within the existing appropriation if we had the legislative authority.

Mr. FLOOD. If and when this amended act becomes law in 1968, could we save that school?

Dr. FENNINGER. I do not know whether it can be saved or not. It would allow us the opportunity to deal with other schools that you have mentioned which are in difficulty.

SCHOOLS OF PUBLIC HEALTH

Mr. CASEY. I believe I noted someplace that there are 15 public health schools in the United States.

Dr. FENNINGER. Yes, sir.

Mr. CASEY. How many of those should we have, in your opinion?

Dr. FENNINGER. I do not really think I can answer that question. I don't know.

Mr. CASEY. Do we need any more?

Dr. FENNINGER. We need the people that are being trained by this kind of school. I think either these schools must increase in size or new schools must be created, or a combination of both.

Mr. CASEY. Where are most of these schools located?

Dr. FENNINGER. Shall I submit it for the record?

Mr. CASEY. Yes.

(The information follows:)

SCHOOLS OF PUBLIC HEALTH

Columbia University
Harvard University
Johns Hopkins University
Loma Linda University
Tulane University
University of California (Berkeley)
University of California (Los Angeles)
University of Hawaii
University of Michigan
University of Minnesota
University of North Carolina

University of Oklahoma
University of Pittsburgh
University of Puerto Rico
Yale University

Mr. FLOOD. I would like to know if, you have money in the 1968 budget, in case the law you referred to is enacted. I got the impression that you said there was money in the 1968 budget that you can utilize if this law passes.

Dr. FENNINGER. In estimating our budgets and in requesting our appropriation for 1968, we included this school as one of the schools that would be eligible. There are funds in the budget that would be available to the school if the school were legally eligible to recieve funds. This is why I said no new appropriation would be required in fiscal year 1968 for the school that I mentioned.

Mr. CARDWELL. He said they assumed that it would have an increasing enrollment and would be eligible.

It now turns out that it is not eligible and the moneys would be available if the law were enacted.

Dr. FENNINGER. The moneys are there, but the law is not.

Mr. FLOOD. That is what I wanted to know.

Mr. CASEY. On the public health schools, do you have funds to institute new schools, or just to help those that are in existence?

Dr. FENNINGER. We have the authority for construction of schools of public health.

Mr. CASEY. Construction also?

Dr. FENNINGER. Yes.

Mr. CASEY. And to help finance the operation of the institution?

Dr. FENNINGER. Yes, sir.

Mr. CASEY. Do you have any contemplated for any new schools?

Dr. FENNINGER. Not for 1969.

Mr. CASEY. I believe that is all, Mr. Chairman.

Mr. FLOOD. Thank you very much.

JUSTIFICATION MATERIAL

PUBLIC HEALTH SERVICE

Health Manpower Education and Utilization

Amounts Available for Obligation

	1968	1969
Appropriation	$164,663,000	$197,400,000
Transferred to:		
"Hospital construction activities"	-130,000	---
"Office of the Surgeon General, salaries and expenses"	-78,000	---
"Health professions education fund"	-2,000,000	---
"Nurse training fund"	-4,390,000	---
"Operating expenses, Public Buildings Service", General Services Administration	-2,035	---
Unobligated balance brought forward	+500,000	250,000
Unobligated balance carried forward	-250,000	---
Total 1/	158,312,965	197,650,000

1/ Excludes estimated obligations due to advance obligational authority, details of which are on page 75.

Obligations by Activity

Page Ref.		1968 Estimate Pos.	1968 Estimate Amount	1969 Estimate Pos.	1969 Estimate Amount	Increase or Decrease Pos.	Increase or Decrease Amount
	Institutional support:						
95	(a) Medical, dental, and related...	--	$52,675,000	--	$70,000,000	--	+$17,325,000
98	(b) Nursing.....	--	7,000,000	--	7,000,000	--	---
98	(c) Public Health..	--	8,500,000	--	10,054,000	--	+ 1,554,000
100	(d) Allied health professions...	--	10,750,000	--	19,100,000	--	+ 8,350,000
	Student assistance:						
103	(a) Traineeships...	--	20,120,000	--	22,300,000	--	+ 2,180,000
106	(b) Scholarships and opportunity grants	--	12,450,000	--	18,350,000	--	+ 5,900,000
108	(c) Loans.....		24,610,000	--	27,000,000	--	+ 2,390,000
	Manpower requirements and utilization:						
111	(a) Grants.....	--	5,578,000	--	6,600,000	--	+ 1,022,000
115	(b) Direct operations	673	12,317,865	718	15,871,000	+45	+ 3,553,135
129	Program direction and management services	89	1,300,400	95	1,375,000	+6	+ 74,600
	Total NOA available 1/.....	762	155,301,265	813	197,650,000	+51	+42,348,735
	Unobligated balance reserve.....	24	3,011,700	--	---	-24	- 3,011,700
	Total, NOA available and reserve	786	158,312,965	813	197,650,000	+27	+39,337,035

1/ Excludes estimated obligations due to advance obligational authority, details of which are on page 75.

Obligations by Object

	1968 Estimate	1969 Estimate	Increase or Decrease
Total number of permanent positions.....	762	813	+51
Full-time equivalent of all other positions.....	71	82	+11
Average number of all employees.....	752	821	+69
Personnel compensation:			
Permanent positions.....	$7,018,700	$7,743,500	$+724,800
Positions other than permanent.....	443,100	524,000	+80,900
Other personnel compensation.....	31,000	32,000	+1,000
Total personnel compensation.....	7,492,800	8,299,500	+806,700
Personnel benefits.....	710,300	770,600	+60,300
Travel and transportation of persons.....	775,000	899,400	+124,400
Transportation of things.....	71,000	85,700	+14,700
Rent, communications, and utilities.....	276,365	360,800	+84,435
Printing and reproduction.....	198,000	265,300	+67,300
Other services.....	522,000	642,400	+120,400
Project contracts.....	3,153,500	5,381,500	+2,228,000
Services of other agencies.....	54,800	55,000	+200
Payment to "National Institutes of Health Management Fund".....	38,000	38,000	---
Supplies and materials.....	163,400	248,600	+85,200
Equipment.....	163,100	199,200	+36,100
Investments and loans.....	34,356,000	45,204,000	+10,848,000
Grants, subsidies, and contributions.....	127,473,212	168,136,000	+40,662,788
Total obligations by object.....	175,447.477	230.586.000	+55,138,523

ADVANCE OBLIGATIONAL AUTHORITY

	1968 Estimate amount	1969 Estimate amount
NOA available.....	$155,301,265	$197,650,000
Appropriation available from subsequent year.....	29,014,000	61,950,000
Appropriation available in prior year.....	-8,867,788	-29,014,000
Total obligations.....	175,447,477	230,586,000

Summary of Changes

1968 enacted appropriation	$164,663,000
Transferred to:	
"Hospital construction activities" (regional office program)	-130,000
"Office of the Surgeon General, salaries and expenses" (pay raise costs)	-78,000
"Health professions education fund" (revolving fund capitalization)	-2,000,000
"Nurse training fund" (revolving fund capitalization)	-4,390,000
"Operating expenses, Public Buildings Service," General Services Administration (space rental)	-2,035
Unobligated balance brought forward	500,000
Unobligated balance carried forward	-250,000
Reserve	-3,011,700
1968 total NOA available	155,301,265
1969 total NOA available	197,650,000
Total change	+42,348,735

	Base		Change from Base	
	Positions	Amount	Positions	Amount
Increases				
A. Built-in				
1. Annualization of new positions authorized in 1968	---	---	---	$189,000
2. One extra day's pay (260 days in 1968; 261 days in 1969)	---	---	---	24,000
3. Annualization of 1968 pay raise	---	---	---	103,600
B. Program				
Institutional support				
1. Dental auxiliary utilization grants	---	$3,000,000	---	1,000,000
2. Health professions educational improvement grants	---	49,675,000	---	16,325,000
3. Grants to schools of public health	---	4,000,000	---	554,000
4. Project grants for graduate public health training	---	4,500,000	---	1,000,000
5. Allied health educational improvement grants	---	9,750,000	---	7,250,000

	Base		Change from Base	
	Positions	Amount	Positions	Amount
6. Allied health new methods grants.	---	1,000,000	---	1,100,000
Student assistance				
7. Dental fellowships.....	---	100,000	---	50,000
8. Nurse fellowships.....	---	520,000	---	130,000
9. Nurse traineeships.....	---	10,000,000	---	1,000,000
10. Allied health traineeships.....	---	1,500,000	---	1,000,000
11. Nursing educational opportunity grants.....	---	5,250,000	---	1,800,000
12. Health professions scholarships..	---	7,200,000	---	4,100,000
13. Health professions student loans.	---	15,000,000	---	2,300,000
14. Nursing student loans.....	---	9,610,000	---	90,000
Manpower requirements and utilization				
15. Research grants:				
Physician manpower.....	---	646,000	---	702,000
16. Research training grants:				
Dental health.....	---	300,000	---	200,000
Nursing.....	---	580,000	---	120,000
17. Direct operations:				
Physician manpower.....	94	2,745,400	4	147,600
Dental health.....	264	4,653,665	9	347,335
Nursing.....	179	2,746,800	12	1,644,700
Allied health manpower.....	55	1,086,300	9	225,600
Health manpower educational services.....	81	1,085,700	11	925,900
18. Program direction and management services.....	89	1,300,400	6	53,000
Total program increases.....	---	---	51	42,065,135
Decreases				
A. Built-in				
1. Non-recurring program costs....	---	---	---	-33,000
Total net changes requested....	---	---	+51	+42,348,735

Explanation of Changes

Institutional support

Dental auxiliary utilization grants

The requested increase of $1,000,000 will add an additional school in 1969 to this program which provides undergraduate dental students with comprehensive chairside experience with auxiliaries under professional supervision. It will also initiate developmental programs at two institutions planning dental schools and will strengthen existing programs by lengthening the time of clinical experience and broadening the scope to include other types of auxiliaries.

Health professions educational improvement grants

The requested increase of $16,325,000 will provide for basic and special improvement grants to approximately 172 schools of medicine, dentistry, osteopathy, optometry and podiatry to improve the quality of education. Basic improvement grants will utilize approximately $33,700,000 for supporting additional teachers and providing teaching and scientific equipment. Special improvement grants totalling approximately $32,300,000 will be awarded with highest priority given to applications from schools whose accreditation is in jeopardy and whose deficiencies cannot be corrected through the basic grants.

Grants to schools of public health

The requested increase of $554,000 will enable the fifteen schools of public health to strengthen their curriculum content and their teaching staffs.

Project grants for graduate public health training

The requested increase of $1,000,000 will fund more than 20 new projects supporting teaching programs in medical care economics, epidemiology, health planning and other areas. Approximately 115 projects were supported in 1968.

Allied health educational improvement grants

The requested increase of $7,250,000 will expand basic improvement grants to junior colleges, colleges, and universities having almost 28,000 trainees registered in 1,100 programs in areas such as medical technology, physical and occupational therapy, and dietetics.

Allied health new methods grants

The requested increase of $1,100,000 will provide for grants to support approximately 20 additional projects to develop, demonstrate, or evaluate new curriculums for the training of health technologists. Approximately 21 projects were supported in 1968.

Student assistance

Dental fellowships

The requested increase of $50,000 will provide for three additional fellowships for research proposals in such areas as economics, political science, statistics, and psychology. Seven fellows were supported in 1968.

Nurse fellowships

The requested increase of $130,000 will provide for 26 additional fellowships for research training at the pre- and post-doctoral levels looking toward fuller understanding and improvement of nursing care. Ninety-four fellows were supported in 1968.

Nurse traineeships

The requested increase of $1,000,000 will support the training of approximately 185 nurses on a long-term basis; 1,900 were supported in 1968 for positions as teacheres, administrators and supervisors. Approximately 5,000 nurses will receive short-term training in 1969, the same level as in 1968.

Allied health traineeships

The requested increase of $1,000,000 will provide traineeships to 100 additional allied health professionals for long-term training as teachers, supervisors and specialists and will begin a program for short-term training of 2,500 professionals and technicians. In 1968, approximately 300 professionals received long-term training.

Nursing educational opportunity grants

The requested increase of $1,800,000 will provide approximately 3,300 additional scholarships, through schools of nursing, to qualified high school graduates of exceptional financial need, who could not otherwise pursue a nursing career. Approximately 8,400 scholarships were supported in 1968.

Health professions scholarships

The requested increase of $4,100,000 will provide scholarships to students from low income families who, without this assistance, would be unable to pursue their courses of study in schools of medicine, dentistry, osteopathy, podiatry, pharmacy, and optometry. These funds will support approximately 4,000 first year students and will provide continued support to approximately 8,000 second and third year students.

Health professions student loans

The requested increase of $2,300,000, for a 1969 total of $17,300,000, together with loans from the health professions student loan revolving fund will provide a loan program to support approximately 29,800 students in health professions schools. In 1968, approximately 25,380 students were supported.

Nursing student loans

The requested increase of $90,000, for a total of $9,700,000, together with loans from the nursing student loan revolving fund will provide a loan

program to support approximately 27,000 students in nursing schools. In 1968, approximately 24,500 students were supported.

Manpower requirements and utilization

Research grants--Physician manpower

The requested increase of $702,000 will be used for studies related to medical and osteopathic curriculum improvement, teaching techniques and methods of evaluating curricula changes. The curricula of medical and osteopathic schools will be studied and new teaching methods will be initiated through the development and demonstration of new techniques and approaches for improving the education of physicians. The increase provides for the continuation of grants new in 1967. Approximately 24 research projects will be supported in 1969 compared with 13 in 1968.

Research training grants--Dental health

The requested increase of $200,000 will support two additional programs concerning behavioral sciences and dental care administration. Three programs were supported in 1968.

Research training grants--Nursing

The requested increase of $120,000 will support an additional program at a university to prepare nurses for interdisciplinary research to improve nursing care. Five universities were supported in 1968.

Direct operations--Physician manpower

The requested increase of four positions and $147,600 is for the following programs: two positions and $69,600 for the educational facilities program and for physician education, including $50,000 in contract funds for an additional retraining center for inactive physicians; and two positions and $78,000 for physician utilization, including $50,000 for contracts to examine the organization and delivery of health services and to define, within reasonable limits those services which only physicians can provide.

Direct operations--Dental health

The requested increase of nine positions and $347,335 is for the following programs: two positions and $65,000 for continuing education activities at the Dental Health Center; one position and $20,000 to develop new teaching media; two positions and $163,000 to expand cleft lip and palate study activities; two positions and $43,335 to extend oral cancer detection demonstrations; and two positions and $56,000 for dental productivity studies at Louisville, Kentucky.

Direct operations--Nursing

The requested increase of 12 positions and $1,644,700 is for the following programs: three positions and $200,000 for a program to encourage qualified youths to enter the field of nursing; and nine positions and $1,444,700 for a program to promote the refresher training of inactive registered nurses. Both of these programs will operate primarily through contracts.

Direct operations--Allied health manpower

The requested increase of nine positions and $225,600 is for the following programs: seven positions and $179,600 to strengthen staff capability in supply, distribution, and needs for health manpower; developing training programs for new types of health workers; and program development of training programs in comprehensive health planning. Two positions and $46,000 will provide staff and contract funds needed to review and evaluate the teaching programs supported by the grants to schools of public health.

Direct operations--Health manpower educational services

The requested increase of 11 positions and $925,900 is for the following programs: five positions and $750,000 to begin a long-range plan to establish a National Health Manpower Intelligence System; four positions and $150,000 to establish a health manpower information clearinghouse; and two positions and $25,900 for increased supporting services related to grant increases in 1969 totaling nearly $34,000,000.

Program direction and management services

The requested increase of six positions and $53,000 is for special areas of need in the overall direction of the bureau related to educational and training communications, legislative activities, planning, programming and information activities.

Authorizing Legislation

Legislation	1969 Authorization
Public Health Service Act	
Section 301 - Research Grants, Research Training Grants and Research Fellowships....	Indefinite
Section 306 - Traineeships for Professional Public Health Personnel.....	$10,000,000
Section 309 - Project Grants for Graduate Training in Public Health and Grants to Schools of Public Health.....	15,000,000
Section 422 - Dental Auxiliary Utilization Training Grants and Grants for Continuing Education of Dentists.....	Indefinite
Section 742 - Health Professions Student Loans.....	26,500,000
Section 744 - Payments to Schools to Cover Certain Costs Incurred in making Student Loans from Borrowed Funds.....	Indefinite
Section 770 - Grants to Improve the Quality of Schools of Medicine, Dentistry, Osteopathy, Optometry and Podiatry.....	80,000,000
Section 780 - Scholarship Grants to Schools of Medicine, Osteopathy, Dentistry, Optometry, Podiatry or Pharmacy.....	Indefinite
Section 792 - Grants to Improve the Quality of Training Centers for Allied Health Professions	17,000,000
Section 793 - Traineeships for Advanced Training of Allied Health Professions Personnel.....	3,500,000
Section 794 - Grants for Development of New Methods.....	3,000,000
Section 805 - Grants for Improvement in Nurse Training.....	4,000,000

Section 806 - Payments to Diploma Schools of Nursing.....	$10,000,000
Section 821 - Traineeships for Advanced Training of Professional Nurses.....	12,000,000
Section 824 - Nursing Student Loans.....	30,900,000
Section 861 - Opportunity Grants for Nursing Education.....	7,000,000

PUBLIC HEALTH SERVICE ACT

Title III - General Powers and Duties of Public Health Service

Part A - Research and Investigation

The legislative authority in Section 301 of the Act which provides for the award of grants for research, research training and fellowships is included in the section of the justifications under the tab "Preamble Paragraph" in Volume IV.

Traineeships for Professional Public Health Personnel

Appropriation

Section 306. (a) There are hereby authorized to be appropriated for the fiscal year ending June 30, 1957, and for each of the next twelve fiscal years, such sums as the Congress may determine, but not to exceed $4,500,000 for the fiscal year ending June 30, 1965, $7,000,000 for the fiscal year ending June 30, 1966, $8,000,000 for the fiscal year ending June 30, 1967, and $10,000,000 each for the fiscal year ending June 30, 1968, and the succeeding fiscal year, to cover the cost of traineeships for graduate or specialized training in public health for physicians, engineers, nurses, and other professional health personnel.

Project Grants for Graduate Training in Public Health

Appropriation

Section 309. (a) In order to enable the Surgeon General to make projects grants to schools of public health and to other public or nonprofit institutions providing graduate or specialized training in public health, for the purpose of strengthening or expanding graduate or specialized public health training in such institutions, there are hereby authorized to be appropriated not to exceed $2,000,000 for each fiscal year in the period beginning July 1, 1960 and ending June 30, 1964, $2,500,000 for the fiscal year ending

June 30, 1965, $4,000,000 for the fiscal year ending June 30, 1966, $5,000,000 for the fiscal year ending June 30, 1967, $7,000,000 for the fiscal year ending June 30, 1968, and $9,000,000 for the fiscal year ending June 30, 1969.

Grants to Schools of Public Health

Appropriation

Section 309. (c) There are also authorized to be appropriated $5,000,000 for the fiscal year ending June 30, 1968, $6,000,000 for the fiscal year ending June 30, 1969, and $7,000,000 for the fiscal year ending June 30, 1970, to enable the Surgeon General to make grants, under such terms and conditions as may be prescribed by regulations, for provision, in public or nonprofit private schools of public health accredited by a body or bodies recognized by the Surgeon General, of comprehensive professional training, specialized consultive services, and technical assistance in the fields of public health and in the administration of State or local public health programs, except that (1) in allocating funds made available under this subsection among such schools of public health, the Surgeon General shall give primary consideration to the number of federally sponsored students attending each such school, and (2) for any fiscal year ending after June 30, 1968, such portions of the funds made available under this subsection as the Secretary may determine, but not exceeding one per centum thereof, shall be available to the Secretary for evaluation (directly or by grants or contracts) of the program authorized by this subsection.

Title IV - National Research Institutes

Part C - Dental Disease Research and Training

Dental Auxiliary Utilization Training Grants
and
Grants for Continuing Education of Dentists

Appropriation

Section 422. In carrying out the purposes of section 301 with respect to dental diseases and conditions the Surgeon General, through the Institute and in cooperation with the National Advisory Dental Research Council (hereafter in this part referred to as the "Council"), shall--... (f) provide training and instruction and establish and maintain traineeships, in the Institute and elsewhere in matters relating to the diagnosis, prevention, and treatment of dental diseases and conditions with such stipends and allowances (including travel and subsistence expenses) for trainees as he may deem necessary, the number of persons receiving such training and instruction, and the number of persons holding such traineeships, to be fixed by the Council, and, in addition, provide for such training, instruction, and traineeships through grants, upon recommendation of the Council, to public and other nonprofit institutions.

Title VII - Health Research and Teaching Facilities and Training of Professional Health Personnel

Part C - Student Loans

Health Professions Student Loans

Appropriation

Section 742. (a) There are hereby authorized to be appropriated to the Secretary of Health, Education, and Welfare to carry out this part (other than section 744) $5,100,000 for the fiscal year ending June 30, 1964, $10,200,000 for the fiscal year ending June 30, 1965, $15,400,000 for the fiscal year ending June 30, 1966, and $25,000,000 each for the fiscal year ending June 30, 1967, and the two succeeding fiscal years.

In addition to the sums authorized to be appropriated by the preceding sentence, there are authorized to be appropriated $500,000 for the fiscal year ending June 30, 1967, $1,000,000 for the fiscal year ending June 30, 1968, and $1,500,000 for the fiscal year ending June 30, 1969, which sums shall be available for carrying out this part (other than section 744) solely with respect to students of veterinary medicine.

There are further authorized to be appropriated to the Secretary such sums for the fiscal year ending June 30, 1970, and each of the two succeeding fiscal years as may be necessary to enable students who have received a loan under this part for any academic year ending before July 1, 1969, to continue or complete their education. Sums appropriated pursuant to this subsection shall be allotted among loan funds at schools which have established loan funds under this part.

Payments to Schools to Cover Certain Costs Incurred in Making Student Loans from Borrowed Funds

Appropriation

Section 744. (b) If a school borrows any sums under this section, the Secretary shall agree to pay to the school (1) an amount equal to 90 per centum of the loss to the school from defaults on student loans made from such sums, (2) the amount by which the interest payable by the school on such sums exceeds the interest received by it on student loans made from such sums, (3) an amount equal to the collection expenses authorized by section 740(b) (3) to be paid out of a student loan fund with respect to such sums, and (4) the amount of principal which is canceled pursuant to section 741(d) or (f) with respect to student loans made from such funds. There are authorized to be appropriated without fiscal year limitation such sums as may be necessary to carry out the purposes of this subsection.

Part E - Grants to Improve the Quality
of Schools of Medicine, Dentistry, Osteopathy,
Optometry and Podiatry

Appropriation

Section 770. There are authorized to be appropriated $20,000,000 for the fiscal year ending June 30, 1966, $40,000,000 for the fiscal year ending June 30, 1967, $60,000,000 for the fiscal year ending June 30, 1968, and $80,000,000 for the fiscal year ending June 30, 1969, for grants under this part to assist schools of medicine, dentistry, osteopathy, optometry, and podiatry to improve the quality of their educational programs.

Part F - Scholarship Grants to Schools
of Medicine, Osteopathy, Dentistry, Optometry,
Podiatry or Pharmacy

Appropriation

Section 780. (a) The Surgeon General shall make grants as provided in this part to each public or other nonprofit school of medicine, osteopathy, dentistry, optometry, podiatry, or pharmacy, which is accredited as provided in section 721(b) (1) (B) or section 773 (b) (2), for scholarships to be awarded annually by such school to students thereof.

(b) The amount of the grant under subsection (a) to each such school shall be equal to $2,000 multiplied (1) for the fiscal year ending June 30, 1966, by one-tenth of the number of full-time first-year students of such schod; (2) for the fiscal year ending June 30, 1967, by one-tenth of the number of full-time first-year students and second-year students of such school; (3) for the fiscal year ending June 30, 1968, by one-tenth of the number of full-time first-year students, second-year students, and third-year students of such school; and (4) for the fiscal year ending June 30, 1969, by one-tenth of the number of full-time students of such school. For the fiscal year ending June 30, 1970, and for each of the two succeeding fiscal years, the grant under subsection (a) shall be such amount as may be necessary to enable such school to continue making payments under scholarship awards to students who initially received such awards out of grants made to the schools for fiscal years ending prior to July 1, 1969.

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Grants to Improve the Quality of Training
Centers for Allied Health Professions

Appropriation

Section 792. (a) There are authorized to be appropriated $9,000,000 for the fiscal year ending June 30, 1967, $13,000,000 for the fiscal year ending June 30, 1968, and $17,000,000 for the fiscal year ending June 30, 1969; for the grants under this section to assist training centers for allied health professions to develop new or improved curriculums for training allied health professions personnel and otherwise improve the quality of their educational programs.

Traineeships for Advanced Training
of
Allied Health Professions Personnel

Appropriation

Section 793. (a) There are authorized to be appropriated $1,500,000 for the fiscal year ending June 30, 1967; $2,500,000 for the fiscal year ending June 30, 1968; and $3,500,000 for the fiscal year ending June 30, 1969; to cover the cost of traineeships for the training of allied health professions personnel to teach health services technicians or in any of the allied health professions, to serve in any of such professions in administrative or supervisory capacities, or to serve in allied health professions specialties determined by the Surgeon General to require advanced training.

Grants for Development of New Methods

Appropriation

Section 794. There are authorized to be appropriated $750,000 for the fiscal year ending June 30, 1967; $2,250,000 for the fiscal year ending June 30, 1968; and $3,000,000 for the fiscal year ending June 30, 1969; for grants to public or nonprofit private training centers for allied health professions for projects to develop, demonstrate, or evaluate curriculums for the training of new types of health technologists.

Title VIII - Nurse Training

Part A - Grants for Expansion and Improvement of Nurse Training

Grants for Improvement in Nurse Training

Appropriation

Section 805. (a) There are authorized to be appropriated for grants to public and nonprofit private diploma, collegiate and associate degree schools of nursing to assist them in meeting the additional costs of projects of limited duration which will strengthen, improve, or expand their programs to teach and train nurses, $2,000,000 for the fiscal year ending June 30, 1965, $3,000,000 for the fiscal year ending June 30, 1966, $4,000,000 for the fiscal year ending June 30, 1967, and each of the next two fiscal years, and such sums for each of the next four fiscal years as may be necessary to complete projects for which a grants was made under this section from funds appropriated for the fiscal year ending June 3, 1969, or any preceding year.

Payments to Diploma Schools of Nursing

Appropriation

Section 806. (a) In order to prevent further attrition and promote the development of public and nonprofit private diploma schools of nursing, there are hereby authorized to be appropriated $4,000,000 for the fiscal year ending June 30, 1965, $7,000,000 for the fiscal year ending June 30, 1966, and $10,000,000 for the fiscal year ending June 30, 1967, and each of the two succeeding fiscal years, to defray a portion of the cost of training students of nursing whose enrollment in such schools can be reasonably attributed to the provisions of this title.

Part B - Assistance to Nursing Students

Traineeships for Advanced Training of Professional Nurses

Appropriation

Section 821. (a) There are authorized to be appropriated $8,000,000 for the fiscal year ending June 30, 1965, $9,000,000 for the fiscal year ending June 30, 1966, $10,000,000 for the fiscal year ending June 30, 1967, $11,000,000 for the fiscal year ending June 30, 1968, and $12,000,000 for the fiscal year ending June 30, 1969, to cover the cost of traineeships for the training of professional nurses to teach in the various fields of nurse training (including practical nurse training), to serve in administrative or supervisory capacities, or to serve in other professional nursing specialties determined by the Surgeon General to require advanced training.

Nursing Student Loans

Appropriation

Section 824. There are authorized to be appropriated to the Secretary of Health, Education, and Welfare for Federal capital contributions to student loan funds pursuant to section 822(b) (2) (A) $3,100,000 for the fiscal year ending June 30, 1965, $8,900,000 for the fiscal year ending June 30, 1966, $16,800,000 for the fiscal year ending June 30, 1967, $25,300,000 for the fiscal year ending June 30, 1968, $30,900,000 for the fiscal year ending June 30, 1969, and such sums for the fiscal year ending June 30, 1970, and each of the two succeeding fiscal years as may be necessary to enable students who have received a loan for any academic year ending before July 1, 1969, to continue or complete their education. Sums appropriated pursuant to this section for any fiscal year shall be available, in accordance with agreements under this part, for Federal capital contributions to schools with which such agreements have been made, to be used, together with deposits in such fund pursuant to section 822(b) (2) (B), for establishment and maintenance of student loan funds.

Opportunity Grants for Nursing Education

Appropriation

Section 861. (b) There are hereby authorized to be appropriated $3,000,000 for the fiscal year ending June 30, 1967, $5,000,000 for the fiscal year ending June 30, 1968, and $7,000,000 for the fiscal year ending June 30, 1969, to enable the Secretary to make payments to schools of nursing that have agreements with him entered into under section 867, for use by such schools for payments to undergraduate students for the nursing educational opportunity grants awarded to them under this part. Sums appropriated pursuant to this subsection for any fiscal year shall be available for payment to institutions until the close of the fiscal year succeeding the fiscal year for which they were appropriated.

Explanation of Transfers

	1968 Estimate	1969 Estimate	Purpose
Transfer to:			
"Hospital construction activities".....	$130,000	---	To support nine positions providing program services in regional offices.
"Office of the Surgeon General, salaries and expenses".....	78,000	---	Pay raise costs.
"Health professions education fund".....	2,000,000	---	To capitalize the revolving funds which provide loans to health professions and nursing students.
and			
"Nurse training fund".....	4,390,000	---	
"Operating expenses, Public Building Service," General Services Administration.	2,035	---	Rental of space.

Justification

INSTITUTIONAL SUPPORT

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
Personnel compensation and benefits.....	--	---	--	---	--	---
Other expenses.....	--	$78,925,000	--	$106,154,000	--	+$27,229,000
Total.....	--	78,925,000	--	106,154,000	--	+27,229,000
Subactivities:						
Medical, dental, and related:						
Dental auxiliary utilization grants....	--	$3,000,000	--	$4,000,000	--	+$1,000,000
Health professions educational improvement grants.....	--	49,675,000	--	66,000,000	--	+16,325,000
Nursing:						
Project grants for improvement of nurse training.....	--	4,000,000	--	4,000,000	--	---
Payments to diploma schools of nursing....	--	3,000,000	--	3,000,000	--	---
Public health:						
Grants to schools of public health.....	--	4,000,000	--	4,554,000	--	+554,000
Project grants for graduate public health training.....	--	4,500,000	--	5,500,000	--	+1,000,000

Justification

Institutional Support (cont'd)

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
Subactivities: (cont'd)						
Allied health professions:						
Educational improvement grants.....	--	9,750,000	--	17,000,000	--	+7,250,000
New method grants.....	--	1,000,000	--	2,100,000	--	+1,100,000
Total.....	--	78,925,000	--	106,154,000	--	+27,229,000

Many educational institutions for health are in serious financial condition. Financial support is essential for them to continue in operation to maintain and improve the quality of education. Costs for education are increasing at a rapid rate. The limited resources of these schools are over-taxed.

Several types of grant funds are available to permit the schools to enlarge faculty, modify existing and add new curriculums, modernize teaching laboratories, provide programs in dental schools offering practical experience in use of assistants and identify new categories of allied health professionals. The grant programs are discussed below:

Dental Auxiliary Utilization Grants

Construction grants, made possible by the Health Professions Educational Assistance Act of 1963 as amended, have provided a significant stimulus in the educational field to help meet dental objectives in this country. The potential offered by the Division's grant program, designed to expand the productivity of the individual dentist through effective utilization of auxiliary personnel, is equally significant as a program seeking solutions to dental manpower problems. Grants to dental schools for instruction in the use of dental auxiliaries provides a clinical experience for dental students in the team concept of clinical service. This program is rapidly attaining a goal which assures that every graduating dentist has an experience that will enable him to provide a more efficient and more economical service to his patient.

At present, 49 of the nation's 50 dental schools participate in the program. An increase of $1,000,000 will add an additional school in 1969 and will initiate the development of similar programs at two new dental schools which are being planned. These additional funds will also provide more intensive chairside experience and experience in the use of other types of auxiliaries.

Health Professions Educational Improvement Grants

Basic and special improvement grants will be made in 1969 to schools of medicine, dentistry, osteopathy, optometry and podiatry to improve the quality of education provided to their students. These grants are authorized by the Health Professions Educational Assistance Act.

An increase of $16,325,000 over the 1968 program level of $49,675,000 is requested for a total of $66,000,000 for 1969.

Basic Improvement Grants -- Basic improvement grants will be used to assist schools in over-coming their most critical educational deficiencies, thereby stabilizing and improving the quality of education. The amount of the grant to each school will be determined by the statutory formula: $25,000 plus $500 times the number of full-time students. In 1969, basic improvement grants are expected to be made to 172 schools totalling about $33,700,000 and averaging about $196,000.

In 1967, all of the 170 eligible schools participated in the program. The awards, which totalled $30,000,000 (the full amount of the appropriation), represented about 95% of the funds needed to satisfy the statutory formula. In 1968, we expect to award about $32,400,000 to the 172 eligible schools. These grants will average approximately $188,000.

Basic improvement grants are designed to provide resources sufficiently flexible to enable schools to advance the quality of their educational programs in the most effective way in accordance with their educational principles.

In 1967, approximately 61% of the funds were expended for faculty salaries. Employment of additional faculty strengthened, enriched and modernized teaching programs. These funds also enable some schools to increase faculty salaries, thereby permitting them to compete more effectively for the scarce supply of competent teachers. The enrollment of students in the schools of the health professions has also increased as a direct result of the basic improvement grants.

Special Improvement Grants -- Special improvement grant funds are used to meet additional costs, to maintain or achieve accreditation, and for the development of new and special functions that cannot be carried out within the limitations of the basic improvement grants. These grants are awarded upon approval by the Surgeon General following recommendation of the National Advisory Council on Medical, Dental, Optometric, and Podiatric Education. Highest priority is given to applications from schools whose accreditation may be in jeopardy and whose educational programs are weak because of inadequate financing.

Approximately $32,300,000 will be awarded for special improvement grants. These grants will be made only to those schools which have approved applications for basic improvement grants and no school may receive more than $400,000 in one year.

It is expected that the major portion of the increase requested will provide for additional highly qualified faculty and replacement of inadequate and obsolete scientific equipment. While these inadequacies will receive primary attention, education will also be improved in other ways. For example, one mid-western

dental school would utilize these funds for renovation of its clinic facilities to alleviate overcrowded conditions; to employ new full-time faculty members; and to replace 30-year-old antiquated scientific and teaching equipment.

In 1968, about 45 schools with exceptional need will receive $300,000 -- the maximum amount authorized for a special grant. An additional 37 schools will receive lesser amounts thus, grants will be made to 82 of the 172 eligible schools. In 1969, about 50 schools with exceptional need will receive $400,000, the full amount of the authorization for a special grant; an additional 122 schools will receive lesser amounts, grants being made to all of the 172 eligible schools.

Health Professions Basic Educational Improvement Grants
(to nearest hundred)

Type of school	1967 Actual		1968 Estimate		1969 Estimate	
	No.	Amount	No.	Amount	No.	Amount
Medicine	98	$18,780,518	99	$20,239,500	99	$20,958,000
Dentistry	52	8,440,653	53	9,104,000	53	9,469,500
Optometry	10	1,231,266	10	1,362,500	10	1,499,000
Osteopathy	5	983,293	5	1,063,000	5	1,097,000
Podiatry	5	564,270	5	635,000	5	673,000
Totals	170	30,000,000	172	32,404,000	172	33,696,500

Category	1968 Estimate Grant Amount	Percent
TOTAL	$32,404,000	100%
Teaching Staff	19,669,000	60.6%
Other Staff	3,500,000	10.9%
Equipment	5,249,500	16.2%
Alteration and Renovation	2,495,000	7.7%
All Other Expenses	1,490,500	4.6%

Project Grants for the Improvement of Nurse Training

Project grants have demonstrated imaginative and economic use of facilities and resources. The grants have supported the application of new educational methods and equipment in nursing education. They have also demonstrated ways of extending the effectiveness of scarce, highly qualified teachers. Although a grant is awarded to a single school, other schools participate in the project. Thus far, 143 nursing programs are sharing in the 116 projects benefiting over 33,000 students.

One grant enabled 18 schools to experiment with cooperative curriculum planning and subsequent production and telecasting of courses. Another produced a series of vidio tape lectures on public health science. Another school is using a telelecture system to bring expert teachers to more students. Many of the materials resulting from projects of these kinds are being used by schools throughout the country. Schools are experimenting with reorganization of curriculum and revision of content and teaching methods in ways that will reduce the length of the nursing program while improving the quality of nursing care to patients. A diploma school for example has eliminated unnecessary repetition, and will increase its number of graduates by an estimated 20 percent through the use of an improved curriculum.

The funds requested for 1969 will provide opportunities for the development of new curricula, the enrichment of current programs and the use of multi-media techniques to enable more students to learn from master teachers. Improvements in education resulting from these projects will enable more entering students to complete their educational programs and, on graduation, to pass State Board examinations.

These funds make possible curriculum study and revision enabling schools to make transitions to types of programs in nursing education which will improve nursing practice. The amount requested for 1969, $4,000,000, the full authorization, will support projects at the same level as 1968.

Payments to Diploma Schools of Nursing

Schools of nursing need money to operate. Costs are increasing for all types of nursing educational programs. Payments authorized under the Nurse Training Act are helping hospital-based diploma programs to defray part of the educational costs. Payments to accredited diploma schools of nursing are made according to the formula in the Nurse Training Act based upon the increase in enrollment and the number of Federally-sponsored students. Over 900 payments have been made to eligible programs since 1965. Schools are using these payments to add essential faculty, increase faculty salaries to attract and to retain good teachers, improve their libraries, and to purchase new educational aids and equipment.

Funding in 1969 is at the 1968 level.

Formula Grants to Schools of Public Health

Grant to schools of public health provide basic support to these institutions, an essential national resource for training, consultation, and technical assistance in public health.

Schools can improve and enlarge their programs in health care administration and in public health to provide highly qualified specialists in both new and constantly changing health fields. Substantial increases in such support for schools of public health were strongly recommended by the Third National Conference on Public Health Training.

The number of schools of public health has increased from 11 to 15 since 1958. The annual number of graduates has increased by more than 50%, from 715 to 1079, between 1962 and 1966. Most of the schools have used these grants to develop and strengthen programs in emerging areas of medical care administration, environmental health, health planning, population dynamics, and others.

In fiscal year 1966, the schools of public health used 72% of the funds for faculty and staff. The remainder has provided for equipment and other expenses. Funds for faculty salaries serve the dual purpose of strengthening curriculum content and increasing faculty to meet increasing enrollment.

The request for 1969 of $4,554,000 is $554,000 over the 1968 amount. The requested funds will provide increases for the fifteen training centers participating in the program, including the two additional schools of public health which received formula grant funds for the first time in 1968.

Grants to Schools of Public Health

Schools of Public Health	1967 Actual	1968 Estimate	1968 Estimate
California (Berkeley)	$386,900	$392,000	$446,400
California (Los Angeles)	280,100	325,400	370,500
Columbia	209,200	203,800	232,100
Harvard	257,600	251,600	286,400
Hawaii	102,700	113,700	129,400
Johns Hopkins	308,900	318,500	362,600
Loma Linda	-	92,100	104,800
Michigan	526,600	542,200	617,300
Minnesota	387,900	362,500	412,700
North Carolina	439,900	442,000	503,200
Oklahoma	-	168,900	192,300
Pittsburgh	250,200	228,100	259,700
Puerto Rico	197,700	172,100	195,900
Tulane	205,900	184,100	209,600
Yale	196,400	203,000	231,100
Total	3,750,000	4,000,000	4,554,000

Project grants for graduate public health training

Schools must expand their enrollment capacity to train more public health personnel. Additional highly qualified faculty and staff are essential. Schools must concomitantly revise their academic programs in keeping with new technology and new patterns for the delivery of health services. Project grants for graduate and specialized training in public health provide schools of public health and other institutions offering training in public health the means for achieving these missions.

In 1968, an estimated 115 continuation projects will be supported in about 90 schools of public health, medicine, dentistry, nursing, engineering and other universities providing graduate public health training. These grants are supporting teaching programs in such areas as medical care economics, environmental health engineering, health care organization, epidemiology, population problems, and health planning.

The $5,500,000 request for training project grants in 1969 provides for $1,000,000 over the 1968 amount. This level of funding will provide support for about 20 additional schools which have not yet been funded. Emphasis will also be given to the support of additional institutions which provide graduate professional education in the administration, delivery, and evaluation of community and environmental health services. Support will also be provided in such fields as health statistics, hospital administration, and community health education at the master's degree level.

Allied health educational improvement grants

Allied health educational improvement grants provide basic support to junior colleges, colleges, and universities for improving programs of professional and technical education in the field of allied health, with funds being used for equipment, teachers and supporting staff, and other expenses. Grant amounts are based on a statutory formula of $5,000 for each specialized curriculum in which training is provided, plus $500 times the number of full-time students enrolled in these curriculums such as medical technology, physical and occupational therapy, dietetics, dental hygience, and other allied health occupations.

In 1967 these grants were awarded to support 395 curricula enrolling more than 11,000 students in 164 four-year colleges and universities and 28 junior and community colleges. The total of entitlements proved to be in excess of 1967 funds but it was possible to award 41% of the amount requested by each of the eligible institutions. These funds have been used to improve the quality of course offerings, strengthen faculty, and meet costs of increased enrollments.

The program will be expanded in 1968 to assist about 1,000 educational programs for allied health personnel enrolling approximately 25,000 trainees. The appropriation of $9,750,000 will meet an estimated 70% of the statutory entitlements.

For 1969, the requested increase of $7,250,000 to a total of $17,000,000 (the full amount of the authorization) will permit us to make grants approaching 100% of the entitlement level for an expected 1,100 programs in which some 28,000 students are registered.

Allied Health New Methods Grants

Health care facilities and services are being extended to all age groups. New management techniques are being developed. A rapid succession of technological advances geared to patient care is being introduced. Current numbers and categories of health specialists are insufficient and inadequate to deliver optimal health care to all people requiring such assistance. For these reasons, it is necessary to utilize both existing and developing categories of health specialists in order to provide more and better trained personnel in shorter periods of time. New arrangements are needed within and between the various competency levels in health occupations to provide opportunities for career development.

The Allied Health Professions Personnel Training Act authorizes project funds to educational institutions to develop, demonstrate, or evaluate new curricula for the training of health technologists. During 1967, the first year of the program, six projects totalling approximately $200,000 were funded to develop training programs for electroencephalographic technicians, health care administrators, hospital-medical systems engineers, diagnostic microbiology technologists, and specialized advanced training in medical technology.

The Georgia Institute of Technology for example is creating a new type of health technologist who will apply the skills involved in industrial engineering, operations research, systems analysis, and design management science to health care delivery systems. This is a new three-year training program leading to the Master's degree. A two-year training program for electroencephalographic technicians which includes work experience, is being developed at the University of Kentucky Medical Center.

During 1968, the six projects funded in 1967 will be evaluated to determine their adaptability to other training institutions, and approximately 15 additional projects will be funded. The $2,100,000 requested for FY 1969, representing an increase of $1,100,000, will permit the study, demonstration, evaluation, and development of approximately 20 more educational and training programs.

STUDENT ASSISTANCE

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
Personnel compensation and benefits.	--	---	--	---	--	---
Other expenses.....	--	$57,180,000	--	$67,650,000	--	+$10,470,000
Total.....	--	57,180,000	--	67,650,000	--	+10,470,000
Subactivities:						
Traineeships:						
Dental fellowships.....	--	$100,000	--	$150,000	--	+$50,000
Nurse fellowships.....	---	520,000	--	650,000	--	+130,000
Nurse traineeships.....	--	10,000,000	--	11,000,000	--	+1,000,000
Public health traineeships..	--	8,000,000	--	8,000,000	--	---
Allied health traineeships..	--	1,500,000	--	2,500,000	--	+1,000,000
Scholarships and opportunity grants:						
Nursing educational opportunity grants.	--	5,250,000	--	7,050,000	--	+1,800,000
Health professions scholarships.....	--	7,200,000	--	11,300,000	--	+4,100,000
Loans:						
Health professions student loans.....	--	15,000,000	--	17,300,000	--	+2,300,000
Nursing student loans.....	--	9,610,000	--	9,700,000	--	+90,000
Total.....	--	57,180,000	--	67,650,000	--	+10,470,000

The great demand for medical care today has highlighted a serious shortage in trained helath manpower. The high cost of education constitutes a major deterrent to talented young people who might otherwise select a career in the health professions, or who might wish to further their career by undertaking graduate or specialized training and thereby alleviate some of the most pressing manpower problems facing the country.

Traineeships, scholarships and loans are available to help these students. These are designed to increase the supply by giving financial aid, and to provide direct training for health occupations and training to prepare teachers, supervisors and administrators for health facilities.

These programs are discussed below:

Dental Fellowships:

The Dental Health research fellowships program which began in fiscal year 1967 provides support for training graduate students in research skills needed in dental public health. Fellowships currently support training in advanced computer technology, the sociology of family health action, dental care administration and the epidemiology of periodontal disease. During the remainder of 1968, applications will be considered in these fields as well as in the testing of clinical materials and procedures.

In 1969, the increase of $50,000 will provide 3 additional fellowships, in such fields as economics, political science, statistics and psychology as they relate to dental health. The funds requested will provide for 10 fellowships.

Nurse Fellowships

To improve the practice of nursing, research in nursing care for patients is imperative. Many more than the 300-400 nurses now prepared in research methodology must receive graduate training for research.

The special fellowships in nursing research provide support to nurses for research training at the pre- and post-doctoral levels. This program is an essential adjunct to the research grant program. It prepares nurses to carry on the much needed research for fuller understanding and improvement of nursing care. There is a growing demand for competent nurses to direct nursing research projects, to work as part of research teams, and to direct community health research. Approximately 120 fellows will be supported with the requested $650,000 for 1969, an increase of $130,000 over 1968. This will provide for 26 additional fellowships.

Nurse Traineeships

The effectiveness of nursing in health services depends on the competence of the leadership. Of the 640,000 registered nurses in 1967, only 83,600 have an academic degree in preparation for professional leadership: teaching, supervision, administration, clinical specialization, and research. It is estimated that 256,000 nurses with this preparation are needed today. 173,000 additional nurses should be so prepared. These nurses are essential to direct nursing

services in the 23,000 health agencies and institutions, and to teach in 2,300 professional and vocational educational programs.

Although the Professional Nurse Traineeship Program has increased the number of nurses prepared for positions as teachers, administrators, and supervisors, the demand for these specialists continues to grow. The gap between the supply and demand is increasing. The practice of nursing is becoming more and more complex and calls for an increasingly higher level of nursing skills and academic preparation. The demand for qualified teachers for schools of nursing is increasing at a rapid rate due to the increase in numbers of programs and the different types of programs. A larger number of nurse administrators and supervisors is needed as more and more people join the health team and nursing care and its management becomes more complex. There is an increasing specialization in medical practice requiring more nurse specialists in the clinical areas, such as staff needed for coronary care and intensive care units. The continuing shortage and uneven distribution of physicians, together with the many new technologies and therapeutics resulting from medical research, requires that professional nurses accept responsibility for many activities and functions that were formerly the responsibility of physicians.

An estimated 1,900 long-term trainees are being supported in 1968; and short-term training continues to be provided for nurses who are not able to undertake full-time study. These include courses such as rehabilitative nursing, supervision in nursing homes, and school nursing.

With the request of $11,000,000 in 1969, it is estimated that 2,085 long-term trainees will be supported and short-term training courses will be supported at the same level of an estimated 5,000 trainees each year. The $1,000,000 increase requested in 1969 will support approximately 185 long-term traineeships.

Public Health Traineeships

Public health traineeships provide support to individuals for basic professional, graduate or specialized training in public health and for short-term specialized education and training to maintain or improve the level of competence of individuals working in the field of public health.

Nearly half of the present staffs of official health agencies have taken entry positions in public health without having had specialized training. The rapid progress of changes in the administration and delivery of health services has necessitated extensive reorientation of public health personnel and expansion of the opportunities for them to up-date their professional education. Stipend assistance for long-term and short-term educational programs enables public health personnel and students to undertake appropriate training efforts to enhance and develop their professional skills.

The traineeship program is divided into four major types of training noted below. The following table summarizes the programs for 1968:

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	Estimated Number of Grants	Estimated Number of Institutions	Estimated Number of People Trained
Residencies	28	28	70
Apprenticeships	50	50	550
Short-term training	200	150	11,450
Long-term training	231	165	1,230

Residencies in preventive medicine, preventive dentistry, and other public health related areas--This program is designed to alleviate the shortage of physicians and dentists needed to plan, conduct and participate effectively in community health programs and to teach in schools of public health and departments of preventive medicine and dentistry, and to serve as leaders in State and local public health settings.

Apprenticeship training for medical and other professional students--This program provides medical and dental students with the opportunity to work in the field of public health for eight to twelve week periods. This activity has two principal objectives: (a) to give students a better understanding of the community in which they work, and of community resources; and to participate in public health programs as practitioners; and (b) to influence the students to choose careers in public health.

Short-term public health training--Training supported by this program enables professional health personnel to update their knowledge and skills relating to the public health programs in which they work. It decreases the time lag between the development and use of new knowledge and skills in improving the health of the people.

Professional health personnel are supported in a wide variety of short-term, intensive education programs needed to keep abreast of their rapidly expanding responsibilities in public health. These include seminars in the administration of comprehensive community health services, courses on medical care and nursing home administration, clinical training in new skills and techniques for the management of chronically ill patients, workshops in epidemiology, courses on principles of prepaid dental care, and training in new and improved techniques in environmental sciences.

Long-term traineeship grants--These grants are designed to enable those individuals with basic professional training in a health discipline to obtain advanced or specialized public health training. Support is provided through long-term traineeship grants to institutions providing graduate or specialized training in public health. Awards are also made directly to individuals pursuing such training.

The individuals are trained in a broad spectrum of fields of vital importance to complex public health programs including public health administration, infectious and chronic disease epidemiology, public health nursing, environmental health engineering, gerontology, public health nutrition, biometry, and a variety of other disciplines.

In 1968, we estimate that more than 13,300 traineeships will be funded from the $8,000,000 available for the program. The program will continue at the same level in 1969.

Allied health traineeships

Allied health traineeships provide advanced training to increase the number of professionals in the allied health disciplines who are prepared for teaching, administration, supervision, and in specialties in allied health professions. They also support programs of specialized short-term education for allied health professional and technical personnel.

Experience to date demonstrates that increased enrollment in educational programs basic to the fields allied to health cannot be met in many instances because of the lack of qualified teachers. To accomplish optimum utilization of the work force, there must be adequate numbers of administrators, supervisors, and clinical specialists trained to provide the full range of supportive medical services necessary for comprehensive health care.

Just as greater numbers of new personnel must be brought into the allied health professions, so must individuals working in the allied health disciplines be given an opportunity to improve their level of competence to meet changing demands of new health technology. Support is required for short-term training to allow for more rapid presentation of new methods of providing ancillary health services and to meet requirements for uniformly higher standards of performance.

Starting from the base of 64 trainees who received a total of $240,000 in 1967, this program will be expanded to support advanced training for approximately 300 persons at a level of $1,500,000 in 1968. These students, most of whom are enrolled in the key curricula of medical technology, physical therapy, dietetics, and occupational therapy are participating in educational programs of 49 training centers located throughout the country. The requested increase of $1,000,000 for 1969 will extend support to an additional 100 allied health professionals for their training as teachers, supervisors, and specialists, and will make possible the initiation of a program of short-term training for an estimated 2,500 workers at the professional and technical levels.

Nursing Educational Opportunity Grants

In view of the great need for nurses, the number of qualified applicants for admission to schools of nursing must be markedly increased.

The high cost of nursing education excludes many young people who would otherwise enter professional nursing. Based on a study carried out by the Division of Nursing it is estimated that one-third to one-half of all qualified applicants to schools of nursing will require financial assistance from sources outside their families. These students require financial and other help to pursue their professional education.

This assistance supplements the nursing student loan program and is designed to increase the number of nurses by making nursing education possible for young people who could not otherwise afford to pursue a nursing career.

A full-time nursing student in need of financial assistance is eligible for a grant of $800 or one-half of the amount of other student financial aid he is receiving whichever is the lesser; a student finishing in the upper half of his class is eligible for an additional $200.

The amount estimated to be available in 1969, $7,050,000 (including $250,000 brought forward from 1968) is an increase of $1,800,000 over 1968, and will provide grants for about 11,700 students. The number of students supported in 1968, the first full year of the program, is an estimated 8,400 in 248 institutions in 47 states.

Health Professions Scholarship Program

For 1969, $11,300,000 is requested, an increase of $4,100,000 over 1968, to provide scholarship grants to an estimated total of 11,900 students in about 245 schools of medicine, dentistry, osteopathy, optometry, podiatry and pharmacy. From these funds it is estimated that awards will be made to more than 3,900 first-year students. About 7,960 second- and third-year students will receive continuation awards.

The amount of a scholarship grant made to each school is determined by the formula prescribed in the law. Since 1969 is the third year of the program, the formula amount available to each eligible school is based on $2,000 multiplied by one-tenth of the number of full time first, second and third-year students of the school.

The number of scholarships awarded by discipline follows:

Discipline	Estimated Scholarship Awards	
	FY 1968	FY 1969
Medicine	3,356	5,046
Dentistry	1,585	2,380
Osteopathy	306	423
Optometry	303	450
Pharmacy	2,280	3,412
Podiatry	134	189
	7,964	11,900

The objective of this program is to enable economically deprived students, from low-income families to pursue education and careers in the health professions. The program supplements but does not supplant assistance provided from health professions student loans. The school determines the student's total financial need by comparing his educational and living expenses with his total resources, including the amount of loans which may be made available to him. Up to $2,500 of the remaining amount which is necessary to enable the student to pursue his educational program may then be awarded from these scholarship funds. About 20% of eligible students receive support from this program.

The student who is contemplating a career in medicine or another health profession is confronted with the problem of coping with the costs of a prolonged

and expensive period of education and training. These scholarships improve the ability of health professions schools to attract motivated students of high quality who have limited or virtually no financial resources. Without such assistance these potential practitioners of the health professions are likely to be enticed into other scientific fields by the nonrepayable financial support which is readily available.

Student Loans

	1968 Estimate	1969 Estimate	Increase or Decrease
Health professions	$15,000,000	$17,300,000	+$2,300,000
Nursing	9,610,000	9,700,000	+90,000
	24,610,000	27,000,000	+2,390,000

The Health Professions and Nursing Student Loan programs offer two methods of capitalizing loan funds to eligible schools. Each school may choose either the Federal Capital Contribution plan whereby the schools provide 10% and the Government 90% of the necessary funds; or the revolving fund plan, whereby a school borrows directly from the Government the entire amount; or both. The revolving fund method became available in 1968.

Health Professions--The appropriation request of $17,300,000 in 1969 plus $11,429,000 in funds estimated to be available in the Health Professions Education Fund (revolving fund) will provide a loan program of $28,729,000. This is an increase of about $2,000,000 above the level of funding in 1968 of $26,659,000, made up of $15,000,000 appropriated and $11,659,000 in the revolving fund.

An important factor in alleviating the existing critical shortage of health manpower is to remove or minimize the financial barrier which has prevented many of the youth of this Nation from pursuing careers in the health professions. Health professional education is lengthy and expensive.

A majority of the students have come from the more affluent levels of society. Today it is imperative that the doors to the medical, dental, and other health professions schools be accessible to capable students from all socio-economic levels, including the economically deprived. This program and the Health Professions Scholarship Program, which are complementary, are opening these doors.

Since enactment of the Health Professions Educational Assistance Act of 1963 an estimated 74,000 loans will have been made through 1968 to assist students to achieve their goal in becoming physicians, dentists or members of other eligible health professions.

The rising cost of education to the student is reflected in the increased use and reliance on the program. In 1965, loans averaging $817 were made to 11,550 students or 24% of the total enrollment of participating schools. It is

estimated that in 1969, the average loan will increase to more than $950 and the number of borrowers will be about 29,800 or 39.4% of the total enrollment. This represents an increase of 4,420 borrowers over 1968. It is further expected that in 1969 a minimum of 39 additional schools will participate in the program for the first time bringing the total number to 256.

Nursing Student Loan Program--The appropriation request of $9,700,000 in 1969 plus $7,300,000 in funds estimated to be available in the Nurse Training Fund (revolving fund) will provide the program with an operating level of $17,000,000. This is an increase of about $700,000 above the level of funding in 1968 of $16,325,000 made up of $9,610,000 appropriated and $6,715,000 in the revolving fund.

The increased demand for health services and expansion of hospital and nursing home facilities has intensified the already critical shortage of nurses. To help combat this problem, financial assistance in the form of long-term, low-interest loans was made available to students in nursing schools by enactment of the Nurse Training Act of 1964.

The program began in 1965 with 426 programs of nursing education participating. In 1969, it is estimated that 731 programs will participate--an increase of 71% in five years and an estimated increase of 43 programs over 1968. In the same period the number of students enrolled in participating schools is expected to rise from 67,037 in 1965 to about 111,700 in 1969. This would constitute a 66% increase. The need for the program is evidenced by the increasing number of loans made to students during each year. This number has grown from 3,645 in 1965 to an estimated 27,000 in 1969, about 24% of the enrollment. During the first four years of this program, 1965 through 1968, loans were made to about 57,000 recipients.

This program supports students enrolled in diploma, associate degree, baccalaureate and graduate programs of nurse education. The participating enrollment in the graduate program level has increased from 1,210 in 1965 to an estimated 4,396 in 1969. During the same period the number of loans in the graduate level administered by the program increased from 32 in 1965 to an estimated 308 in 1969. This suggests that the program is encouraging more students to seek higher levels in the nursing profession which is expected to aid in producing additional faculty members so critically needed by the nursing schools.

MANPOWER REQUIREMENTS AND UTILIZATION

	1968 estimate		1969 estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
Personnel compensation and benefits.....	673	$8,203,100	718	$9,070,100	+45	+$867,000
Other expenses.....	--	9,692,765	--	13,400,900	--	+3,708,135
Total.....	673	17,895,865	718	22,471,000	+45	+4,575,135
Subactivities:						
Grants:						
Research grants:						
Physician manpower	--	646,000	--	1,348,000	--	+702,000
Dental health.....	--	1,259,000	--	1,259,000	--	---
Nursing.....	--	2,593,000	--	2,593,000	--	---
Research training grants:						
Dental health....	--	300,000	--	500,000	--	+200,000
Nursing.....	--	580,000	--	700,000	--	+120,000
Continuing education grants:						
Dental health....	--	200,000	--	200,000	--	---
Direct operations:						
Physician manpower.	94	2,745,400	98	2,979,000	+4	+233,600
Dental health.....	264	4,653,665	273	5,064,000	+9	+410,335
Nursing.....	179	2,746,800	191	4,437,000	+12	+1,690,200
Allied health manpower.....	55	1,086,300	64	1,363,000	+9	+276,700
Health manpower educational services.	81	1,085,700	92	2,028,000	+11	+942,300
Total.....	673	17,895,865	718	22,471,000	+45	+4,575,135

Research Grants--Physician Manpower

	1968 Appropriation		1969 Estimate		Increase or Decrease	
	No.	Amount	No.	Amount	No.	Amount
Non-competing continuations	5	$175,000	8	$431,000	+3	+$256,000
New grants	8	471,000	16	917,000	+8	+446,000
Supplementals	--	...	--	...	--	...
Total	13	646,000	24	1,348,000	+11	+702,000

The demand to expand the supply and improve the utilization of physician manpower in the United States has stimulated a pressing need for support of research in the various facets of physician manpower. The support of this research will result in the general strengthening of manpower in the health professions.

The requested increase of $702,000 in research grants will be used primarily to explore and develop new methods and techniques in premedical and physician education. This includes studying the problems and methodologies in the continuing education of physicians. These grants would also evaluate the methods and techniques used in physician continuing education.

In 1968 grant funds are being used to continue the medical and allied health professions research program. Research grants are being used to study the effective use of medical manpower and to assess the rate at which designated skills and clinical specialties are acquired. For example, a grant awarded in 1968 to the University of Illinois will study the use of computers in medical education by simulating clinical patient situations. With the results of the research which we will support in 1968, we anticipate being closer to understanding the questions involved in increasing the quantity of physician manpower without decreasing the quality of education.

Examples of research programs which the Division of Physician Manpower plans to initiate in 1969 and future years, utilizing the knowledge gained from private resources and earlier grants, include: (1) studies related to recruitment of physician manpower and stimulation of interest in various physician careers, such as practice, research, education, and administration; (2) studies relating to the recruitment of educators in various disciplines for faculty at schools of medicine and osteopathy; (3) studies on the costs and financing of physician education; (4) research and studies related to curriculum improvement, development, teaching techniques, and methods of evaluating physician education; (5) studies related to improving the quality of physician education and shortening the period of formal education for the physician; (6) studies on the management and financial requirements for operating medical and osteopathic schools; (7) studies relating to development and evaluation of procedures and methods to encourage and/or improve physician continuing education; (8) studies to stimulate non-Federal sources to develop various methodological approaches to encourage and improve continuing education; (9) studies related to the impact of socio-economic, environmental, technological and medical research and practice

factors in physician supply potential; and (10) studies concerned with the availability, distribution, and utilization of physician manpower and physician services.

Research Grants--Dental Health

	1968 Appropriation		1969 Estimate		Increase or Decrease	
	No.	Amount	No.	Amount	No.	Amount
Non-competing continuations	26	$739,000	19	$772,000	-7	+$33,000
New grants	10	497,000	10	462,000	--	-35,000
Supplementals	(1)	23,000	(2)	25,000	+(1)	+2,000
Total	36	1,259,000	29	1,259,000	-7	...

A principal task for the Division is the development of research to determine ways of increasing and improving the productivity of dental manpower, improving teaching of dental personnel, improvement of the distribution, organization and financing of dental services and improvement of preventive, control and treatment procedures. In each of these areas, research grants will be used to complement the intramural program effort.

Research now being supported by grants includes the testing of agents and procedures for controlling dental caries; impact of fluoridation on dental practice; the relationship of oral hygiene to periodontal disease; the design of a methematical model for dental insurance plans; the clinical testing of dental materials; evaluation of methods to improve health education in the schools; and studies of more effective ways of teaching dental students.

Research projects and programs are planned on communication of research findings and dental health information; control of pain in dental patients, evaluation of simulation in teaching dental students, more efficient use of dental auxiliaries and use of devices in treatment of orthodontic disorders. The request for $1,259,000 will provide for continuation of 19 current projects and 10 new grants.

Research Grants--Nursing

	1968 Appropriation		1969 Estimate		Increase or Decrease	
	No.	Amount	No.	Amount	No.	Amount
Non-competing continuations	36	$1,676,000	36	$1,776,000	--	+$100,000
New grants	20	870,000	17	716,000	-3	-154,000
Supplementals	(3)	47,000	(6)	101,000	(+3)	+54,000
Total	56	2,593,000	53	2,593,000	-3	...

The promotion, conduct, and support of research for better understanding and subsequent improvement of nursing care of patients is an essential part of nursing.

As medical care of patients becomes increasingly scientific, systematic analysis must be made of the effect of nursing practice on the patient's progress toward recovery and health maintenance. Answers are needed to the related problems of nursing service administration, nursing education and recruitment. Nursing research projects are providing some of the answers. For example, an ongoing nursing research project on pressure sores has developed findings which provide a scientific basis for altering present practices for recognition, care and prevention of this condition. Plans are underway for preparation of a manual and for developing other means of disseminating these findings widely and with minimum delay.

The $2,593,000 for 1969 is requested to do essential nursing research in the following areas:

Investigation of new elements in the total care of patients that can most effectively be provided by professional nurses. New scientific knowledge is particularly essential in view of the changing characteristic of the population with its increase in older people and the increase in the incidence of long-term illness.

Development of new and more effective methods of utilization of personnel, facilities and equipment including techniques of automation and patient monitoring devices.

Identifying and testing the most effective ways of keeping the practicing nurses informed of new changes in patient care.

Experimentation with organizational patterns that provide the most economical and safe care and with methods for delivering this care to patients in hospitals, homes, and health facilities in the community.

Research training grants--Dental Health

	1968 Appropriation		1969 Estimate		Increase or Decrease	
	No.	Amount	No.	Amount	No.	Amount
Non-competing continuations	2	$198,000	2	$302,000	--	+$104,000
New grants	1	49,000	3	188,000	+2	+139,000
Supplementals	(1)	53,000	(1)	10,000	--	-43,000
Total	3	300,000	5	500,000	+2	+200,000

Established in 1966, the Division's research training activity is now in its third year. Four training programs in the areas of dental epidemiology, dental educational research and medical sociology have been initiated at geographically dispersed educational centers. Growing interest in all aspects of dental public health research has led to the receipt of applications for graduate training under these programs from more students than can be accommodated. Additional programs are needed both to increase training capability in these fields and to obtain coverage in other important research areas. A new grant is planned in 1969 which would establish a program of summer on-the-job

traineeships to provide initial exposure of dental students to applied dental health research.

The increase of $200,000 requested for fiscal year 1969 will provide for the funding of a program to prepare students for research training in the behavioral science aspects of dental practice, and a training program in dental care administration research will also be initiated.

Research training grants--Nursing

	1968 Appropriation		1969 Estimate		Increase or Decrease	
	No.	Amount	No.	Amount	No.	Amount
Non-competing continuations	5	$580,000	5	$580,000	--	...
New grants	--	...	1	120,000	+1	+$120,000
Total	5	580,000	6	700,000	+1	+120,000

Research training complements the support for research grants. The research training grant program is now supporting 22 departments in 5 universities. Few nurses now have the training in depth in the basic sciences needed to participate in the increasing amount of interdisciplinary research. These grants make it possibel for more nurses to be prepared in fields such as anthropology, physiology, microbiology, and sociology, thereby bringing this knowledge to studies for improving nursing care. The $700,000 requested for 1969 will support 28 departments in 6 universities. An increase of $120,000 over 1968 will provide support for one additional university.

Continuing education grants--Dental Health

Grant funds available for continuing education were first appropriated in 1967 and have provided support for five projects. Over the next three to seven years, existing projects will contribute directly to upgrading the skills of 39,000 dentists. In addition to this direct effect on the dental practitioner, a vehicle is provided for the transmission of new knowledge about needs, resources, and educational methods, media and systems for continuing education, and for automated, self-instructional materials on such subjects as periodontics, operative dentistry, preventive dentistry, endodontics and community dental care programs for children. This new knowledge and utilization of these new educational materials and techniques have through these grants a potential of extension to all educational institutions, professional organizations, and dentists, thus facilitating the development of an effective, economical, continuing education system which assures life-long educational opportunities for all dentists.

The $200,000, requested will provide for the continuation of the existing programs.

Direct Operations - Physician Manpower

General -- The Division of Physician Manpower has as its principal mission the improvement of the quality and availability of physician manpower in the United States. This mandate involves the entire spectrum of physician recruitment, basic education, continuing education, and utilization. Analysis and revision of the education of physicians, suitable utilization of faculties, examination of the problems of continuing education and the development of effective methods for providing this education are essential to improve the care which physicians provide for patients and for the development of new knowledge. Responsibilities of the Division include increasing the interest of students in secondary schools in health careers, recruitment of potential physicians in colleges and universities and enlarging opportunities for education in medical and osteopathic schools, teaching hospitals, post-graduate specialty training, and continuing education. In 1968, the mission is being pursued through research grants, intramural studies, and extramural contracts.

Major energy will be directed toward programs that will increase the number of physicians providing health care from the level of 297,000 in 1966 to about 348,200 in 1975. Changes in distribution of physician manpower and improvement in the utilization of physicians are vital if health services of high quality are to be available to all those who need them. The search for solutions to these problems will receive high priority. The Division of Physician Manpower provides professional advice and counsel to public and private institutions, agencies and organizations that are concerned with physicians. The physician manpower program is closely correlated with the total effort being made in the development of health manpower.

Physician Education -- Resources will be directed toward the problem of the physician shortage in the United States through various approaches. Support and encouragement will be given to (1) decrease the number of years required to educate the physician, without sacrificing quality of education; and (2) increase the effectiveness of medical schools in order that more physicians will be trained without concomitant increase in faculty requirements. The ultimate goal is to make sure that all medical and osteopathic schools in the United States will have an opportunity to implement changes which will benefit physician education.

This program is also endeavoring to stimulate study and modification of the curricula of medical and osteopathic schools to reflect the changing pattern in the delivery of comprehensive and community health care services.

In late 1967, two pilot contracts were initiated with medical schools in Chicago and California, to develop curricula in comprehensive and community health care. The two contracts were carried out in cooperation with the Office of Equal Opportunity and the Department of Housing and Urban Development. In the summer of 1968 about four contracts, averaging $50,000 each, will be carried out in cooperation with OEO and HUD.

The program seeks to identify problems involved in keeping physicians in urban and rural settings up-to-date on new medical knowledge and technology. Identification of problems of this kind is especially important in the effort to provide the highest level of medical care to people of this country. This program is carried out by intramural studies and contracts. It will require approximately $700,000 in 1968 and will remain at that level in 1969.

In 1968 a study entitled "How Medical Students Finance Their Education," will be undertaken. This study will canvas all the medical and osteopathic students in the United States during the 1968 Spring semester. An analysis and report will be issued next year on the financing of physician education. Such information serves as the base to estimate the need for student aid programs and is essential in the determination of the Federal role in medical education.

The licensure and certification of physicians will be studied to determine how these procedures vary from state to state. The free flow of physicians from one area to another is influenced by state licensing and certifying procedures; therefore, these systems, which support high professional standards, may inhibit more equitable distribution of physician manpower. We anticipate that several years will be required to study this complex and highly significant problem..

In 1969, two additional positions are requested for the physician utilization program and $50,000 for three contracts. These positions, a Medical Officer and a Statistician, will organize studies and develop contracts to improve the utilization of physician manpower. The new contracts will study the organization and delivery of health services to define with reasonable limits those services which can only be provided by physicians.

Educational Facilities -- The Educational Facilities program administers grants for the construction of new and the rehabilitation and renovation of existing educational facilities for schools of medicine, osteopathy, dentistry, nursing, pharmacy, optometry, podiatry, veterinary medicine, public health, and the allied health professions. The program provides architectural and engineering assistance to schools, provides primary review of grant applications, and maintains surveillance on the progress of construction projects.

This program plays a major role in increasing the quantity and quality of health manpower in the United States by making possible the rehabilitation and renovation of existing schools and providing financial support for the construction of new schools. If the health manpower shortage is to be decreased, then this program must expand its vital services.

In 1969, one additional position, a Construction Engineer, is requested to provide technical assistance to medical and osteopathic schools, and for surveillance of the increasing number of facilities under construction.

In summary, the increase of $233,600 for Physician Manpower in 1969 will provide four new positions and $47,600 for salaries and expenses related to those positions; $100,000 for additional contracts; and $86,000 for built-in increases, including annualization of positions new in 1968, and annualization of the recently enacted pay increase.

Studies on the retraining of inactive physicians are also being carried out. In 1967 a pilot project was initiated at the Presbyterian Medical Center in San Francisco, California, for the purpose of studying the problems involved in retraining inactive physicians. The study was designed to determine the feasibility of retraining, and how retraining might be carried out. This study has resulted in a cooperative effort of the American Medical Association and the Division of Physician Manpower to identify inactive physicians and to determine their interest in a retraining program that might be established in their area. Most physicians who responded indicated their interest in bringing their knowledge and skills up-to-date.

In 1968 the existing contract with the Presbyterian Medical Center will be extended and the program expanded. We are establishing three additional retraining centers, suitably located geographically, in 1968, using knowledge gained from the initial project. In 1969 we anticipate the award of one additional contract of $50,000. After these initial fact-finding contracts are completed the results will be widely distributed through the public information media and professional journals. The Division anticipates that when the demonstrations are completed the contract-supported centers will become self-sustaining and will provide significant opportunities for the continuing education of physicians in the areas in which they are located, and that other privately supported centers will be established as a result of this program.

One additional position, a Public Health Advisor, is requested for the physician education program in 1969 to help administer the expanded grant and contract programs and provide technical assistance to Public Health Service and Federal programs, medical and osteopathic schools, and professional organizations.

Physician Utilization -- It is essential to develop and maintain a continuous record of the supply and distribution of physicians by geographic area and by specialty. This information serves as a base on which to determine the effectiveness of the physician in providing health services. While the numbers of physicians are increasing, the need for high quality services continues to exceed the supply, and will do so for some time to come. Improved utilization of the skills of the physician is, therefore, essential to meeting the current and anticipated demands for health services. Studies on the current use of professional skills, the analysis of professional responsibilities, and the organizational pattern in which the physician functions with others in the delivery of health care services are essential. In view of the national economic situation and the lag time in developing resources and facilities to increase the supply of physicians, the emphasis in 1969 will be on improving the utilization of the present physician population to meet current demands for services. Through the collection of available data and the acquisition of new information, this program is developing and maintaining current information on the supply and distribution of physicians in this country. It will also develop and maintain a system of continuous information of medical and osteopathic schools, students and faculty. Using these data, needs for physicians, the skills which they possess and the geographic distribution of physicians will be maintained.

Direct Operations — Dental Health

To carry out its functions, the Division is organized into three major operational areas -- Manpower and Education, Dental Technology and Community Programs.

Manpower and Education -- In cooperation with the American Association of Dental Examiners our Resource Analysis program is developing a National Data Compilation System for dentists and hygienists. Beginning with the 1965 reregistration of dentists, the collection has progressed and is now including licensed dental hygienists. In 1968, 40 states will be included in the system, and by the end of 1969, data on dentists and the services they supply will be available in all 50 states.

A study is also being conducted with the assistance of the Medical Foundation of Boston to provide information which will be used to develop a methodology for the gathering and organization of manpower and resource data in a large metropolitan area, and to demonstrate the feasibility of such a method for planning for dental service needs. Findings from this study will offer the opportunity to establish a workable system in another large metropolitan area in 1969. Studies are continuing in the behavioral aspects of dental auxiliary manpower to assess the effectiveness of auxiliary manpower and its application in the dental profession today.

The alarming shortage of dentists in the United States requires programs to alleviate major deficiencies which have been identified in educational programs for dental workers. The Division's programs in educational research attack the most critical of these defects including: (1) the acute shortage of qualified teachers, (2) the lack of qualified applicants to dental schools, (3) a crowded and rigid curriculum, (4) outmoded administrative practices, and (5) lack of innovation in design of instructional facilities. Qualified teachers are acutely lacking in schools of dental hygiene and dental assisting. There is an urgent need to develop new teaching media and to improve teaching methods as well as to train more teachers.

The Dental Health Center in San Francisco seeks to improve teacher recruitment, selection and development. The development of educational programs especially suited to the interest and abilities of students already identified as potential successes in teaching and/or research is one example of current projects.

Major emphasis has been placed on the use of new teaching methods in 1968. Various mechanical and electrical devices are being used to improve teaching methods for dental educators. Computer-assisted instruction shows promise towards improving teaching methodology in its application to the teaching of dental skills. Greater emphasis will be placed upon exploring these possibilities in schools for dental auxiliary personnel. We will promote teaching methodology in three additional schools of dental hygiene.

Dental Productivity -- Progress in dental productivity is dependent upon continued exploration of those functions that can be delegated to dental auxiliaries and devising methods of training auxiliaries to undertake these functions in conjunction with the dentist. Sine 1964 studies at Louisville, Kentucky have provided a unique opportunity for evaluation and the delegating of expanded duties and responsibilities to chairside assistants. Beginning in 1969, additional variables will be introduced into the study such as number of dental assistants and the degree of their technical versatility in situations of revised operatory designs. This phase of the project will study the team of one dentist

and five auxiliaries. At the suggestion of nationally recognized leaders in dental health there is now an opportunity to conduct training seminars at the Center in Louisville. With the assistance of those experts we can now attain more widespread acceptance of the team concept in dental practice. An increase of two positions and $56,000 is requested for these activities.

Continuing Dental Education -- The obstacles faced by practicing dentists in keeping with scientific advances are many, and the solution to developing a sound continuing education system for all dentists will depend upon solving complex problems. Programs are designed to overcome two major obstacles to the development of such a system: (1) the broad geographic distribution of dentists throughout the nation, and (2) the lack of teaching manpower available for a continuing education program of this magnitude.

The Division program at the Dental Health Center in San Francisco focuses primarily on the development, evaluation and demonstration of new educational methods and media for continuing education outside the dental school. New audio-visual approaches to automated programmed instruction to meet the special needs of dentists are reaching an estimated 7 percent of the dental population as compared with less than four percent in 1967. The demonstration courses developed for individual and group instruction have contributed to improving the knowledge and skills of over 10,000 practicing dentists. Funds provided in 1969 for the intramural program will continue this activity.

To demonstrate the feasibility of a coordinated, state-wide, off-campus continuing dental education program, a prototype state-wide distribution system will be developed and demonstrated in 1969. This system will be designed to incorporate new instructional methods and media, extend the utilization of available instructional materials and develop new courses that will meet the continuing educational needs of practicing dentists. To accelerate the development of an adequate nationwide program for dentists, a distribution system will be developed to assure the prompt dissemination of information on needs, new methods, media and resources in continuing dental education. The system is designed to reach 500 department heads and deans of schools in addition to over 1,000 state and local dental societies' leaders, other individuals and groups responsible for the nation's continuing education.

Funds requested this year will support the initiation of a program in dental care education for the dental patient. Emphasis is placed on the development of patient education systems within the private dental offices and clinics. The programs are designed to conserve the productivity of the dental health team and to motivate the patient to seek adequate dental services.

An increase of $65,000 and 2 positions will be used to augment the continuing education program at the Dental Health Center in San Francisco, and $20,000 and 1 position will be used to develop new teaching media in schools of dentistry and dental assisting.

Dental Technology -- The Epidemiology programs of the Division have been seeking methods to protect the teeth of children living in areas not serviced by central water supplies. Two of these methods show considerable promise. The first, fluoridation of school water supplies, has been studied in pilot projects and rural areas of Pennsylvania, Kentucky and the Virgin Islands. The second consists of self-administration of fluoride solutions under the supervision of dental auxiliaries or school teachers. Studies on the self-administration of topical fluorides have been initiated in Louisiana, Oregon and Brazil. Additional studies will be conducted to determine optimal amounts of fluorides for school fluoridation and the use of the new fluoride agents and techniques for self-application.

Studies of oral congenital defects -- In an attempt to discover causes for the occurrence of cleft lip and palate more than 12,000 birth certificates on which clefts are recorded have been collected at the Dental Health Center and are being analyzed to determine the factors that surround the occurance of clefts. For example, from this effort it was determined that the likelihood of a child being born with a cleft increases with the mother's age. When the knowledge gained from these analyses identifies possible leads regarding the etiology of clefts, epidemiological field investigations will be designed and conducted.

A major field study on twins which seeks to shed light on the relative contribution of genetics and environmental forces in the causation of clefts has already been initiated. Physical examination of 80 pairs of twins in which a cleft has affected at least one of the twins, as well as interviews of the twins' families are being carried out on the West Coast. Emphasis will be given to identifying the similarities and differences that occur in twins that have developed from the same egg.

An increase of $163,000 and 2 positions is requested to expand the Cleft Lip and Palate Twin Study to include additional pairs identified from birth records and to institute a study leading to the establishment of a network of rehabilitation centers for the treatment of clefts.

Periodontal Disease -- Epidemiological and supporting laboratory studies conducted by the center have demonstrated a definite and consistent relationship between oral hygiene status and the health of the soft and hard tissues supporting the teeth. The potential effectiveness of oral hygiene in the prevention and control of periodontal disease is being demonstrated by a continuing study being conducted at Mt. View, California. Shortly, a major investigation will begin to evaluate clnically the efficiency of a dentifrice that holds considerable promise in being able to prevent the formation of calculus (tartar) on the teeth. Studies such as these are essential for the planning and development of major national programs for the prevention and control of periodontal disease which attacks virtually all adults in this country and is the major cause of tooth loss after age 35.

Malocclusion results from the improper alignment or arrangement of the teeth and jaws. Degrees of malocclusion range from minor imperfections to major jutting or recession of the jaws and teeth. Extensive malocclusion is crippling and psychologically injurious. Only meager information is available on the prevalence and developmental history of these conditions. The Division will initiate a study in 1968 to determine the prevalence and severity of malocclusion in selected population groups and assess the potential public health use of selected control measures.

The Materials and Technology Branch of the division conducts applied clinical research to evaluate and compare new and conventional dental materials, dental procedures, and dental devices and to link basic laboratory research findings in the physical and biological sciences with clinical practice.

Fundamental information about the clinical, physical and biological properties and the safety of dental materials has been established through laboratory experimentation. Laboratory testing does not provide information about the behavior and performance of the materials when exposed to the oral environment. Long-range clinical studies conducted under controlled conditions, are necessary to ascertain the practical value of properties such as adhesion, color stability, strength, solubility, resistence to wear and long-term effect on the hard and soft tissues of the mouth.

Such long-range studies are being conducted by the Division in cooperation with dental personnel in public health service hospitals, VA hospitals, the Bureau of Prisons, the Division of Indian Health and in dental schools. By coordination of such studies and by the development of special evaluation methods, information is being accumulated which will lead to improved dental care for the public and reduced manpower requirements for delivery of high quality dental care.

Community Programs -- In the past year, greater understanding and support of fluoridation by the public were evidenced by increased activity in coordinated state-wide approaches to fluoridation. Mandatory state fluoridation laws exist only in three states, Connecticut, Minnesota and Illinois. Two states, Kentucky and Michigan, have interpreted existing state statutes as the necessary authority for the Board of Health to issue rules regarding fluoridation of water supplies. Community action has now raised to over 75 million the number of people benefitting from fluoridated public water supplies. Until fluoridation is available to all, we must continue our efforts to extend the coverage by providing direct technical assistance to state and local jurisdictions and utilizing every effort to develop a completely informed public in the benefits of a fluoridated water supply.

Control of Oral Cancer -- Encouraged by earlier success, the program to control oral cancer is pursued with increased intensity. Built on the experience we have gained so far, a concerted effort will be made to assure that the diagnostic procedure for oral cancer is incorporated into the practice of every dentist in the country. In 1969 oral cancer detection demonstrations will be extended and contracts negotiated with three additional agencies extending the demonstration program for local practitioners on cytological testing for oral malignancies to approximately 500 more dental practitioners. An increase of $43,335 and 2 positions is requested for this purpose.

Economics of Dental Care -- The Division continues to provide consultation and technical assistance on dental care economics to groups interested in developing dental insurance programs. Preliminary analysis of the Public Health Service survey of prepaid dental care plans indicates that member enrollment in existing plans is constantly growing and that the number of new plans is increasing. Preliminary estimates based on the incomplete on-going survey, at the end of 1967, show 1,074 privately sponsored prepaid dental care plans in existence, with membership of 4.1 million persons eligible for dental care benefits. These benefits include at least diagnostic services and continuing restorative care, with the bulk of the beneficiaries being eligible for one or

more specialty serives, i.e., prosthetics, orthodontics, periodontics, etc. Although the trend indicates an increase in the number of people being covered under various prepaid dental care programs, dental insurance remains inaccessible to a large portion of the population.

The Division continues to compile information on State and local dental health programs. A model state dental health plan is being developed which will serve as a guide to state dental directors in the development of comprehensive plans for dental activities. Information is being collected and two documents, "Federal Assistance for Dental Activities" and "Recent Legislation Affecting Dentistry" will be published in 1969 which will enable state and local dental directors to keep abreast of dental activities at the Federal level.

In summary the increase of $410,335 for Dental Health and 9 new positions are requested to cover the institution of 2 new programs in Oral Cancer, provide for the evaluation of dental productivity studies at Louisville, Kentucky, enable the Dental Health Center in San Francisco, California to develop projects leading to the establishment of Cleft Lip and Palate treatment centers throughout the United States and support the study of twins having this malformation, extend the continuing education programs at the Dental Health Center aimed at producing automated teaching devices and programmed instruction which will double the number of programs demonstrating these techniques in 1969. The increase also includes $63,000 for built-in costs for annualization of positions new in 1968 and the annualization of the recent pay increase.

Direct Operations - Nursing

The keystone of nursing is practice. This must be studied, developed and supported if nursing services are to be adequate for the needs of modern health programs. For many years the extension of health services and facilities and the developments and changes in medical knowledge and practice, without adequate support for appropriate changes in nursing practice have resulted in a steady dilution in the quality and effectiveness of nursing in all settings. Opportunity for professional nurses to use their special knowledge and skill in practicing their own discipline and to collaborate appropriately with physicians in patient care has not kept pace with the needs of patients and with the prevention of illness.

Sound administrative practices and techniques and automatic equipment have not been widely applied in managing the delivery of nursing services. This results in a myriad of staffing patterns and a widespread inadequate utilization of scarce nursing skills. Poor utilization of professional skills dilutes the quality of care which patients receive. It is costly.

The gap between supply of nurses and the demand for their services can never be reconciled through numbers alone; the professional competencies of each practitioner must be used to the best possible advantage in all settings. Discriminating utilization of professional talent not only bridges the numerical gap between supply and demand, but also promotes job satisfaction which encourages nurses to remain active in their profession.

The total of $4,437,000 requested for 1969 will be used to demonstrate effective organization and management of nursing services and utilization of personnel and to assist hospitals and health agencies in applying these practices. It is also planned

to develop new knowledge about patterns of nursing care through research and experimentation and to communicate this to the practitioner.

Professional nurse skills are in too short supply not to be used to their fullest potential. Experience in working with hospitals has demonstrated that utilization of nursing personnel can be markedly improved and that patients can receive more professional nursing care when those non-nursing activities which divert the nurse from the patient are provided by other groups within the hospital.

One of the most urgent needs is to improve the use of the knowledge and skills of clinical nurse specialists who are particularly needed in the hospital setting of today, in connection with many kinds of patient care and treatment. Improved utilization of specialized nursing personnel is also needed in other settings--schools, industry, group practice, and home health care.

Consultation services and technical assistance given to hundreds of health agencies help them realize their potential for nursing care through optimal organization, administration and utilization of available personnel.

The intramural program includes in-depth research of various types. For example, research design is being applied to a number of community nursing programs to evaluate nursing effectiveness; tools are being developed for evaluating health status of the individual, the family and the community, which can be used in measuring the effect of nursing service in the prevention of disease, early diagnosis and treatment of illness, reduction of disabilities, and hastening of rehabilitation. Similar studies are being designed to improve nursing methods in institutional settings, and to determine the actual cost of nursing care in these settings.

Of the increase requested for 1969, $200,000 and 3 positions will be used for recruitment contracts. Adequate and accurate information about nursing as a career is not reaching potential recruits in schools throughout the country. Guidance counselors and school officials are generally unaware of the opportunities for students in the nursing profession or of assistance that is available to them in various types of nursing programs and of Federal funds which are available for this kind of support. The overall concept of recruitment is broadening to mean a process that begins with helping potential nurses become qualified to enter nursing school and continues throughout the nursing program to help them remain to graduate. The group considered as potential nurses has expanded as well to include the educationally deprived, minority groups and adults.

The percentage of young people who select nursing is small because of the increasing attractiveness of competing occupations and the availability of scholarship assistance in these areas. Although the number of admissions to nursing schools of female high school graudates has been increasing, the percentage of female high school graduates have been increasing, the percentage of female high school graduates entering schools of nursing has been decreasing (see Table 1).

Table 1 - Female High School Graduates Admitted to Nursing Schools

Year	Admissions to Nursing Schools	Percent of Female High School Graduates
1963-64	52,274	5.3%
1964-65	57,180	4.9%
1965-66	60,191	4.5%

In 1969 contracts will be let with State and local educational agencies and others to encourage qualified youths of exceptional financial need to complete secondary school and to enter the field of nursing.

The remainder of the increase requested for 1969, $1,444,700 and 9 positions, will be used for a program to promote recruitment and refresher training of inactive registered nurses. This will increase the number who return and improve the quality of this important segment of nurse manpower. It should be an ongoing activity because of the dynamic nature of nursing--the numbers leaving and re-entering the profession at a later date, and rapid changes in practice and basic course content. Nurse Coordinators in every State will assist with recruitment and establishment and evaluation of refresher training programs.

This refresher training program was initiated in 1967 using reprogrammed funds with 46 contracts made with 45 states and the District of Columbia to employ nurse coordinators through 1968. These contracts are to be renewed in 1969.

In summary the increase of $1,690,200 for the Nursing Division provides $200,000 for recruitment activities, $1,444,700 for refresher training and $45,500 for built-in costs including annualization of positions new in 1968 and annualization of the recently enacted pay increase.

Direct Operations -- Allied Health Manpower

As we strengthen and expand our efforts to provide institutional and student support for education in the allied and public health specialties, we must also develop and improve our capabilities to provide expert professional and technical guidance on educational programs for these groups. We must possess more detailed knowledge and understanding of the current and future requirements for such personnel, and undertake continuous review and evaluation to assure that grant programs are meeting their objectives.

The attainment of such capabilities requires the allocation of direct resources to plan and undertake studies and demonstrations in such program areas as specific manpower shortages, geographic maldistribution, planning of curricula, utilization of existing health workers and determination of need for and the creation of new types of health workers. It requires the development of cooperative and close working relationships between the Public Health Service and other agencies with responsibilities and interest in manpower such as the Office of Education, Department of Labor, Office of Economic Opportunity, and Department of Housing and Urban Development to assure the use of Federal resources in areas of highest priority and greatest need. It requires continued

efforts, working cooperatively with a multiplicity of institutions, professional groups, organizations and agencies responsible for the training, certification, licensure and employment of the more than 85 allied health occupational categories, to develop orderly and efficient patterns of education, and productive career opportunities. It requires careful program review, and evaluation of grant support programs and expert consultation and technical assistance to the nearly 500 grantee institutions receiving support through the allied and public health training grant programs.

A coordinated national effort to undertake such a program was initiated in January 1967 through the establishment of the Division of Allied Health Manpower. In addition to providing program administration for the several grant programs authorized under the new Allied Health Professions Personnel Training Act, the public health training grants (Sec. 306 and 309, PHS Act) and those portions of the Health Professions Educational Assistance Act relating to optometry, podiatry, pharmacy, and veterinary medicine, the Division has undertaken efforts in a number of areas to develop a better understanding of the supply, distribution and requirements for allied health manpower, and to encourage the design of educational programs which are responsive to demands of new health technology and the entire range of community, environmental and personal health services.

A recently completed survey, undertaken cooperatively with the American Hospital Association, has provided valuable information on manpower resources in hospitals throughout the country. This joint undertaking was designed to determine the number and types of personnel employed in hospitals, current vacancies and estimates of persons needed to give optimum care to hospitalized patients.

Four pilot projects in Oklahoma, Oregon, Pennsylvania, and Washington also hold promise to increase our knowledge and understanding of health manpower resources. These projects are designed to encourage allied health manpower assessment and analysis and to develop within the States a facility for collection, analysis and distribution of health manpower data.

Development of Educational Programs -- Support was provided to develop training programs in two health specialties-- orthopedic assistant and psychology assistant. The program for orthopedic assistants has been undertaken with a view to training discharged medical corpsmen for this specialty. Another program recently completed under contract with the National Committee for Careers in Medical Technology undertook the construction of curriculum content for refresher training of inactive medical technologists returning to the work force. Particular emphasis during 1968 is also being placed on cooperative planning with other agencies in the development of such activities as training for the economically disadvantaged, improvement of health curricula in elementary and secondary education, and the development of career opportunities in occupations in human services fields.

Partnership for Health programs throughout the country must, in order to accomplixh their goals, have an adequate supply of specially trained manpower--specialists in the planning of comprehensive health services programs, as well as additional specialists required in the development of new and improved methods of providing health services. Effective implementation of specialized training authorized through Comprehensive Health Planning legislation will require close coordination with general health manpower efforts, and particularly basic public health training authorized through Sections 306 and 309 of the PHS Act. Such a task requires activities by staff of the Bureau of Health Manpower to stimulate the inclusion of health planning concepts and course offerings in the curricula available to the spectrum of health disciplines. Concurrent with such program development is the responsibility for staff and advisory committee review and evaluation of comprehensive health planning training proposals and for staff consultation for projects which have been undertaken.

In order to strengthen staff capability for the growing responsibilities required in improving education and training programs in allied health manpower, an increase of seven positions and $179,600 is requested in 1969. These resources will be used (1) to strengthen our capabilities in the development of better information on the supply, distribution and needs for health manpower, particularly in assisting States and communities to develop such capabilities; (2) to provide additional professional staff for support in the development of training programs for new types of health workers and the improvement of educational and employment opportunities for existing allied health workers, and (3) to provide support for program development, centralized receipt, referral, and costs of expert committee review of training programs in comprehensive health planning.

Evaluation of Grants to Schools of Public Health -- P.L. 90-174, Partnership for Health Amendments of 1967 (Sec. 8(c)), which extended the program of formula grants to schools of public health provided for the allocation of 1% of funds appropriated for such grants to be used for evaluation.

With the rapid changes which are taking place in the organization and delivery of community and environmental health services, programs for the training of personnel to carry out such services must be continously reviewed, modified and expanded to keep pace with changing requirements.

In order to assist the schools participating in this program in the review and evaluation of teaching programs supported by the grants, and to provide continuous planning and review of the program of grants to schools of public health, two positions and $46,000 are requested for 1969. These funds will provide for one professional and one supporting staff, necessary travel, and expert outside consultation, in order to carry out this important function.

In summary, the overall increase of $276,600 for allied health manpower will provide $225,600 for the nine new positions requested and for consultant services required for the comprehensive program and evaluation of grants to schools of public health and $51,100 for built-in costs including annualization of positions new in 1968 and for annualization of the recently enacted pay increase.

Direct operations - Health Manpower Educational Services

The Division of Health Manpower Educational Services provides the central administration of grant, loan and operational programs for education and training in the health occupations, and provides the consultative, evaluative, informational, procedural, and related services for the support of health manpower grant and loan programs. The increase in health manpower programs in 1969, particularly the increases requested for educational improvement grants, traineeships, scholarships, project grants and loans amounting to grant increases totaling $33,719,000, requires an increase in the level of supporting services in order to carry out program requirements. Two new positions and $25,900 are therefore requested. In 1969, the principal increases are requested to initiate the operation of a National Health Manpower Intelligence System and a national clearinghouse on health manpower information. These are discussed below.

Health Manpower Intelligence System--The mission to provide leadership in planning, initiating, conducting, and evaluating the Nation's health manpower programs requires that comprehensive information for the Nation on supply, distribution, and utilization be accessible to plan and decide wisely how to achieve program goals and objectives. With the advent of electronic computers and modern management sciences, notable progress has been made in data processing techniques, communications, statistical and methematical routines and research activities. The Bureau of Health Manpower, with its new and expanding programs needs to avail itself of this advanced technology. Accordingly, for 1969, $750,000 and 5 positions are requested to initiate a long-range plan to place into operation a National Health Manpower Intelligence System of the Bureau of Health Manpower to provide information to cover the health manpower universe.

Implementation of the system will be approached in sequence phases--Phase 1, System Survey (Requirements); Phase 2, System Development, Phase 3, System Installation and Demonstration. Factors such as resources and costs, demand that management evaluate each segment of activity to insure that the total goals and objectives are attainable prior to proceeding with subsequent phases. In 1973 this transition should be completed and the intelligence system installed and demonstrated.

The estimate of $750,000 includes $627,000 in contracts of which $250,000 is to be used to contract for a system analyses survey to produce a master plan which will include proposed system specifications and appropriate management and financial plans for its development. Pending development and installation of the HMIS, an interim system will be operational early in 1969. A total of $377,000 is requested for contracts in connection with development of health manpower utilization data and for purchase of information from institutions, professional associations and other agencies. Data obtained will be used to develop information on supply and utilization of health manpower, their status and availability, geographic distribution, etc., also a broad spectrum of information pertaining to schools, faculty and students. The cost of personnel to work on the interim system and the long-range system, together with machine rental costs connected with conversion of information obtained to the requirements and format of the interim system is estimated at $123,000

The staff requested will (1) design overall specifications for total project requirements; (2) provide full-time participation for monitoring contracts; (3) coordinate the acquisition of information from professional associations, universities, and other government agencies, etc.; and (4) evaluate results of end products acquired.

The staff will also provide technical assistance for the development and implementation of Bureau operating systems necessary for day-to-day decision-making, planning, and evaluation of Bureau activities.

Clearinghouse--Concurrent with the initiation of the Health Manpower Intelligence System will be the establishment of a health manpower information clearinghouse which will provide information on the content and availability of health manpower education and training programs and the nature of financial assistance for students. Also needed are basic reference materials, including the catalogues and publications of all institutions with programs in the area of health manpower training. The knowledge gathered in the data collection system described above will be one of the major holdings of the clearinghouse. The cost of establishing the clearinghouse which will also serve as a health manpower reference center is estimated at four positions and $150,000 in 1969. The ability to train health manpower is directly related to capacity and adequacy of educational facilities and their educational programs. Knowledge of this is absolutely necessary to plan the Public Health Service's role in this vital area.

In summary, of the total increase of $942,300 requested in 1969 for Health Manpower Educational Services, $925,900 is for program increases described above and $16,400 is for built-in costs including annualization of positions new in 1968 and annualization of the recently enacted pay increase.

PROGRAM DIRECTION AND MANAGEMENT SERVICES

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
Personnel compensation and benefits.....	89	$1,168,400	95	$1,239,500	+6	+$71,100
Other expenses.....	..	132,000	..	135,500	..	+3,500
Total.....	89	1,300,400	95	1,375,000	+6	+74,600

The Office of the Bureau Director is charged with furnishing leadership and direction to the various programs of the Bureau concerned with the education and utilization of health manpower; providing a coordinating point with other bureaus in the Public Health Service and other agencies; and with State and local government and national associations and organizations. It provides administrative management services such as personnel management, financial management and various housekeeping services to insure the efficient operation of the Bureau programs. It provides for consistency throughout the divisions of the Bureau in the quest of maximum operational effectiveness. The Bureau also provides a focus for development, coordination and evaluation of programs concerned with manpower planning, study and supply.

At the time the Bureau was established in January, 1967, minimum staffing was provided for the program direction and management services to be furnished by the Office of the Director to the several Divisions. With program increases being requested in the 1969 budget for research and other manpower activities, the program direction and management services provided the several Divisions need to be strengthened.

Therefore the estimate for 1969 in addition to providing $21,600 for built-in increases principally for annualization of the pay increase, includes an additional 6 positions and $53,000 for special areas of need such as educational and training communications, legislative activities, planning, programming, and information activities.

Included in the six additional positions are two positions for educational and training communications. The success of health manpower programs demands that effective communication and collaboration be developed between the educational community and the health community. Although important, funds have not been available within present resources to finance Educational and Training Communications. The lack of coverage of this important area has placed an undue burden on the Bureau Director and the Deputy Director, who from necessity, have had to take on increasing responsibilities in this field.

in 1969, it is proposed to activate this function to serve as the Public Health Service focus for the coordination and evaluation of educational and training programs for the health occupations (secondary, collegiate, graduate, continuing and specialty); conduct and support activities to develop and demonstrate educational communications methods, techniques and systems including audio-visuals; provide consultation and assistance in the development and improvement of educational and training programs; and maintain requisite working relationships with educational institutions, organizations and groups concerned with education and training for the health occupations.

Also requested for 1969 is an analyst position to support the Special Assistant for Legislation. This position will help meet the need to strengthen the Bureau's competency to marshall and analyze current knowledge of the legislative base and legislative activities in areas of significance to health manpower, particularly those outside the Bureau of Health Manpower such as Office of Education, Department of Labor, Office of Economic Opportunity and Welfare Administration, and the Department of Defense.

Another position requested will provide for a trainee to be assigned to the Bureau program planning staff. Inherent in a newly established bureau such as Bureau of Health Manpower is the need to give ever increased emphasis to program planning. This trainee position represents a step toward developing competency to help support the Bureau's responsibilities in this important area.

The remaining positions provide for a secretary and for a visual information specialist to round out the information activities and services furnished the several Divisions.

FRIDAY, MARCH 8, 1968.

CONSTRUCTION OF HEALTH EDUCATIONAL FACILITIES, HEALTH PROFESSIONS EDUCATION FUND, AND NURSE TRAINING FUND

WITNESSES

DR. LEONARD D. FENNINGER, DIRECTOR, BUREAU OF HEALTH MANPOWER
DR. JOSEPH A. GALLAGHER, DEPUTY DIRECTOR
DR. FRANK W. McKEE, DIRECTOR, DIVISION OF PHYSICIAN MANPOWER
DR. VIRON L. DIEFENBACH, DIRECTOR, DIVISION OF DENTAL HEALTH
MISS JESSIE SCOTT, DIRECTOR, DIVISION OF NURSING
RAYMOND F. DIXON, DIRECTOR, DIVISION OF HEALTH MANPOWER EDUCATIONAL SERVICES
JOHN W. HAMBLETON, FINANCIAL MANAGEMENT OFFICER, BUREAU OF HEALTH MANPOWER
DR. WILLIAM H. STEWART, SURGEON GENERAL
CHARLES MILLER, CHIEF FINANCE OFFICER
JAMES B. CARDWELL, DEPUTY ASSISTANT SECRETARY, BUDGET

CONSTRUCTION OF HEALTH EDUCATIONAL FACILITIES

PROGRAM AND FINANCING (IN THOUSANDS OF DOLLARS)

	1967 actual	1968 estimate	1969 estimate
Program by activities:			
Grants for construction of teaching facilities:			
(a) Medical, dental, and other health personnel	104,096	116,700	127,195
(b) Nurses	27,427	16,700	21,463
(c) Allied health professions personnel		2,000	2,800
Total program costs, funded—obligations (object class 41)	131,524	135,400	151,458
Financing:			
Comparative transfers to other accounts	652		
Unobligated balance available, start of year	−30,581	−59,058	−126,658
Unobligated balance available, end of year	59,058	126,658	60,000
Unobligated balance lapsing	75		
New obligational authority (appropriation)	160,727	203,000	84,800
Relation of obligations to expenditures:			
Total obligations	131,524	135,400	151,458
Receipts and other offsets (items 11 to 17)	652		
Obligations affecting expenditures	132,175	135,400	151,458
Obligated balance, start of year	155,100	258,107	305,507
Obligated balance, end of year	−258,107	−305,507	−366,965
Adjustments in expired accounts	−3		
Expenditures	29,165	88,000	90,000
Expenditures are distributed as follows:			
Out of current authorizations	623	4,000	4,000
Out of prior authorizations	28,542	84,000	86,000

Health Professions Education Fund

OBJECT CLASSIFICATION (IN THOUSANDS OF DOLLARS)

	1967 actual	1968 estimate	1969 estimate
Other services		6	
Investments and loans		11,659	11,429
Interest and dividends		242	935
Total obligations		11,907	12,364

PROGRAM AND FINANCING (IN THOUSANDS OF DOLLARS)

Program by activities:			
1. Loans to health professions schools		11,659	11,429
2. Federal National Mortgage Association fees for sale of notes		6	
3. Interest accrued on participation certificates		77	770
4. Interest to Treasury		165	165
Total program costs funded—obligations		11,907	12,364
Financing:			
Receipts and reimbursements from—			
Federal funds: Health manpower education and utilization	−2,380		
Non-Federal sources: Interest on loans outstanding		−448	−1,062
Unobligated balance available, start of year		−12,380	−14,436
Unobligated balance available, end of year	12,380	14,436	3,288
New obligational authority	10,000	13,515	154
New obligational authority:			
Appropriation:			
Indefinite			154
Definite	10,000		
Transferred from other accounts		2,015	
Appropriation (adjusted)	10,000	2,015	154
Authorization to spend agency debt receipts		11,500	
Relation of obligations to expenditures:			
Total obligations		11,907	12,364
Receipts and other offsets (items 11 to 17)	−2,380	−448	−1,062
Obligations affecting expenditures	−2,380	11,459	11,302
Expenditures	−2,380	11,459	11,302
Expenditures are distributed as follows: Out of prior authorizations	−2,380	11,459	11,302

REVENUE, EXPENSE, AND RETAINED EARNINGS (IN THOUSANDS OF DOLLARS)

Operations:			
Revenue		448	1,062
Expense		−248	−935
Net operating gain		200	127

FINANCIAL CONDITION (IN THOUSANDS OF DOLLARS)

	1966 actual	1967 actual	1968 estimate	1969 estimate
Assets:				
Treasury balance		12,380	14,436	3,288
Loans receivable			11,659	23,088
Interest receivable			200	327
Total assets		12,380	26,295	26,703
Liabilities: Participation certificates outstanding			11,500	11,500
Government equity:				
Interest-bearing capital			159	11,588
Non-interest-bearing capital		12,380	14,436	3,288
Retained earnings			200	327

Nurse Training Fund

OBJECT CLASSIFICATION (IN THOUSANDS OF DOLLARS)

	1967 actual	1968 estimate	1969 estimate
Other services		2	
Investments and loans		6,715	7,300
Interest and dividends		35	242
Total obligations		6,752	7,542

PROGRAM AND FINANCING (IN THOUSANDS OF DOLLARS)

Program by activities:			
1. Loans to schools of nursing		6,715	7,300
2. Federal National Mortgage Association fees for sale of notes		2	
3. Interest accrued on participation certificates		23	230
4. Interest payments to the Treasury		12	12
Total program costs funded—obligations		6,752	7,542
Financing:			
Receipts and reimbursements from—			
Federal funds: Health manpower education and utilization	−6,347		
Non-Federal sources: Interest on loans outstanding		−258	−640
Unobligated balance, available start of year		−8,347	−9,748
Unobligated balance, available end of year	8,347	9,748	2,892
New obligational authority	2,000	7,895	46
New obligational authority:			
Appropriation:			
Indefinite			46
Definite	2,000		
Transferred from other accounts		4,395	
Appropriation (adjusted)	2,000	4,395	46
Authorization to spend agency debt receipts		3,500	
Relation of obligations to expenditures:			
Total obligations		6,752	7,542
Receipts and other offsets (items 11 to 17)	−6,347	−258	−640
Obligations affecting expenditures	−6,347	6,494	6,902
Expenditures	−6,347	6,494	6,902
Expenditures are distributed as follows: Out of prior authorizations	−6,347	6,494	6,902

REVENUE, EXPENSE, AND RETAINED EARNINGS (IN THOUSANDS OF DOLLARS)

Operations:			
Revenue		258	640
Expense		−37	−230
Net operating gain		221	410

FINANCIAL CONDITION (IN THOUSANDS OF DOLLARS)

	1966 actual	1967 actual	1968 estimate	1969 estimate
Assets:				
Treasury balance		8,347	9,748	2,892
Loans receivable			6,715	14,015
Interest receivable			221	631
Total assets		8,347	16,684	17,538
Liabilities: Participation certificates outstanding			3,500	3,500
Government equity:				
Non-interest-bearing capital		8,347	9,748	2,892
Interest-bearing capital			3,215	10,515
Retained earnings			221	631

Mr. FLOOD. I understand, Doctor, you are ready to proceed to justify the construction of health educational facilities. I see you have a statement here. What do you have in mind doing?

Dr. FENNINGER. May I read it, sir?

Mr. FLOOD. Yes; if you wish.

GENERAL STATEMENT

Dr. FENNINGER. Mr. Chairman and members of the committee, I would like to discuss the three construction programs administered by the Bureau of Health Manpower. These programs, authorized under the Health Professions Educational Assistance Act, the Nurse Training Act, and the Allied Health Professions Personnel Training Act, provide a mechanism through which Federal funds can be granted for the construction of educational facilities for students in the various health disciplines.

Such construction is of critical importance for the training of vitally needed health manpower. As health services become more complex and their scope increases, training requirements become much greater. As the Nation's poor and aged avail themselves of health services through medicare and other health and welfare programs and as an expanding population requires better and broader health care, the currently overloaded and frequently obsolete educational facilities are unable to fulfill the demand for adequate training for the health manpower needed to serve the people of the United States.

Although a number of schools of the health professions had tentative plans for improvement and expansion of their facilities prior to enactment of the Health Professions Educational Assistance Act of 1963, they saw little possibility of obtaining the necessary funds. With the passage of the act, great interest was aroused in improving and substantially expanding existing schools and in the creation of new schools. Funds just became available in fiscal year 1965 and with the availability of funds, schools progressed rapidly in their planning. The establishment of review committees and the acquisition of expert staff by the Public Health Service, the review by peer groups, and consultation and advice available to the schools has led to a rapid improvement of the quality of the plans of the schools. There have been significantly greater opportunities for the exchange of ideas and information and the exchange of expert knowledge than was possible prior to the passage of the act. The momentum that has been gained is largely the result of wise congressional action in making funds available to the schools. This momentum must be continued if we are to have more well-qualified people in the health professions in the future. The funds which we are requesting are essential to sustain this momentum.

The planning and construction of a new school requires a long period of time. Key staff members must be recruited before definitive planning can take place, for they must be involved in planning on the basis of the educational program which they intend to carry out. A new medical or dental school requires 10 to 12 years from its conception to the graduation of the first class. New schools in the other health professions require somewhat less time, but it is seldom less than 6 to 8 years.

While the development of new schools is extremely important in producing more professional personnel, it is equally important to insure the continuing operation, the expansion and the improvement of existing schools. Thus, while we anticipate a significant demand for the Federal support of construction of new schools, in fiscal year 1969 we must recognize the critical and in some cases desperate need of the existing schools for Federal support of construction. Competition for funds is now severe and will become more so in the foreseeable future.

HEALTH PROFESSIONS EDUCATIONAL ASSISTANCE CONSTRUCTION PROGRAM

From the beginning of the program in 1965 through February 23, 1968, 209 applications for assistance have been received from 130 schools. Of these, 140 applications at 114 schools have been approved and grants awarded. Upon completion of construction of project school applications presently supported, 3,974 new first-year student places will be created. These include 1,604 student places in medicine and 719 in dentistry. These places will make it possible to continue to admit this increased number of students each year resulting in a substantial increase in the number of people serving in the health professions in the future.

Federal funds provided by this program have contributed significantly to the establishment and development in 10 new medical schools, four new schools of dentistry and one new school of public health. In addition, 40 existing medical schools, 19 dental schools, two schools of osteopathy, five schools of public health, five schools of optometry, 11 schools of pharmacy, and one school of veterinary medicine have rereceived construction funds enabling them to substantially expand enrollment and improve their educational programs. The total construction costs for these projects including applicants share and Federal assistance is $670,993,754. The Federal assistance amounted to $365,240,984. From the beginning of the program in 1965 through fiscal year 1968, $372,805,000 in Federal funds were available for awarding grants.

As of February 23, 1968, 18 applications requesting $78,806,998 in Federal assistance have been approved and are ready for funding. There are 21 additional applications for $174,007,373 pending this year's council action.

We are in communication with sponsors of 102 school applications who intend to request Federal assistance from this program within the next 4 or 5 years. These schools would require an estimated $634 million in Federal participation.

NURSING EDUCATIONAL FACILITIES

Construction funds for schools of nursing are needed (1) to increase the capacity of those educational programs in nursing which could and should expand, and (2) to replace and renovate obsolete facilities to improve quality of education and maintain enrollments. During the past few years some nursing schools have been unable to accept qualified applicants for admission because of lack of space. There is evidence that additional thousands of students would be

admitted to nursing programs if urgent needs for improvement and expansion of schools are met.

Many nursing education programs occupy makeshift buildings, such as barracks, dormitories, former hospitals, and basement areas. Many are unsafe, poorly ventilated, and noisy. It is essential that these obsolete educational facilities be replaced with modern teaching facilities. Every year the need for construction funds for schools of nursing becomes more critical as many of the existing facilities deteriorate and need for expansion of enrollments increases.

As of January 31, 1968, and during the 29 months that funds have been available under the Nurse Training Act of 1964, 137 applications have been received and 73 have been approved and funded. These 73 applications represent total construction costs of $75,400,000 and Federal participation totaling $42 million. Through fiscal year 1968, $51,537,000 in Federal funds were available for awarding grants. Upon completion of construction the projects will provide 2,863 additional first year places, and for maintenance of approximately 12,000 existing places in nursing education facilities. Nine new schools of nursing will have been built and many more expanded. Twenty-three additional applications representing a total construction cost of $21,300,000 and requesting over $12,300,000 in Federal funds have been approved but not yet funded. Twenty-two other applications requesting $26,400,000, and requesting Federal funds of $15 million are awaiting Council action. As of January 31, 1968, 120 letters of intent show that many more applications are in the active planning stage. These applications represent a total construction cost of $150 million with Federal participation amounting to $85 million.

CONSTRUCTION OF TEACHING FACILITIES FOR THE ALLIED HEALTH PROFESSIONS

The Allied Health Professions Personnel Training Act authorizes a construction program similar to that for the health professions providing support for facilities for training centers for the allied health professions. These grants are essential in the national effort to increase the number, improve the quality, and enlarge the training opportunities for these extremely important members of the health team. It is anticipated that by the close of fiscal year 1969, 43 applications will be submitted for approximately $67 million in Federal funds with nine applications amounting to $8 million in fiscal year 1968.

BUDGET REQUEST FOR FISCAL YEAR 1969

For the Bureau of Health Manpower's construction programs, a request in the amount of $84,800,000 is submitted: $75 million for grants to assist in the construction of schools of medicine, osteopathy, dentistry, pharmacy, optometry, podiatry, veterinary medicine and public health; $8 million for grants to assist in the construction of teaching facilities for nurses; and $1,800,000 for grants for construction of teaching facilities for the allied health professions.

By using funds available from prior years, together with the $84,800,000 appropriation request, we anticipate awards to be made in fiscal year 1969 totaling $151,457,000—an increase of $16,057,000 over

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awards planned for fiscal year 1968. The $151,457,000 program level in fiscal year 1969 is distributed by activity as follows:

Schools of medicine, osteopathy, dentistry, pharmacy, optometry, podiatry, and public health	$127,194,907
Nurses	21,462,606
Allied	2,800,000
Total	151,457,513

With the planned obligation of $127,194,907 for schools of the health professions in fiscal year 1969, we expect to provide 887 more first-year student places.

For nursing, it is anticipated that $21,462,000 will be awarded to increase the number of students of nursing and to reduce the critical shortage. This amount will provide 1,533 new first-year student places.

With the $2,800,000 which we plan to award for construction for the allied health professions, 336 new first-year student places would be created.

I would be glad to answer your questions.

OPHTHALMOLOGY, OPTOMETRY, AND OSTEOPATHY

Mr. FLOOD. Before we touch upon the merits of your justification, I have an anecdote to relate. I attended a breakfast this morning with some people from industry.

Many of these were graduate engineers, pretty long-haired types. Conversation drifted around to this health business of yours. I passed the word around the table to tell me what the difference was between ophthalmology, optometry and osteopathy. They all agreed that the three were related to the eye. They missed osteopathy completely. Then the argument was, since the three relate to the eye, what is the difference? You should have been there. The consensus of opinion was, at the end of 15 or 20 minutes of discussion, they all had something to do with the eye, period.

"Let us have some more coffee." That was the end of that. They talked about electronics. Out of an abundance of caution for the record, I will read from a medical dictionary, Dorland Illustrated Dictionary, the 23d edition:

> Ophthalmology: The sum of knowledge concerning the eye and its diseases. Optometry: Measurement of the powers of vision and the adaptation of lenses or prisms for the aid thereof, utilizing any means other than drugs.

To the amazement of my electronic friends, they will find out that osteopathy has nothing to do with the eye whatsoever. There is a lengthy definition here which the reporter can place in the record.

> Osteopathy: Any disease of a bone. (2) A system of therapy founded by Andrew Taylor Still, 1828–1917, and based on the theory that the body is capable of making its own remedies against disease and other toxin conditions when it is in normal structural relationship and has favorable environmental conditions and adequate nutrition. It utilizes generally accepted physical, medical, and surgical methods of diagnosis and therapy, while placing chief emphasis on the importance of normal body mechanics and manipulative methods of detecting and correcting faulty structure.

SUMMARY OF BUDGET REQUEST

To get back to the subject at hand, for construction, you request for 1969, $84,800,000, or $118,200,000 less than 1968. However, because of

ESTIMATE OF ANTICIPATED APPLICATIONS

Mr. FLOOD. You show a total need of $845 million. However, $634 million is under the heading "Expressions of Intent To Submit Applications." How in the world can you be at all certain that this part of the estimate is not grossly inflated?

Dr. FENNINGER. We have the experience of the past which indicates the cost of major renovation and expansion as well as the creation of new schools.

Mr. FLOOD. I know that.

How do you know this is not inflated?

Dr. FENNINGER. We have been working more and more closely with the schools in the development of their plans.

As I mentioned, the creation of this act allowed opportunities for exchange among the schools and with the Federal Government. This exchange had not taken place before. I would say that such an exchange is one of the great gains of the act itself. In working with the schools, they have indicated to us that they clearly plan to increase the size of their student bodies and to do so they will require major construction programs; otherwise, they cannot house the additional students and maintain the quality of their educational programs.

Perhaps, Dr. Gallagher would like to speak in more detail on this because as you know he has had long experience, since the very beginning of the construction program.

Our estimates are based on our best evidence supplied by the schools with which we have been in close contact in the development of their plan.

Dr. GALLAGHER. Our closeness has been such that we are able to talk to them rather frequently, they coming to our offices and our people visiting in the field.

So we go over their construction plans and programs, and we are attempting to keep these figures quite accurate from the standpoint of about every 6 months we try to see how close they are to what is actually the program's plan at that time.

Mr. FLOOD. So you think you are in sufficiently close contact that in the time period you state it would be rather difficult for either the engineers or the people at the institutions themselves to grossly inflate their figures?

Dr. GALLAGHER. To our best knowledge we have no evidence of any gross inflation. I think these figures are fairly realistic, as realistic as one can be when you are anticipating futures in the construction business.

Dr. FENNINGER. There are $252 million worth of applications for the health professions that have been sent to us at the present time.

Mr. FLOOD. What does that have to do with my question?

Dr. GALLAGHER. It has to do with an estimate of the future costs and the likelihood of schools undertaking planning at the approximate level we were speaking of, the $634 million in the future.

This speaks to the need.

Mr. FLOOD. That was not my question. I was concerned about whether your anticipated application figures, those separate and distinct from the figures for applications actually received were or

the balance of the unobligated funds carried forward, this would make $151,457,000 actually available for 1969.

Dr. FENNINGER. Yes, sir.

Mr. FLOOD. Compared with $135,400,000 you anticipate obligating in 1968. So for practical purposes you are budgeting an increase of about $16 million for 1969 when we pick up these things you have hidden under the rug. A lot of people in the Congress are going to take the attitude—you can be sure of this—that the fiscal outlook for 1969, which is what we are looking at, is for about the same as for 1968. So they will say, "We certainly should not increase any programs like this, at this time, above the 1968 level." What is your answer to that argument? This bill will be before the House in the latter part of May 1968.

BACKLOG OF CONSTRUCTION APPLICATIONS

Dr. FENNINGER. There is a large backlog of applications and plans on the part of the medical schools for construction at the present time.

Mr. FLOOD. I will say that and they will not deny it.

Dr. FENNINGER. I think it is also evident to all of us the tremendous need for an increase in the availability of people to take care of the sick and to prevent illness which means an increase in the number of people educated and trained.

Mr. FLOOD. I am sure, Dr. Fenninger, my friends on the floor will agree with that. So where does that leave me?

Dr. FENNINGER. Considerable momentum has developed in the planning for schools. This is a program which is only about 3 years old as far as funds are concerned. The length of time required to plan, the energies the schools put into planning, is tremendous. The need to sustain the interest of the schools and the possibilities that they may fulfill their plans to produce larger clases, to produce better education, is essential if this program is going to continue to produce physicians, dentists, nurses, the allied health professions, and all the other important people in health in the future.

Mr. FLOOD. I think they will agree with that.

Mr. CARDWELL. It seems to me one of the best answers you can give in defense of the question why increase this program——

Mr. FLOOD. Now?

Mr. CARDWELL. Now, is that this bill would not be asking the Congress to increase appropriations. In fact, it cuts appropriations from $203 million authorized for 1968 down to $84 million requested in 1969. The program level which indeed does go up is being achieved by using unobligated balances. In effect, we are stealing from the future in this program by holding the appropriations down at this time. So we have already taken the mood of the moment into account. That is one of the best arguments I can suggest.

Mr. FLOOD. Being aware of the situation, and what the point of view would probably be, you have anticipated and so acted?

Mr. CARDWELL. That is correct.

Mr. FLOOD. From the justifications it appears—I am sure there will be no doubt about this—you could utilize several times the amount you are requesting.

Dr. FENNINGER. Yes.

were not grossly inflated, and how would you know whether they were or not.

TIMETABLE ON MEETING CONSTRUCTION NEEDS FOR HEALTH EDUCATION FACILITIES

At the current rate of progress, how long would it take to meet the needs for these health education facilities; that is, at the rate we are going?

Dr. FENNINGER. I do not think I can give a precise figure.

Mr. FLOOD. I am sure of that.

Dr. FENNINGER. I am sure we are talking about programs that are going to require a minimum of 10 years, because of the length of time required to plan and construct new schools.

The program may actually be considerably longer than that. The ones we foresee I would think would be at least 10 years.

GENERAL STATEMENT ON HEALTH PROFESSION EDUCATION AND NURSE TRAINING FUNDS

Mr. FLOOD. Doctor, I see you have a statement here as well on the health professions education and nurse training funds. I think we can put that statement right in the record as it is.

(The statement follows:)

STATEMENT BY DIRECTOR, BUREAU OF HEALTH MANPOWER ON "HEALTH PROFESSIONS EDUCATION FUND AND NURSE TRAINING FUND"

Mr. Chairman and members of the committee: The enactment in November 1966 of the Allied Health Professions Personnel Training Act provided an additional loan source for easing the financial burden of needy students entering the field of health by establishing the health professions education fund and the nurse training fund. These funds were established on a revolving basis to enable greater utilization of Federal funds, to provide an opportunity for the private sector of the economy to participate more directly in supporting health profession and nursing students, and to enable more students to obtain loans. The schools may choose to borrow from these revolving funds, or receive a Federal capital contribution from our regular appropriation or both. The health profession student may borrow from the schools up to $2,500 and the nursing student may borrow up to $1,000. Institutions electing to borrow are relieved of their present obligations to contribute at least 10 percent of the capital of their loan funds. In fiscal year 1968 we are authorized to have the Federal National Mortgage Association sell participation certificates amounting to $15 million backed by notes given the Bureau of Health Manpower by the institutions that borrowed funds from the health professions fund and the nurse training fund.

The student loan capital, made available to participating health professions schools from either the Federal capital contribution or the revolving fund, will enable these schools to provide loans to 29,803 financially handicapped students in 1969. In the same manner, Federal funds will provide the necessary capital to enable some 27,000 needy young people enrolled in nursing programs to receive loans.

In 1969 an indefinite appropriation is requested for sales insufficiencies. This would provide authority to spend from general funds such amounts as may be necessary to assure interest payments to holders of Federal National Mortgage Association certificates which are secured by notes from health profession and nursing schools. It is estimated that the amount of these insufficiencies in 1969 will be $200,000. This represents the difference between interest due private investors and the interest accruing on notes from the institutions receiving loans.

I shall be glad to answer any questions.

PROPOSED APPROPRIATION LANGUAGE

Mr. FLOOD. There are two language items that have to do with this part of your program. One request is for language regarding "Health educational loans." We talked about that yesterday with the Surgeon General. This is exactly the same as you have in 1968, isn't it?

Mr. HAMBLETON. Yes, sir.

PARTICIPATION SALES

Mr. FLOOD. You are not requesting any language for participation sales authorization for 1969. You have authority for $15 million of these sales for 1968. What is the significance of dropping these PC's entirely for 1969?

Mr. HAMBLETON. If we do not have authority for the Federal National Mortgage Association to sell participation certificates in 1969, we will not have sufficient cash in the revolving funds to operate the loan programs in fiscal year 1970 without some other method of replenishing the loan funds. The Secretary has authority to transfer appropriated funds into the revolving funds to replenish these funds.

Mr. FLOOD. He could do that administratively, by himself?

Mr. HAMBLETON. Yes, sir. The basic act setting up the revolving funds gives him that authority.

Mr. FLOOD. From line items?

Mr. HAMBLETON. From the appropriation for student loans.

Mr. FLOOD. Into the revolving fund.

Mr. HAMBLETON. Yes, sir.

Mr. CARDWELL. If I understand your question, you were asking why does the budget not propose participation certificate sales in 1969. This is a decision that the Bureau of the Budget and the Treasury Department reached together and it is one in which we did not participate. They made the decision that they wanted to abandon this method of financing in 1969 and go to appropriations instead.

DEFINITE APPROPRIATION FOR PAYMENT OF SALES INSUFFICIENCIES

Mr. FLOOD. That is the answer. You are again asking for a permanent indefinite appropriation for "Payment of sales insufficiencies." If Congress changes this to a definite annual appropriation—and that is what we did last year—what dollar figure would you need for 1969?

Mr. HAMBLETON. Our best estimate is $200,000, sir.

Mr. FLOOD. This $200,000 that you just mentioned now is not reflected in the budget under this request. Why is that not shown?

Mr. HAMBLETON. It is reflected in two places, sir. There are two funds, one is the health professions fund, and we estimate $154,000. You will see this noted on page 155. There is also a nurse training revolving fund which we estimate at $46,000, noted on page 157. These total $200,000.

Mr. FLOOD. Mr. Natcher.

Mr. NATCHER. Mr. Chairman, I have no questions.

Mr. FLOOD. Mr. Casey.

Mr. CASEY. I have no questions, Mr. Chairman.

Mr. FLOOD. Thank you very much.

Dr. FENNINGER. Thank you, sir.

(The information follows:)

The March 8 Washington Post editorial, "Health in America," reflects some misunderstanding about the formula grants in the administration bill, the Health Manpower Act of 1968 (H.R. 15757). The editorial is quite correct that under the present formula each medical school is entitled to receive a sum representing $500 for each enrolled student, plus a flat $25,000. However, it misinterprets the formula contained in the legislation. The proposed formula would authorize a school of medicine, dentistry, osteopathy, optometry, or podiatry to receive:

$25,000, plus, of the sums remaining from the amount appropriated under the formula grant authorization—

(a) 75 percent would be distributed on the basis of (i) the relative enrollment of full-time students, and (ii) the relative increase in enrollment of such students (over the average enrollment of the school for the 5 preceding school years) with the amount per student computed so that a school receives twice as much for each student in the increase as for other full-time students, and

(b) 25 percent would be distributed on the basis of the relative number of graduates.

The editorial stated: "The administration proposed withholding the $25,000 from schools that fail to increase enrollment by 2.5 percent or five students, whichever is larger.

"But a carrot dangled in that fashion may not be enticing. If a medical school has an enrollment of 500 and gets $250,000 in head grants from the Government, the prospect of losing the flat grant of $25,000 is not likely to compel it to increase its enrollment by 13 students."

Both the present law and the administration bill include an expansion-of-enrollment requirement as a condition for receipt of a formula grant. In both cases, the requirement applies to eligibility to receive the entire formula grant, not just the flat $25,000 per school. In its application for a formula grant, a school must assure the Surgeon General that it will increase its first-year enrollment by 2.5 percent or five students (whichever is greater) over and above its first-year enrollments in the preceding 5 year period. This is a condition for receiving the entire formula grant.

Under present law, the Surgeon General is authorized to waive this expansion-of-enrollment requirement, in whole or in part, only if he determines (after consultation with the National Advisory Council on Medical, Dental, Optometric, and Podiatric Education—the Council that reviews applications for these grants) that the required increase in enrollments cannot be accomplished, because of limitation of physical facilities, without lowering the quality of training provided. The administration bill would authorize, effective in fiscal year 1968, the Secretary to waive the requirement if he determines, after consultation with the Advisory Council, that the waiver is in the public interest and consistent with the purposes of the act. In short, a school is required to expand its enrollment by 2.5 percent or five students, whichever is the larger, in order to be eligible for any formula grant, and the only exceptions are those instances in which the Secretary can exercise the waiver.

The editorial cites as an example, a medical school which increases its enrollment from 500 to 600.

Under existing law, the school with 500 students would receive $275,000 (that is, $25,000 base grant plus $500 times 500 students); if it increased its enrollment to 600 students, it would receive an additional $50,000 ($500 times 100 students), or $325,000 in total.

Under the proposed legislation (at a $35 million level, for example) that same school with an increase of 100 students (and with 125 graduates) would receive $345,375, calculated as follows:

$25,000 (base grant).

$177,500 ($355 times 500 students).

$71,000 ($355 times 100 students in the increase times 2; that is the double factor).

$71.875 ($575 times 125 graduates).

Thus, under the new formula, a school with an increase of 100 students would receive $20,375 more than it would under the formula in the present law. Without the increase of 100 students, that school would receive $274,375.

It must be remembered, however, that the incentives to expand enrollment are not limited to the institutional (formula) grant assistance. In the proposed legis-

WASHINGTON POST ARTICLE ON MEDICAL SCHOOL GRANTS

Mr. FLOOD. I have a question that is not directly related to your justification for construction. Maybe this should be a question for the Surgeon General. I have before me the Washington Post of this morning, March 8, did you see the article "Health in America"?

Dr. FENNINGER. Yes; I did.

Mr. FLOOD. I bring this up before you in view of our discussion during the hearing on health profession educational grants.

Speaking of the present system of medical school grants—$500 grant for each student, plus a flat grant of $25,000—the administration proposes withholding the $25,000 from schools that fail to increase enrollment by 2.5 percent or five students, whichever is larger.

We mentioned this yesterday in connection with one of the dental schools.

But a carrot dangled in that fashion may not be enticing. If a medical school has an enrollment of 500 and gets $250,000 in head grants from the Government, the prospect of losing the flat grant of $25,000 is not likely to compel it to increase its enrollment by 13 students. Now a greater incentive to expansion would be provided with about the same number of dollars by reducing the head grants to schools which fails to expand, say, to $400 per student, while providing a $750 grant for each extra student enrolled. The medical school with the enrollment of 500 would now get $200,000 in Federal grants, but if it increased its enrollment to 600, the total would rise to $275,000. Perhaps premium grants for new students should be larger—$1,000 or more. The point is that it should be possible to devise a better incentive formula than that proposed by the administration.

Dr. STEWART. Mr. Chairman, I talked to Dr. Fenninger this morning after I read this. He informed me that there are some inaccuracies in here and he was going to prepare for me a statement as to what the inaccuracies were.

Mr. FLOOD. Perhaps he could answer the question right now. Have you had time to look into it?

Dr. FENNINGER. I would prefer to submit it for the record. I think we can submit a clear statement. This is a misinterpretation on the part of the paper.

Dr. STEWART. The premise is wrong to start with, or a misinterpretation of what we have at the present time which leads you to a different conclusion.

Mr. FLOOD. What is the fallacy of their premise?

Dr. FENNINGER. The $25,000 portion of the basic improvement grants for which the schools are now eligible is a base grant to all schools in the health professions. The differential among schools is based on enrollment—a payment of $500 per enrolled student. Under the proposal in the administration bill that has been introduced, the bulk of the appropriation—that is, 75 percent of the remaining appropriation, after the basic $25,000 for each of the eligible schools has been computed—would be distributed on the basis of enrollment, with an additional incentive to increase enrollments by giving twice as much for each additional student enrolled. We would be glad to submit a statement for the record to clarify this.

Mr. FLOOD. I think you should. I want to have the record show an answer in case this comes up in the debate someplace.

Dr. FENNINGER. We would be glad to submit it, Mr. Chairman.

lation, the institutional grant is but one of several interrelated components of assistance to schools of medicine, dentistry, osteopathy, optometry, and podiatry which must be looked at together.

The provisions of Title I of the proposed Health Manpower Act of 1968 will extend for 4 years the authority for Federal assistance in the construction of teaching facilities, to provide places for increasing numbers of students. It will continue aid to students, through both loans and scholarships, to assure a continuing and increased number of qualified students as the schools expand. Authority for special project grants provides a realistic stimulus to the schools to lay the base for expansion, to improve their curriculums, meet accreditation standards, and overcome weaknesses which may be not only a barrier to expansion but may even require curtailment of enrollments.

Together these provisions of the Health Manpower Act of 1968 are designed to extend and expand a balanced program—under interrelated authorities—for school construction, operation, expansion, and student aid; a program which it is estimated will make possible the addition of some 2,000 first year medical students by 1971 with a substantial increase in the capacity of existing schools, the opening of eight medical schools (1964–67), and the development of another eight medical schools to open in the years 1968–71.

Mr. FLOOD. I have another question here that would be appropriate for a dentist.

Dr. FENNINGER. Dr. Diefenbach is here, Mr. Chairman.

Mr. FLOOD. Is there any particular way you can tell a dentist from a doctor by looking at him?

Mr. NATCHER. Better dressed, Mr. Chairman, always.

TOOTH TRANSPLANTS

Mr. FLOOD. I suppose, Dr. Diefenbach, you heard about this Japanese dentist who said he grafted a monkey's tooth onto a male human being recently. That comes under the heading of "Construction," I suppose. You did hear about that?

Dr. DIEFENBACH. I read the paper, but I missed that, sir.

Mr. NATCHER. Mr. Chairman, you will recall it said this monkey, since death, had been frozen. What effect would that have from the standpoint of that tooth?

Dr. DIEFENBACH. My presumption is that they did an immediate freeze of the tooth and surrounding tissue so that they would preserve the condition of the tissues. When they did insert the tooth, they would have, in fact, the conditions very much approximating those at the time the animal was sacrificed.

Mr. FLOOD. This is within the rule of reason?

Dr. DIEFENBACH. The transplantation of teeth, sir?

Mr. FLOOD. Yes.

Dr. DIEFENBACH. Yes.

Mr. FLOOD. Thank you, gentlemen.

JUSTIFICATION MATERIAL

PUBLIC HEALTH SERVICE

Construction of health educational facilities

Amounts Available for Obligation

	1968	1969
Appropriation	$203,000,000	$84,800,000
Unobligated balance brought forward	59,057,513	126,657,513
Unobligated balance carried forward	-126,657,513	-60,000,000
Total	135,400,000	151,457,513

Obligations by Activity

Page Ref.		1968 Estimate	1969 Estimate	Increase or Decrease
	Grants for construction of teaching facilities:			
144	Schools of medicine, osteopathy, dentistry, pharmacy, optometry, podiatry, veterinary medicine and public health	$116,700,000	$127,194,907	+$10,494,907
148	Nurses	16,700,000	21,462,606	+4,762,606
149	Allied health professions	2,000,000	2,800,000	+800,000
	Total obligations 1/	135,400,000	151,457,513	+16,057,513

1/ Includes funds brought forward from prior years and excludes funds carried forward to subsequent years.

Obligations by Object

		1968 Estimate	1969 Estimate	Increase or Decrease
41	Grants, subsidies, and contributions	$135,400,000	$151,457,513	+$16,057,513

Obligations by Activity

Page Ref.		1968 Estimate	1969 Estimate	Increase or Decrease
	Grants for construction of teaching facilities:			
144	Schools of medicine, osteopathy, dentistry, pharmacy, optometry, podiatry, veterinary medicine and public health	$175,000,000	$75,000,000	-$100,000,000
148	Nurses	25,000,000	8,000,000	-17,000,000
149	Allied health professions	3,000,000	1,800,000	- 1,200,000
	Total, New Obligational Authority	203,000,000	84,800,000	-118,200,000

Obligations by Object

		1968 Estimate	1969 Estimate	Increase or Decrease
41	Grants, subsidies, and contributions	$135,400,000	$151,457,513	+$16,057,513

Summary of Changes

1968 enacted appropriation	$203,000,000
Unobligated balance brought forward	59,057,513
Unobligated balance carried forward	-126,657,513
1968 estimated obligations	135,400,000
1969 estimated obligations	151,457,513
Total change	+16,057,513

Increases	Base	Change from Base
A. Program		
1. Increase in construction of teaching facilities for schools of medicine, osteopathy, dentistry, pharmacy, optometry, podiatry, veterinary medicine and public health	116,700,000	+10,494,907
2. Increase in construction of teaching facilities for schools of nursing	16,700,000	+4,762,606
3. Increase in construction of teaching facilities for the allied health professions	2,000,000	+800,000
Total net changes requested	...	+16,057,513

Summary of Changes

1968 enacted appropriation	$203,000,000
1968 estimated obligations	203,000,000
1969 estimated obligations	84,800,000
Total change	-118,200,000

Decreases	Base	Change from Base
A. Program		
1. Decrease in construction of teaching facilities for schools of medicine, osteopathy, dentistry, pharmacy, optometry, podiatry, veterinary medicine and public health	175,000,000	-100,000,000
2. Decrease in construction of teaching facilities for schools of nursing	25,000,000	-17,000,000
3. Decrease in construction of teaching facilities for the allied health professions	3,000,000	-1,200,000
Total net changes requested	...	-118,200,000

Explanation of Changes

Grants for construction of teaching facilities for schools of medicine, osteopathy, dentistry, pharmacy, optometry, podiatry, veterinary medicine, and public health.

Funds requested for 1969, $75,000,000, together with funds brought forward from 1968, will permit construction awards of $127,194,907 in 1969. This compares to planned awards in 1968 of $116,700,000. The estimated obligations will provide 877 new first-year places in 1969 and 820 in 1968.

Grants for construction of teaching facilities for schools of nursing.

Funds requested for 1969, $8,000,000, together with funds brought forward from 1968 will permit construction awards of $21,462,606 in 1969, providing 1,533 new first-year places. In 1968, the estimated obligations of $16,700,000 will provide 1,193 first-year places.

Grants for construction of teaching facilities for the allied health professions.

Funds requested for 1969, $1,800,000, together with funds brought forward from 1968 will permit construction awards of $2,800,000 in 1969. This will provide 336 new first-year places. In 1968 the expected obligations of $2,000,000 will provide 240 new first-year places.

Authorizing Legislation

Legislation	1969 Authorization
Public Health Service Act	
Section 720--Construction Program for Medical, Dental and Other Health Profession Schools.....	$480,000,000 (three-year aggregate)
Section 791--Grants for Construction of Teaching Facilities for Allied Health Professions Personnel.....	13,500,000
Section 801--Grants for Expansion and Improvement of Nurse Training.....	25,000,000

PUBLIC HEALTH SERVICE ACT

Title VII--Health Research and Teaching Facilities and Training of Professional Health Personnel

Part B--Grants for Construction of Teaching Facilities for Medical, Dental, and Other Health Personnel

Appropriation

Section 720. There are hereby authorized to be appropriated $480,000,000 for the three fiscal years in the period beginning July 1, 1966, and ending June 30, 1969, of which not more than $160,000,000 may be available for grants before July 1, 1967, and not more than $320,000,000 may be available for grants before July 1, 1968, for--

(1) grants to assist in the construction of new teaching facilities for the training of physicians, pharmacists, optometrists, podiatrists, veterinarians, or professional public health personnel;

(2) grants to assist in the construction of new teaching facilities for the training of dentists; and

(3) grants to assist in the replacement or rehabilitation of existing teaching facilities for the training of physicians, pharmacists, optometrists, podiatrists, veterinarians, professional public health personnel, or dentists.

Sums so appropriated shall remain available until expended.

Part G--Training in the Allied Health Professions

Grants for Construction of Teaching Facilities for Allied Health Professions Personnel

Appropriation

Section 791. (a)(1) There are authorized to be appropriated for grants to assist in the construction of new facilities for training centers for allied

professions, or replacement or rehabilitation of existing facilities for such centers, $3,000,000 for the fiscal year ending June 30, 1967; $9,000,000 for the fiscal year ending June 30, 1968; and $13,500,000 for the fiscal year ending June 30, 1969.

(2) Sums appropriated pursuant to paragraph (1) for a fiscal year shall remain available for grants under this section until the close of the next fiscal year.

Title VIII--Nurse Training

Part A--Grants for Expansion and Improvement of Nurse Training

Appropriation

Section 801. (a) There are authorized to be appropriated--

(1) for grants to assist in the construction of new facilities for collegiate schools of nursing, or replacement or rehabilitation of existing facilities for such schools, $5,000,000 for the fiscal year ending June 30, 1966, and $10,000,000 for each of the next three fiscal years;

(2) for grants to assist in the construction of new facilities for associate degree or diploma schools of nursing, or replacement or rehabilitation of existing facilities for such schools, $10,000,000 for the fiscal year ending June 30, 1966, and $15,000,000 for each of the next three fiscal years.

There are also authorized to be appropriated for each of such fiscal years ending after June 30, 1966, for grants specified in clause (1) or (2) of the preceding sentence, the amount by which the total of the sums authorized to be appropriated under such clause for previous years exceeds the aggregate of the appropriations thereunder for such years.

(b) Sums appropriated pursuant to clause (1) or (2) of subsection (a) for a fiscal year shall remain available for grants specified in such clause until the close of the next fiscal year. Notwithstanding any other provision of this title, whenever the Surgeon General determines that any part of any amount appropriated, for any fiscal year, to carry out the purposes of either paragraph (1) or paragraph (2) of subsection (a) will not likely be utilized for such purposes during such year, he shall transfer such part to the amounts which are appropriated to carry out the purposes of the other such paragraph, if he has reason to believe that such part can be used for such purposes.

Justification

	1968 Estimate	1969 Estimate	Increase or Decrease
Grants for construction of teaching facilities:			
Schools of medicine, osteopathy, dentistry, pharmacy, optometry, podiatry, veterinary medicine and public health	$116,700,000	$127,194,907	+$10,494,907
Nurses	16,700,000	21,462,606	+4,762,606
Allied health professions	2,000,000	2,800,000	+800,000
Total obligations 1/	135,400,000	151,457,513	+16,057,513

1/ Includes funds brought forward from prior years and excludes funds carried forward to subsequent years.

Table showing new obligational authority follows:

	1968 Appropriation	1969 Estimate	Increase or Decrease
Schools of medicine, dentistry, osteopathy, pharmacy, optometry, podiatry, veterinary medicine, and public health	$140,000,000	$75,000,000 2/	-$65,000,000
Schools of dentistry	35,000,000	-0-	-35,000,000
Schools of nursing	25,000,000	8,000,000	-17,000,000
Schools of allied health	3,000,000	1,800,000	-1,200,000
Total, new obligational authority	203,000,000	84,800,000	-118,200,000

2/ Includes dental construction

General

This program provides financial assistance for the construction of new and expansion and rehabilitation of existing schools of medicine, osteopathy, dentistry, nursing, pharmacy, optometry, podiatry, veterinary medicine, public health, and the allied health professions.

The marked shortages in health manpower make it essential that more new schools are constructed and existing schools expanded to provide for the education and training of our increasing health manpower requests. This mission assumes major importance when considered in terms of the shortage of physicians and other health manpower.

The amount of $84,800,000 is requested for the program for 1969. This amount provides $75,000,000 for grants under the Health Professions Educational Assistance Amendments of 1965 to assist in the construction of teaching facilities for schools of medicine, dentistry, osteopathy, pharmacy, optometry, podiatry, veterinary medicine, and public health; $8,000,000 for the construction of teaching facilities for training professional nursing personnel under the provisions of the Nurse Training Act of 1964; and $1,800,000 for the construction of training centers for the allied health professions under the provisions of the Allied Health Professions Personnel Training Act of 1966.

Health Professions Educational Facilities

	1968 Estimate	1969 Estimate	Increase or Decrease
Schools of medicine, dentistry, osteopathy, pharmacy, optometry, podiatry, veterinary medicine, and public health (obligations)	$116,700,000	$127,194,907	+$10,494,907

The Health Professions Educational Assistance Act Amendments (P.L. 89-290, approved October 22, 1965) extended the Health Professions Educational Facilities construction program for three years through 1969 with a total authorization of $480,000,000. The Veterinary Medical Education Act of 1966 (P.L. 89-709, approved November 2, 1966) authorized a program of construction of teaching facilities for schools of

veterinary medicine under the Health Professions Educational Assistance authorization of the Public Health Service Act. A total of $135,000,000 was appropriated by Congress for 1967, $175,000,000 was appropriated for 1968, and $75,000,000 is requested for 1969. These funds remain available until expended. Of the funds available in the program, we plan to make commitments for construction totaling $116,700,000 in 1968 and $127,194,907 in 1969 with unused balances carried forward into 1970.

Estimates indicate a need for approximately 400,000 physicians by 1975; however, present projections indicate that approximately 334,000 will be available by 1973 and approximately 350,000 by 1975. Similar situations exist in the other health professions covered by the Act.

In order to provide for the health needs of our people it is essential that we have an adequate supply of high quality health personnel. At the present time approximately 14% of our practicing physicians are from foreign countries that, due to their own critical manpower shortages, can ill afford to export their health professionals.

The Nation's supply of dental manpower has been lagging behind the growth of the population for more than a third of a century. At the same time, the public's desire and ability to purchase dental care is at an all time high. It is estimated that a minimum increase of 40,000 practicing dentists, over and above presently projected expansions, will be needed by 1985 if we are to achieve continued progress in the field of dental health. To realize such an expansion would require an additional 12,000 dental graduates by 1980, with at least 5,300 by 1973.

Federal financial assistance in the construction of dental teaching facilities can be augmented by other programs. The one with the greatest potential in expanding the productivity of the individual practicing dentist is through a more effective utilization of auxiliaries. A realistic graduating capacity requiring 4,500 additional first-year dental students has been selected as a 1973 goal. The amount for construction of dental teaching facilities in 1969 is included in the total program request of $75,000,000.

Many existing schools cannot, with only their own resources, expand existing facilities nor can new schools be created without considerable financial assistance. It is essential that Federal funds continue to assist construction of new schools and the expansion of existing schools of the health professions. There is also a continuing need to modernize and replace existing schools and teaching hospitals that are obsolete, overcrowded, or deficient in teaching space.

From the beginning of the Health Professions Educational Facilities construction program in 1964 to January 1, 1968, a total of 132 projects

have been awarded grants totaling $337,385,871 in Federal funds and creating 3,848 first-year places. A breakdown of these projects follows:

Type	Total Number of Projects	New	Expansion or Rehabilitation	Total 1st yr. student places provided
Medical	66	10	56	1,537
Osteopathy	1		1	5
Dental	26	4	22	682
Pharmacy	12		12	329
Optometry	5		5	157
Public Health	6	1	5	352
Nursing *	16	2	14	786
Total	132	17	115	3,848

*Funded prior to the passage of Nurse Training Act of 1964

The Health Professions Educational Facilities construction program has provided effective incentive to schools, to increase their undergraduate enrollment, particularly in the fields of medicine and dentistry. As of January 1, 1968, $230,100,000 of the total $337,385,871 awarded for construction projects is for medical schools and $71,300,000 is for dental schools.

Projects which will be funded by the $127,194,907 available in 1969 will provide an estimated 877 new first-year places.

The following table indicates: (1) applications approved but not funded as of January 1968; (2) applications expected to be approved by the Council for funding in 1968; (3) expressions of schools' intent to construct educational facilities under this program in the near future.

	Approved Not Funded		Pending Council Action		Expressions of Intent to Submit Applications		Total Need	
	No. of Proj.	Federal Share	No. of Proj.	Federal Share	No. of Proj.	Federal Share	No. of Proj.	Federal Share
Medical	14	$75,423,857	9	$76,838,846	55	$485,300,000	78	$637,562,703
Dental	6	21,519,467	3	19,846,996	24	94,600,000	33	135,966,463
Other Disciplines	7	11,218,654	2	6,342,634	23	54,100,000	32	71,661,288
Total	27	108,161,978	14	103,028,476	102	634,000,000	143	845,190,454

Nursing Educational Facilities

	1968 Estimate	1969 Estimate	Increase or Decrease
Construction of teaching facilities for nurses.	$16,700,000	$21,462,606	+$4,762,606

The Nurse Training Act of 1964 authorized construction funds totaling $90,000,000 of which $15,000,000 was appropriated in 1966, $25,000,000 in 1967, and $25,000,000 in 1968. These funds remain available until expended. The amount requested for 1969 is $8,000,000. Funds from prior years totaling $13,462,606 will be made available for obligation in 1969. The total of $21,462,606 for construction in 1969 would provide additional facilities to accommodate approximately 1,533 additional first-year places in schools of nursing. The 1,533 first-year places are 3.1 percent of the increase in the estimated number of places needed by 1973. Lead time of from three to six years will be required before students filling these new places will be ready to enter the active nurse supply.

Baccalaureate, diploma school and junior colleges must construct new teaching facilities if we are to increase enrollments to meet the national needs for nurse manpower. Many nursing education programs occupy makeshift buildings, such as barracks, dormitories, former hospitals, and basement areas. Many are unsafe, poorly ventilated, and noisy. It is essential that these obsolete educational facilities be replaced with modern teaching facilities. Every year the need for construction funds for schools of nursing becomes more critical as many of the existing facilities deteriorate and need for expansion of enrollments increases.

As of December 31, 1967, 73 grant awards totaling approximately $42,000,000 have provided construction funds for 2,863 additional first-year places and for maintenance of approximately 12,000 existing places in nursing education facilities.

Type	Total Number of Projects	New	Expansion or Rehabilitation	Total 1st yr. student Places provided
Baccalaureate	28	3	25	1,802
Junior colleges	8	6	2	429
Diploma schools	37	-	37	632
Total	73	9	64	2,863

As of December 1, 1967, 120 letters of intent have been received indicating future applications for construction grant funds. Of these, 66 letters estimated the Federal share for construction at approximately $47,000,000. Estimating comparable costs for the other 54 letters indicates that an additional $38,000,000 will be requested for a total of $85,000,000.

Allied Health Professions Educational Facilities

	1968 Estimate	1969 Estimate	Increase or Decrease
Construction of teaching facilities for the allied health professions	$2,000,000	$2,800,000	+$800,000

The Allied Health Professions Personnel Training Act of 1966 authorized a program of construction grants for the renovation and rehabilitation of existing allied health professions teaching facilities and the construction of new allied health training centers. Funds for this program were first appropriated in 1968 in the amount of $3,000,000; in 1969, $1,800,000 is requested. These funds remain available until expended. We plan to make commitments for construction totaling $2,000,000 in 1968 and $2,800,000 in 1969.

An essential element in a total national effort to increase significantly the number of and improve the training opportunities for allied health manpower is the expansion and improvement of our educational facilities. Funds for this program will complement the other allied health grant programs for support of improved educational programs in junior colleges, colleges and universities; advanced training of individuals; and development of new educational methods.

Current estimates of need for allied health manpower indicate that the annual output of graduates in the curricula currently eligible for support must more than double -- from approximately 15,000 to more than 30,000 -- over the next five years. Such an increase will require improvement of educational facilities through upgrading and expansion of existing facilities as well as the establishment of new training centers. Construction of new and expansion of existing educational facilities in addition to increasing the greater numbers of allied health workers encourage each institution to assess the relationship of the teaching program to technological change, improved educational techniques, changing organizational concepts and improved facility planning.

In 1968, approximately 240 new first-year places in junior colleges, colleges, and universities will be provided through grants for construction of new and upgrading of existing educational facilities for allied health occupations. It is estimated that 9 applications requesting $8,000,000 in Federal funds will be received during 1968. We have received expressions of interest from 43 institutions indicating that they plan to submit applications to construct educational facilities under this program requiring approximately $67,000,000 in Federal funds. The $2,800,000 available in 1969 will provide 336 new first-year places.

Public Health Service

Health Professions Education Fund

Amounts available for Obligation

	1968	1969
Appropriation (indefinite)	...	$154,000
Authorization to spend agency debt receipts	$11,500,000	...
Receipts and reimbursements from non-Federal sources	448,000	1,062,000
Transferred from other accounts	2,015,000	...
Unobligated balance available, start of year	12,380,000	14,436,000
Unobligated balance available, end of year	-14,436,000	-3,288,000
Total obligations	11,907,000	12,364,000

Obligations by Activity

	1968	1969	Increase or Decrease
Loans to health professions schools	$11,659,000	$11,429,000	$-230,000
Federal National Mortgage Association fees for sale of notes	6,000	...	-6,000
Interest accrued on participation certificates	77,000	770,000	+693,000
Interest to Treasury	165,000	165,000	...
Total obligations	11,907,000	12,364,000	+457,000

Obligations by Object

		1968	1969	Increase or Decrease
25.1	Other services.....	$6,000	...	$-6,000
33.0	Investments and loans...	11,659,000	$11,429,000	-230,000
43.0	Interest and dividends..	242,000	935,000	+693,000
	Total obligations by object.....	11,907,000	12,364,000	+457,000

Public Health Service

Nurse Training Fund

Amounts Available for Obligation

	1968	1969
Appropriation (indefinite).....	...	46,000
Authorization to spend agency debt receipts.....	$3,500,000	...
Receipts and reimbursements from non-Federal sources.....	258,000	640,000
Transferred from other accounts...	4,395,000	...
Unobligated balance available, start of year.....	8,347,000	9,748,000
Unobligated balance available, end of year.....	9,748,000	2,892,000
Total obligations.....	6,752,000	7,542,000

Obligations by Activity

	1968	1969	Increase or Decrease
Loans to schools of nursing.....	$6,715,000	$7,300,000	$+585,000
Federal National Mortgage Association fees for sale of note.....	2,000	...	-2,000
Interest accrued on participation certificates.....	23,000	230,000	+207,000
Interest to Treasury.....	12,000	12,000	...
Total obligations.....	6,752,000	7,542,000	+790,000

Obligations by Object

		1968	1969	Increase or Decrease
25.1	Other services.....	2,000	...	$-2,000
33.0	Investments and loans...	6,715,000	$7,300,000	+585,000
43.0	Interests and dividends.	35,000	242,000	+207,000
99.0	Total obligations.....	6,752,000	7,542,000	+790,000

Student Loan Revolving Funds

General

The Allied Health Professions Personnel Training Act of 1966 (P.L. 89-751, dated November 3, 1966) established two revolving funds to provide loans to students of medicine, osteopathy, dentistry, pharmacy, optometry, podiatry, veterinary medicine, and nursing.

An institution which borrows funds from the health professions education fund or the nurse training fund to provide loans to its students will execute a note payable for the amount of the loan. This note will bear an interest rate determined by the Secretary to be adequate to cover the cost of the funds to the Treasury and estimated losses from defaults.

At specified times during the year, these notes will be placed in a trust fund against which certificates of participation are issued and sold by the Federal National Mortgage Association. $15,000,000 is the maximum authorized amount of participation certificates which can be sold in 1968. Funds derived from the proceeds of these certificates will be deposited in the revolving funds. The Secretary will pay the institution (1) 90% of its losses from defaults, (2) the amount by which the interest payable by the school on such sums exceeds the interest received by the institutions on student loans made from such sums, (3) collection costs, and (4) amount of loans cancelled.

Principal and interest collected by the institution on student loans made from borrowed capital will be given to the Secretary for deposit in the revolving funds or for payment to the Federal National Mortgage Association.

Health Professions Education Fund

Approximately 11,800 health professions students will receive loans totalling $11,429,000 from the Health Professions Education Fund in 1969. This is about the same level of loans as in 1968. This revolving fund supplements the existing Federal capital contributions method of capitalizing loan funds in the schools which is budgeted for in the appropriation "Health Manpower Education and Utilization." The schools are free to choose either or both methods of obtaining student loan funds. In 1969, the total health professions student loan program will be $28,729,000: $17,300,000 in appropriations for Federal capital contribution and $11,429,000 in revolving fund monies.

From the combined funds, approximately 4,420 additional students will be provided loans in 1969 over the number in 1968 for a total in 1969 of 29,083.

Nurse Training Fund

Approximately 11,500 nursing students will receive loans totalling $7,300,000 from the Nurse Training Fund in 1969. This is a slight increase over the 1968 level. This fund supplements the existing Federal capital contributions method of capitalizing loan funds in the schools which is budgeted for in the appropriation "Health Manpower Education and Utilization." The schools are free to choose either or both methods of obtaining student loan funds.

In 1969, the total nursing student loan program will be $17,000,000: $9,700,000 in appropriations for Federal capital contributions and $7,300,000 in revolving fund monies. From the combined funds approximately 2,468 additional students will be provided loans in 1969 over the number in 1968 for a total in 1969 of 27,000.

FRIDAY, MARCH 8, 1968.

BUREAU OF DISEASE PREVENTION AND ENVIRONMENTAL CONTROL

WITNESSES

DR. RICHARD A. PRINDLE, DIRECTOR, BUREAU OF DISEASE PREVENTION AND ENVIRONMENTAL CONTROL
VERNON G. MacKENZIE, DEPUTY DIRECTOR
LYMAN MOORE, EXECUTIVE OFFICER
PETER J. BERSANO, FINANCIAL MANAGEMENT OFFICER
DR. WILLIAM H. STEWART, SURGEON GENERAL
CHARLES MILLER, CHIEF FINANCE OFFICER
JAMES B. CARDWELL, DEPUTY ASSISTANT SECRETARY, BUDGET

BIOGRAPHICAL SKETCH OF PRINCIPAL WITNESS

Mr. FLOOD. We now have Dr. Richard Prindle, Director of the Bureau of Disease Prevention and Environmental Control. I see we have a biographical sketch of you, Doctor, which at this point we will include in the record.

(The biographical sketch follows:)

BIOGRAPHICAL SKETCH

Name: Richard A. Prindle, M.D.
Position: Director, Bureau of Disease Prevention and Environmental Control.
Birthplace and date: Mansfield, Ohio, December 28, 1925.
Education:
- M.D. Harvard University, 1948.
- M.P.H., (cum laude), Harvard University, 1954.
- Diplomate of the National Board of Medical Examiners, 1950.
- Certified, American Board of Preventive Medicine and Public Health, 1956.
- Fellow, American College of Preventive Medicine.

Experience:
- 1967, Director, Bureau of Disease Prevention and Environmental Control.
- 1966, Chief, Bureau of State Services.
- 1963–66, Chief, Division of Public Health Methods.
- 1960–63, Deputy Chief, Division of Air Pollution.
- 1957–60, Chief, Air Pollution Medical Program.
- 1954–57, Assistant Chief, Health and Sanitation Division, USOM/Haiti.
- 1951–54, Assistant Chief, Poliomyelitis Investigations Section, Communicable Disease Center; and Medical Officer-in-Charge, Phoenix, Polio-Fly Control Unit.
- 1951 Epidemic Intelligence Service Officer, USPHS.

Association Memberships:
- American Thoracic Society.
- American Association for the Advancement of Science.
- American Medical Association.
- American Public Health Association.
- American College of Preventive Medicine.
- American Association of Public Health Physicians.
- Delta Omega (public health).
- Association of Military Surgeons of the United States.
- Sigma Pi Sigma (physics).
- Commissioned Officers Association of the Public Health Service.
- Association of Teachers of Preventive Medicine.

Special Awards, Citations, or Publications:
- Meritorious Service Medal, PHS, 1963.
- Numerous publications.

Mr. FLOOD. How long have you been head of this Bureau?

Dr. PRINDLE. This Bureau, Mr. Chairman, was created a year ago this last January; I have been Director during that whole period.

Mr. FLOOD. I see you have a statement. How do you wish to proceed?

Dr. PRINDLE. If I may, I would like to read it.

GENERAL STATEMENT

Mr. Chairman and members of the committee, I am Dr. Richard Prindle, Director of the Bureau of Disease Prevention and Environmental Control.

This Bureau provides direction and coordination of the activities of the service described by the term "health protection." The philosophy underlying our concern with the protective aspects of public health is summed up in the homely old phrase "an ounce of prevention is worth a pound of cure." And let me emphasize here that the savings effected by preventive medicine include private and public dollars in the multimillion range. More important, even, are the savings in scarce hospital beds and in the time of overworked physicians and nurses. Most important of all are the savings in human life, happiness and productivity.

ACCIDENT PREVENTION

Mr. FLOOD. This is a very serious matter. How does your shop have anything to do with savings in scarce hospital beds?

Dr. PRINDLE. To the extent that we have prevented diseases we have prevented people from becoming ill enough to require going to the hospital. This can be a very significant fact, Mr. Chairman. I can give some examples here.

In the field of accident prevention, if we could cut down on the number of injuries and deaths that result from motor vehicle accidents or other injuries we would cut down considerably on the use of hospital beds. Accidents take up more beds than anything else.

Mr. FLOOD. Of course, you give the same reason for your statement that you will assist in preventing overworking of physicians.

Dr. PRINDLE. This I think would be true. Take some of these things, like an accident or a burn which requires a tremendous number of medical skills and personnel on a 24-hour basis. To the extent we alleviate that problem I think we are contributing to the solution of some of the problems of the Bureau of Health Manpower. Let me give you a few examples of the dollar, hospital bed, and medical manpower savings resulting from preventive public health measures.

MEASLES ERADICATION

You know that we are conducting a campaign to eradicate measles in this country.

Mr. FLOOD. You have pretty well done that, haven't you?

Dr. PRINDLE. We have done a pretty good job. It is reduced tremendously. We had only about 62,000 cases reported this year compared to 400,000 or 500,000 in the years previously.

Mr. FLOOD. You are not talking about German measles at this point?

Dr. PRINDLE. No. This is old-fashioned red measles. Let us examine

the savings that would follow the eradication of measles among the children in a typical big city.

If the city has a total population of 1 million, it would have about 50,000 children aged 1 to 12 susceptible to an epidemic of measles every 2 or 3 years.

Not giving the vaccine would result in about 20,000 cases of measles from each such epidemic, of which 120 cases would require hospital treatment. Of these hospital cases, two would die; and 10 others would suffer the complication of encephalitis. Of the 10 encephalitis cases, a conservative estimate is that two would become severely and permanently retarded to the extent they would require custodial care for the rest of their life—an estimated 40 years. Such care would cost $3,000 annually per child or $240,000 during the expected lifetime of both children. To this figure must be added the medical costs for home and hospital treatment for all of the other victims—about $247,000 every 2 or 3 years. By contrast, the annual cost of preventing measles in that city would be about $100,000; or $300,000 for a 3-year period in which—without a preventive program—there would probably be an epidemic. Future epidemics could be completely eliminated by an annual expenditure of about $40,000 to immunize the newborn children.

Mr. FLOOD. Was your Bureau responsible for the conduct of this highly successful and widespread attack on measles?

Dr. PRINDLE. Yes. The National Communicable Disease Center carried this out.

Mr. FLOOD. I can describe what happened in my community. I do not know what you had to do with it, but I would like to know. I never saw such a marshaling of a community to attack anything as they did on measles: radio, television, word of mouth, block by block. Civil defense could never approach their effectiveness. It seemed to happen overnight.

Dr. PRINDLE. I am very pleased to hear this. I think the credit very definitely goes to the people in our National Center and to the medical and health people in your own community who obviously had to pitch in.

Mr. FLOOD. Yes, they volunteered day and night all over the place. I never saw anything like it.

Dr. PRINDLE. This is a very good example of the kind of cooperative effort we have tried to put into a number of our programs.

Of course, our experience with the polio vaccine was a very similar one.

Mr. FLOOD. Wilkes-Barre is not a big city, you understand.

Dr. PRINDLE. Yes.

Mr. FLOOD. Did you get out to the so-called villages and rural areas?

Dr. PRINDLE. Yes, we are attempting to cover the country in full.

As a matter to fact, sometimes our problem is less with the rural areas than some of the heavily concentrated poorer urban areas where we have real difficulty.

BURN INJURIES

Each year in this country we have about 3,000 deaths and 150,000 burn injuries resulting from clothing fires. Serious, nonfatal burns cause an estimated 75,000 persons to be hospitalized. The average hospital stay for each of these cases is 20 days, or a total of 1.5 million hospital-bed-days annually.

The Flammable Fabrics Act Amendments of 1967 require the Department to determine the causes and recommend changes in standards of flammability to reduce injury and death from clothing burns. We are organizing an accelerated program of research to establish causal factors, and to analyze case management data from a number of burn treatment centers. This will be combined with an intensive public information program.

BURN TREATMENT CENTERS

Mr. FLOOD. What is a burn treatment center?

Dr. PRINDLE. These are centers that specialize in the handling of burns. A serious burn is really quite a medical project.

Mr. FLOOD. Where is the setup and how is it set up? Who pays for it; who staffs it?

Dr. PRINDLE. These are set up in a number of institutions usually related to a major teaching hospital type of program, where they are staffed with the entire capability of a university and medical training center. With these we are attempting not only to treat patients but to do some of the research that is necessary to study the underlying pathology and the problems that burns cause.

Dr. Marland and his group from the National Center for Urban and Industrial Health will be able to describe more of that later, if you wish.

Mr. FLOOD. I have heard it said that one of the few good things that come out of any war is that treatment of casualties in combat has helped greatly in the treatment in civilian life and, perhaps, especially of burns.

Dr. PRINDLE. This is correct. I think the experience we are sadly going through at the present is giving us a very good background and knowledge of not only burns, but trauma as well, and the transport of patients. I think there are many lessons that we in the civilian area can learn from what the military is doing at the present time.

Mr. FLOOD. These burn treatment centers of necessity must be set up in connection with large medical centers, which clearly would be in large metropolitan areas. Transport of a burn case and the immediacy and acceleration of that transport is very important to the treatment.

Dr. PRINDLE. Yes, sir. This is one of the things we are trying to learn from the burn centers: What kind of first aid and treatment can be given at the scene or the local or rural area, and how much of this needs to be done out in the field, so to speak, before transport is necessary, and then the degree of emergency transport that would be required?

TREATMENT OF BURNS

Mr. FLOOD. I make what must be an irritating practice to my colleagues in the subcommittee; I am usually holding myself out as an example for all of these things. I must be falling apart. I show you the back of my hands. See how white that part is right there? Back about 25 years ago I was out on a lake fishing and I fell asleep in the boat. I had a big sun hat on. It was a very hot day. The boat floated down the lake and touched the island and I had my hands on the oars. When I woke up—I have a very sensitive skin anyhow—my hands

were badly sunburned. They started to swell up. This was a mountain rural area. I went to a doctor who apparently was just out of medical school and he put something on and bandaged my hands.

Subsequently, when the bandages were taken off, and the swelling was down and everything was all right and the emergency was over, the pigment was destroyed. Hence that white-looking business on the hands, just exactly where they were over the oars. I have been advised later on that he never should have put the bandage on.

Dr. PRINDLE. If I may comment, Mr. Chairman, this is a subject of continued debate. You say this was about 25 years ago. I am not completely convinced that we have learned an awful lot since that time.

The pendulum has swung back and forth between putting all kinds of things on, or the other extreme of doing nothing as far as local treatment is concerned. I had the pleasure just this week of meeting with Dr. George Crikelair, who is the professor of plastic surgery at Columbia University and one of the leading burn experts. Listening to him discuss this I am under the impression that we are at a period where we do not do as much local treatment and certainly not all the kinds of ointment and materials that used to be added. We are much more concerned with treating the patient as a whole as far as the shock from the burn and making sure that infection does not occur. Local treatment is a debatable subject and I am sure you can find at least two answers out of a group of physicians.

Mr. FLOOD. Even today?

Dr. PRINDLE. Even today.

Mr. NATCHER. If the chairman would yield to me at that point, Doctor, several days ago an article appeared in one of the local papers concerning burns.

According to this article, if you burned your hand the best treatment you could give yourself at that time is just go and hold it under the water and let the water run on it. A lot of times it would not even blister.

Dr. PRINDLE. That is right. Dr. Crikelair actually recommended this week that for minor burns, that is burns that really had not gotten down to the point where drainage below the skin occurred, the best thing was to stick the injured part in a bucket of ice water. This didn't do any harm and it often relieved the pain.

Mr. FLOOD. Proceed, Doctor.

Dr. PRINDLE. I don't mean to dwell on this subject at great length, but I would just like to point out in reference to your earlier questions about saving hospital beds and resources, this problem of burns is a tremendous thing. When one has a serious burn, as often occurs to a child, particularly some clothing burns that get deeply into the skin it is not only the immediate treatment but, if it is a situation like injury to the hand or face, the restorative treatment such as plastic surgery really makes tremendous demands on the health profession.

INCIDENCE OF BURN ACCIDENTS

Mr. FLOOD. We hear about the casualties through burns increasing to an appalling degree. First of all, fires. Of course, burns can result from fires of all kinds. I am not just speaking of clothing fires; I mean fires, period.

There seems to be an increase in fires and, of course, injuries resulting therefrom. Is this so?

Dr. PRINDLE. I am really not sure how much of a true increase is occurring, though it is quite evident, particularly in the cities, with slum areas and so forth, very severe fires are occurring.

Mr. FLOOD. It is not just the slum areas. Frequently it is a farmhouse.

Dr. PRINDLE. I am not certain they are any more common than they used to be. As a matter of fact, in some cases with the use of kerosene lanterns and things of this sort, it was even more prevalent.

We don't have good and adequate data, and this is one of the very sad things in this field. These have not been, as far as the health data is concerned, diseases that are reported, as plague or something of this sort.

Second, such incidents do fall in a different reporting system, usually the fire prevention or police and safety system and so forth. We don't have the data to make a comparison.

Mr. FLOOD. I read where it is very often blamed on defective wiring.

Dr. PRINDLE. I am not enough of an expert in this particular field to comment. I am not sure adequate studies are always undertaken, really, to determine the cause.

Mr. FLOOD. Very well.

Dr. PRINDLE. Over the next 5 years we believe that a successful program of research and prevention will save an estimated 1,850 lives and prevent 116,000 injuries from clothing burns. During this 5-year period an estimated 1.2 million hospital bed days would be conserved. The savings in hospital costs would be an estimated $90 million.

POLIOMYELITIS

As a third example of savings in medical care costs and scarce health manpower achieved through preventive measures let us consider poliomyelitis.

The average annual number of polio cases reported in the 5 years immediately preceding the 1955 introduction of an effective vaccine was 38,727. We estimate if that number of cases had occurred in 1967 the medical costs would be approximately $40 million.

But, because of widespread use of polio vaccine by private physicians and public health agencies, only 51 cases of polio occurred in 1967. The estimated medical cost was about $50,000 instead of $40 million.

Mr. FLOOD. This is one of the great miraculous breakthroughs.

Dr. PRINDLE. This has certainly been a most dramatic affair.

Mr. FLOOD. What kind of vaccine is most commonly used, the oral?

Dr. PRINDLE. The oral vaccine is the most common in use now.

Mr. FLOOD. Does this contain what they call a live vaccine?

Dr. PRINDLE. Yes, sir.

Mr. FLOOD. Do you get much fallout from it? Are there any bad results to any great extent?

Dr. PRINDLE. No, sir, this has been a very safe method of administration and a very useful vaccine. The same is true with our measles vaccine. We are finding equally good results.

Last year some 3 million children were vaccinated against polio under federally sponsored immunization programs administered by our National Communicable Disease Center. The Federal cost was about $1 million.

ORGANIZATION AND RESPONSIBILITIES OF THE BUREAU OF DISEASE PREVENTION AND ENVIRONMENTAL CONTROL

The job of our Bureau is to focus more attention and more action on health protection. To accomplish this we are organized into five national centers: air pollution control, urban and industrial health, radiological health, chronic disease control, and communicable disease control.

Since the directors of these national centers will provide details on their operating programs, the progress made during the past year, and their future objectives, I will confine my remarks to a brief statement of the prevention and control strategy which ties those centers together.

The programs of this Bureau are seeking to prevent or stay the progress of scores of different diseases and environmental hazards. All follow one or more of three avenues of approach.

The first avenue is the control or alleviation of environmental factors which are threats to health or the deterioration of the quality of life. Program examples here are air pollution, solid waste disposal and certain radiation hazards. The common thread in this group is that all are the responsibility of the community since they are not amenable to individual control—and most are contributed to or adversely affected by man himself.

The second approach is protection of the individual from hazards in the environment to which he may be exposed by his own actions or choices or the actions of others, and where control can be achieved by education or restriction of the individual. The examples here are cigarette smoking, improperly manufactured or poorly safeguarded products of various kinds, such as highly inflammable nightclothes for children, and many different kinds of occupational hazards.

The third method is what is traditionally termed preventive medicine; the methods which seek to either prevent the onset of illness or alleviate the further process of a disease already present in an individual. We do this by immunization, by modifying the human responses to disease, or by removing or changing the causative agent. We immunize against a growing number of diseases—polio, measles and diphtheria are good examples. In the preventive approach, we also include screening for early diagnosis of chronic diseases, when further progress of the disease often can be stopped; the developing of specialized therapy for some of the chronic diseases; and nutrition programs.

This bureau is working where the people and the problems are—whether in the city, the small towns or the country. We are testing, and helping others to test better ways of applying existing knowledge of health protection. We are searching for, finding, and testing new methods. If applied widely and vigorously, the old and the new together constitute a formidable weapon against preventable disease and injury.

Mr. Chairman, our bureau is a collection of all kinds of activities. I have often facetiously said it is apples and oranges, shaving brushes and Cadillacs. It isn't so facetious because it turns out the Cadillacs are of concern to us in air pollution and injury prevention. The shaving brushes come up under the foreign quarantine concern over importa-

tion of hog's bristles, and the apples and oranges in our problems with pesticides and our concern with nutrition.

What we have tried to do, and what I have tried to describe here very briefly, is to develop a strategy that covers the whole concept of prevention from the standpoint of how the community, the individual, the Government, and industry relate in trying to solve these problems.

INFANT DEATHS

Mr. FLOOD. We have been reading lately—and apparently there is a great deal of this—of inexplicable deaths of infants in the crib or cradle or bed.

The mother lays this very young infant down in a bed or a crib and comes back in a short period of time and finds the child dead for no apparent reason at all. Generally she blames herself for lack of attention.

It has been suggested lately by some doctor, or doctors, that spine damage is often associated with the death, frequently attributed to pneumonia, infection, suffocation, or other conditions; but the underlying causes are really obscure. One article I saw recently stated that autopsies showed evidence of spinal injury in seven out of eight cases of unexplained crib deaths. There was a form of hemorrhage around the spinal cord. While not fatal in itself, suppression of the cord's vital functions causes fatal paralysis of the respiration system.

Dr. PRINDLE. Yes, sir.

Mr. FLOOD. I have also heard that because of the abnormal size of the head of an infant of those tender months, vis-a-vis, the spinal column at the base of the head, and the rest of the body, relatively little movement can produce fatalities of this kind or the hemorrhage which results in this.

Now, how do you get to mothers all over the country if it is so that this is a problem? How does your department reach these many mothers?

Dr. PRINDLE. My own bureau has not been involved in this and this was news to me—having read the same newspaper article about this specific example. I am not even sure whether it would be appropriate for my bureau to move into this particular area since there are others who are concerned specifically with infant problems and any program might be more appropriate there. But I think this is one of the kinds of problems, and typifies the same things we have spoken about in some of these other diseases, that demonstrate the real necessity for health education for people to give them a better understanding of many of these kinds of problems.

We, in our own bureau, are now trying to prepare some simplified information; not exactly what to do until the doctor comes, but more along the "apple a day" variety; how to keep the doctor away by keeping oneself a little healthier.

QUARANTINE PROGRAM

Mr. FLOOD. When I was a kid, if anybody had measles or whooping cough or chickenpox or diphtheria; on the front of that house would be a yellow sign or a green sign or a red sign or some sign which would say the place was quarantined. We would hold our breath and walk

across the street to avoid getting wheatever it was. What happened to all these red and yellow and green and blue signs?

Dr. PRINDLE. Other than their possible decorative value, we found no real scientific and medical value, as far as preventing these diseases is concerned. Contagious diseases still swept around the country as much as ever.

Many are highly contagious, and in many of them an infected individual may be contagious to others before the disease symptoms appear.

Just as we learned placarding wasn't effective at home, in our foreign quarantine program, we are trying to move away from the idea of setting up a barrier around the country and instead being more knowledgeable about what goes on overseas so we can prevent it from getting here in the first place. We can't build a fence around ourselves any more.

Mr. FLOOD. It must be so because, despite holding my breath and walking across the street, we wound up with a measles sign on our house and a chickenpox sign. So it didn't work.

Mr. Natcher.

Mr. NATCHER. No questions.

Mr. FLOOD. Mr. Hull.

Mr. HULL. No questions.

Mr. FLOOD. Mr. Casey.

FLAMMABLE FABRICS

Mr. CASEY. I notice you are using the example of the more safe materials, control of flammable materials and clothing and so forth. Does your department take credit in stimulating the passage of this legislation that Congress did enact?

Dr. PRINDLE. Well, I don't know whether that would be the exact statement. We certainly participated along with the Department of Commerce in discussions about what might be done in this area. As passed, the law gives HEW the responsibility of doing the research to find out what kinds of clothing, what fabrics, and what the circumstances were that lead to burns, and then providing the information to the Department of Commerce, which is responsible for standards and so forth.

Mr. CASEY. Do you work with the new Committee on Consumer Interests?

Dr. PRINDLE. There is a consumer specialist on the staff of the Secretary, Miss Diane McHaig, and through her we are in contact with Miss Furness' group. She is our representative. We have been working closely with her on a number of things related not only to flammable fabrics, but other kinds of problems.

Mr. CASEY. Miss Furness' department seems to feel they are concerned with anything and everything. She stated she felt it was necessary that she stimulate the Department of Public Health in many of these instances. Do you feel you need stimulating in this regard?

Dr. PRINDLE. I think that we have not paid as much attention to a variety of things that appear to be so normal in everyday events that we, as physicians, and perhaps overspecialized scientists, fail to realize the significance to the individual. In this situation, I think it could be a very salutary stimulation.

Mr. CASEY. How about all this talk of color TV being hazardous from a radiation standpoint?

Dr. PRINDLE. We have been concerned with this for some time. After we had been informed of the original problem last year, we did a followup at the request of Congress of a survey to find out what correction had been undertaken with these sets and whether this correction was sufficient.

In the course of this, we ascertained that it was possible that there might be sets other than the original manufacturer who had problems. We have just completed a survey here in the Washington, D.C., area of approximately 1,200 sets of different makes and models, and we have, in fact, found that different makes and models do produce radiation.

We are now in the process of attempting to ascertain the degree to which this is a serious health problem and also find out what techniques are needed to correct it.

Mr. CASEY. Is this a secret as to what makes and models are producing radiation?

Dr. PRINDLE. No; there is no secret at this time. We have been rather cautious about making statements about the models, however, because we will frankly admit that the survey we did here in Washington, which was purposely only to find out if different makes and models produced radiation, is not a sufficiently statistically accurate survey to be able to say to what degree one company or another contributes.

Mr. CASEY. How can I find out whether my set is emitting any radiation?

Dr. PRINDLE. We are hopeful as a result of our survey here in Washington—perhaps we will have to make other surveys to doublecheck this—that we can come up in a very short period of time with a plan to reach the whole Nation because we are dealing with a tremendous number of sets. Fifteen million or something of this sort, throughout the Nation. It is obvious, short of having a tremendous number of people and dollars, we won't be able to do everything ourselves.

Mr. CASEY. How can I, as an individual, find out? In other words, are my children and myself in any danger while you are making this determination?

Dr. PRINDLE. We have to admit that there is a risk. I think the answer that we would give at the present time, because we don't have a better answer until we have completed some more work, is that by checking with the appropriate television repair group who work with the manufacturer of your set, to ascertain whether you have any defective tubes—and they can do this—and to make sure that the voltage regulation and similar settings of the set are accurate. At least this will reduce significantly the chances of radiation.

Mr. FLOOD. I have heard certain companies do this extensively. If you buy a set from them—since this thing has become a problem and is pretty well known—that somebody representing the producer will immediately go right to your home with some sort of a detector and report to you about this. This is going on nationwide.

Dr. STEWART. It is better if your children don't lie under it when it is on, or hug it, or get too close to it. The radiation is within a short distance. It is usually down or out the sides. It is not the picture tube we are talking about.

The other thing is, as Dr. Prindle has mentioned, in many instances we have found that in the process of repair somebody steps up the voltage above the recommendation of the company on what the voltage should be, and that is a problem in itself. If you want to have your voltage checked, this is another thing that could be done.

Dr. PRINDLE. As a matter of fact, the Surgeon General's own recommendation is to keep 6 to 10 feet away from the set.

Mr. FLOOD. Thank you very much.

NATIONAL CENTER FOR CHRONIC DISEASE CONTROL

WITNESSES

DR. DONALD R. CHADWICK, DIRECTOR, NATIONAL CENTER FOR CHRONIC DISEASE CONTROL
DONALD G. RIEDESEL, EXECUTIVE OFFICER
DR. RICHARD A. PRINDLE, DIRECTOR, BUREAU OF DISEASE PREVENTION AND ENVIRONMENTAL CONTROL
VERNON G. MacKENZIE, DEPUTY DIRECTOR, BUREAU OF DISEASE PREVENTION AND ENVIRONMENTAL CONTROL
PETER J. BERSANO, FINANCIAL MANAGEMENT OFFICER, BUREAU OF DISEASE PREVENTION AND ENVIRONMENTAL CONTROL
DR. WILLIAM H. STEWART, SURGEON GENERAL
CHARLES MILLER, CHIEF FINANCE OFFICER
JAMES B. CARDWELL, DEPUTY ASSISTANT SECRETARY, BUDGET

OBJECT CLASSIFICATION (IN THOUSANDS OF DOLLARS)

	1967 actual	1968 estimate	1969 estimate
Personnel compensation:			
Permanent positions	6,976	7,862	8,163
Positions other than permanent	263	362	395
Other personnel compensation	32	34	34
Total personnel compensation	7,271	8,258	8,592
Personnel benefits	910	1,116	1,145
Travel and transportation of persons	903	845	945
Transportation of things	108	99	149
Rent, communications, and utilities	444	395	425
Printing and reproduction	81	70	90
Other services	395	400	450
Project contracts	9,148	11,461	12,728
Services of other agencies	588	584	610
Payment to—			
Public Health Service management fund	103	128	----------
National Institutes of Health management fund	22	22	----------
Supplies and materials	229	186	196
Equipment	281	221	256
Grants, subsidies, and contributions	4,074	4,052	4,193
Total obligations	24,557	27,837	29,779

PERSONNEL SUMMARY

Total number of permanent positions	983	944	979
Full-time equivalent of other positions	50	64	69
Average number of all employees	766	845	882
Average GS grade	8.0	8.2	8.3
Average GS salary	$8,507	$9,261	$9,345

PROGRAM AND FINANCING (IN THOUSANDS OF DOLLARS)

	1967 actual	1968 estimate	1969 estimate
Program by activities:			
1. Grants:			
(a) Research	3,774	3,752	3,893
(b) Training	300	300	300
2. Direct operations	18,323	23,785	25,586
Total program costs, funded [1]	22,397	27,837	29,779
Change in selected resources [2]	2,160	----	----
Total obligations	24,557	27,837	29,779
Financing:			
Comparative transfers to other accounts	63,504	1,857	----
Unobligated balance available, start of year	−630	−1,857	----
Unobligated balance available, end of year	1,857	----	----
Unobligated balance lapsing	2,303	105	----
New obligational authority	91,591	27,942	29,779
New obligational authority:			
Appropriation	91,614	27,942	29,779
Transferred to other accounts	−23	----	----
Appropriation (adjusted)	91,591	27,942	29,779
Relation of obligations to expenditures:			
Total obligations	24,557	27,837	29,779
Receipts and other offsets (items 11 to 17)	63,504	1,857	----
Obligations affecting expenditures	88,061	27,694	29,779
Obligated balance, start of year	41,577	58,635	19,329
Obligated balance, end of year	−58,635	−19,329	−19,108
Adjustments in expired accounts	−299	----	----
Expenditures	70,705	69,000	30,000
Expenditures are distributed as follows:			
Out of current authorizations	38,165	13,000	14,000
Out of prior authorizations	32,539	56,000	16,000

[1] Includes capital outlay as follows: 1967, $281,000; 1968, $221,000; 1969, $256,000.
[2] Selected resources as of June 30 are as follows: Unpaid undelivered orders, 1966, $8,069,000 (1967 adjustments −$299,000); 1967, $9,930,000; 1968, $9,930,000; 1969, $9,930,000.

Mr. FLOOD. We have now Dr. Donald R. Chadwick, Director, National Center for Chronic Disease Control.

BIOGRAPHICAL SKETCH OF PRINCIPAL WITNESS

(The biographical sketch follows:)

BIOGRAPHICAL SKETCH

Name: Donald R. Chadwick.
Position: Director, National Centers for Chronic Disease Control.
Date of birth: August 16, 1925.
Place of birth: Boston, Mass.
Father: Chester Robert Chadwick.
Mother: Fay Billings Chadwick.
Wife: Elizabeth Ann Hulburt Chadwick.
Children: Deborah and Douglas.
Education:
Undergraduate—Harvard College.
Graduate—Harvard Medical School, Reed College, Oregon, and Oak Ridge National Laboratories (special training in radiological health).
Military service: U.S. Navy.
Career:
1951—Local health officer in North Carolina.
1953—Commissioned Officer in the Public Health Service.
1954–1957—Several assignments in radiological health.
1957—Liaison Officer for Radiation, Office of the Surgeon General.
1958—Chief, Program Operations Branch, Division of Radiological Health.

1959—Secretary, Federal Radiation Council.
1961—Chief, Division of Radiological Health.
1967—Director, National Center for Chronic Disease Control.

Awards and honors:
Arthur S. Fleming Award, 1963.
Meritorious Service Medal, USPHS, 1966.

Affiliations and memberships:
Member of the National Council on Radiation Protection, 1963.
Adviser to the U.S. representative on the United Nations Scientific Committee on the Effects of Atomic Radiation.
American Medical Association.
Health Physics Society.
Commissioned Officers' Association.
World Health Organization's Expert Advisory Panel on Radiation.

Mr. FLOOD. Doctor, you may proceed.

Dr. CHADWICK. Mr. Chairman and members of the committee. Last year in appearing before this committee, I presented data on the mortality and disability resulting from the principal chronic diseases.

Mr. FLOOD. Will you include in the record at this point the names of the principal chronic diseases referred to?

Dr. CHADWICK. Surely.

(The information requested is as follows:)

The National Center for Chronic Disease Control has programs directed at controlling death and disability resulting from the major chronic diseases. The following seven chronic diseases are among the 10 leading causes of death in the United States:

Diseases of heart.
Malignant neoplasms.
Vascular lesions affecting central nervous system.
General arteriosclerosis.
Diabetes mellitus.
Other diseases of circulatory system.
Other bronchopneumonic diseases.

Similarly, the following chronic conditions, representing 12 of the 25 leading causes of disability in the United States today provide the focus for current disability control efforts in our country:

Heart condition.
Arthritis and rheumatism.
Mental and nervous condition.
Hypertension without heart involvement.
Visual impairments.
Conditions of genitourinary systems.
Other conditions of circulatory system.
Chronic sinusitis and bronchitis.
Diabetes.
Other conditions of respiratory system.
Hearing impairments.
Malignant neoplasms.

GENERAL STATEMENT

Dr. CHADWICK. This year, the continued and persistent annual increases in these diseases coupled with the soaring costs of hospital and medical care, and the scarcity of trained medical and health manpower are the basis for training our sights on the need for more effective preventive action; to use the best tools we have available now and to develop new and better methods for making the benefits of research available to everyone.

While researchers generally continue to look for ways of preventing specific diseases, the National Center for Chronic Disease strives to

make the most extensive use of available techniques and develop improved methods for preventing or postponing the end results of these diseases once they have been discovered. The Center thus serves as an essential link between the community of investigators producing new knowledge of prevention from basic research and those who promote and support programs of proven value in community service.

We are encouraged by the progress we are making in different areas through bringing a variety of approaches to bear on individual disease and disability problems.

In cancer our optimism stems from a continuing reduction in the death rates from cervical cancer. This declining rate attests to the effectiveness of early detection techniques tested and tailored for application in our current national effort. This initial major success in preventing deaths from cancer is providing a sharpened focus to our continuing investigations and developments in the early detection of cancers of other major sites.

CERVICAL CANCER

Mr. FLOOD. Are you getting information to the public on the importance of periodic and regular tests for cervical cancer? Is this sufficiently widespread? Is there an awareness or a knowledge of this now that didn't exist some time ago?

Dr. CHADWICK. Well, we are certainly trying very hard to inform the public of the need for annual checkups and specifically for annual examinations for cervical cancer.

Mr. FLOOD. It isn't a very difficult thing to do, is it?

Dr. CHADWICK. Oh, heavens no. It is a very simple examination.

Mr. FLOOD. It can be done in any doctor's office?

Dr. CHADWICK. Indeed. We have a program with the Academy of General Practice to encourage general practitioners to do it.

Mr. FLOOD. It should be inexpensive.

Dr. CHADWICK. That is right.

Mr. FLOOD. This is not even a minor operation.

Dr. CHADWICK. It is a very simple procedure.

Unfortunately there were only about 13 million examinations done last year and there are about 60 million women in the susceptible age group.

Mr. FLOOD. Then we are not getting to them, are we?

Dr. CHADWICK. Not sufficiently, no. There is still a great deal to be done. Of course, we are trying to target our efforts to getting the people at highest risk.

Mr. FLOOD. Is that an age bracket?

Dr. CHADWICK. Well, no, it is found that the lower socioeconomic groups apparently are more susceptible to cervical cancer.

Mr. FLOOD. Why is that? Body health and sanitation?

Dr. CHADWICK. That is probably part of it, and inadequate postnatal care is another important factor.

This year we are field testing the flexible proctosigmoidoscope which I showed you last year. This instrument we feel will greatly improve the early detection of colon rectal cancer. We are developing plastic fibers to replace the more expensive and breakable glass fibers in the present instrument. We are also developing other flexible endoscopes

for detecting cancers and other disorders of the lung, larynx, esophagus, and stomach.

FLEXIBLE ENDOSCOPES

Mr. FLOOD. On the flexible endoscopes that go into the lung, larynx and esophagus, they actually have a light and can take moving pictures.

Dr. CHADWICK. At the moment we are just using them for visualization; just for looking through, but ultimately perhaps one could develop a photographic recording of the picture.

Mr. FLOOD. On the esophascope this is being done, isn't it?

Dr. CHADWICK. In the conventional esophascope you are quite right, but the major difference in this instrument is the greater flexibility, the greater length that we are able to get with this instrument, and the somewhat less trauma to the patient because of its flexibility and its somewhat smaller diameter.

You see, one of the difficulties, for example, in lung cancer, is the fact that our conventional methods of detecting lung cancer simply don't tell you where the cancer is. For instance, when we do sputum cytology, which is analogous to the Papanicolaou or cervical smear test for cancer of the cervix, you find abnormal cells but you don't know where the lesion is. The abnormal cells come out in the sputum but you don't know where they come from.

Mr. FLOOD. In the insertion of this flexible endoscope, is it necessary to use an anesthetic?

Dr. CHADWICK. It is not.

Mr. FLOOD. Did you ever have one inserted without an anesthetic?

Dr. CHADWICK. No, sir; I haven't had one inserted.

Mr. FLOOD. Well, don't. I mean an anesthetic of some kind. I don't mean being completely knocked out, but a pill or something will help.

Dr. CHADWICK. They often do some deadening in order to make it less traumatic.

In 1968 the deaths from cancers within the range of these endoscopes will total 125,000.

BREAST CANCER

In breast cancer, from which 28,000 women will die this year, we are stimulating the use of mammography as an adjunct to early detection efforts and——

Mr. FLOOD. You are stimulating it? How? Is there enough intelligence getting to the women on tests of this kind?

Dr. CHADWICK. As I indicated earlier, we have an educational effort. I must say that the message has not fully gotten through, there is no doubt about it. By stimulating here, I was referring to the support that we are giving to mammography projects.

Mr. FLOOD. Can you go into high schools and colleges?

Dr. CHADWICK. In the educational effort, you mean?

Mr. FLOOD. Yes.

Dr. CHADWICK. Oh, yes.

DETECTION BY USE OF THERMOGRAPHY

At the same time, we are testing and developing various applications of thermography and xerography to improve the early detection of breast cancer.

Mr. FLOOD. What are they?

Dr. CHADWICK. Thermography is heat mapping. I have brought with me a couple of examples of thermograms. The thermogram is mapping of the variations of heat pattern on the surface of the skin.

This is a normal pattern, of a normal breast (indicating) with a thermogram. You can see largely a homogeneous pattern of the dark and the light. The dark being the relatively colder, the light spots being the relatively warmer spots. These dark areas are at the level of the nipple and this is just a marker that is put on so it is easier to read.

This is a thermogram on a patient who had no other evidence of anything wrong in her breast. In other words, physical examination after this thermogram showed a little bit of thickening in this area, but something that would have been quite easily missed. On this film you can see it very, very clearly. It doesn't take any expert to read this at all. Here is the area of abnormality. This woman was operated on and even at surgery it looked like a regular cyst rather than a cancer. When the pathological examination was done on the tissue removed, cancer was found and the woman was brought in several days later and had the radical operation done.

Mr. FLOOD. This is thermography?

Dr. CHADWICK. Yes, sir.

Mr. FLOOD. Similar examinations are made by radiation. In that case if and when there is anything wrong it shows gray or dark and in direct ratio from gray to dark the serious problem is indicated. Why isn't that better than the thermoscope?

Dr. CHADWICK. First of all, in order for a radioactive material test to be used, the particular lesion that one is looking for has to pick up the radioactive material. In breast cancer there is no radioactive material that is selectively picked up by a breast cancer.

To take another example, in the case of thyroid cancer, it is possible to diagnose thyroid cancer and particularly to look for the metastases of thyroid cancer because many thyroid cancers pick up iodine. You can give radioactive iodine and be able to see the location of the tissue that picks up the radioactive iodine.

Mr. FLOOD. What does the term metastases mean with reference to cancer?

Dr. CHADWICK. It is the spread of the cancer from one part of the body to another.

I have another illustration of thermography. Another of our programs is in arthritis. This is a very interesting picture. The first two show you just the difference between a normal thermography pattern in the legs and an abnormal thermographic pattern.

The normal shows a more or less homogeneous appearance and this is the——

Mr. FLOOD. The witness is now showing the committee a thermography photograph which depicts the back of a human leg and indicating what?

Dr. CHADWICK. Indicating at the area of the knees and the ankles the bright appearance, the light appearance, which means greater heat and therefore greater blood flow, and, therefore, the inflammatory process of arthritis.

This third one over here is a very interessting patient who had some symptoms of arthritis in her knees. Here you can see some lightening in the area of the knee on the thermograph.

However, when they took the thermogram, they noticed some lightening in the left ankle. At that time, however, she was having no symptoms of arthritis in her left ankle. However, several weeks later she went on to develop symptoms of active arthritis in her left ankle which suggests this would be a technique——

Mr. FLOOD. Are these pictures difficult to take?

Dr. CHADWICK. Well, this is one of the problems right now, working out the technique and getting this procedure so that it can be used on a wide scale. We are supporting by contract a project to study this technique.

Mr. FLOOD. Do you have to go to a hospital to have it done?

Dr. CHADWICK. Yes, sir. There has to be a special room in which the temperature is carefully controlled because obviously variations in outside temperature would affect the temperature of the skin.

Mr. FLOOD. Is it expensive?

Dr. CHADWICK. At the moment it is a relatively difficult examination, but we are trying to work out the technique so it can be used on a more mass scale.

Mr. FLOOD. It has value for the detection, even before the patient is aware of a condition like arthritis?

Dr. CHADWICK. Absolutely; yes, sir.

In heart disease coronary intensive care units in over 400 major hospitals are proving their life saving potential and we are currently testing methods for providing similar services in small hospitals.

Studies to determine if increased physical activity will help reduce the frequency and sererity of cardiovascular disease are being conducted at Pennsylvania State University and the Universities of Minnesota and Wisconsin. Out of 3,000 men examined at these centers, 400 who were considered more likely to develop heart disease in the future are participating in a supervised physical activity intervention study.

RELATIONSHIP TO REGIONAL MEDICAL PROGRAM

Mr. FLOOD. Why wouldn't this be part of the developing heart, cancer stroke program

Dr. CHADWICK. This would be if it could be shown that this is an effective technique. You see, this is the difference between our activities and those of the regional medical program. We are working to develop techniques which, if shown to be successful, can then be applied through the regional medical program. At the moment, however, there is not universal agreement that a program of physical activity will in fact protect against heart disease. We have shown through epidemiological studies that people who are most physically active get less coronary heart disease than people who are less physically active. I hope I said that right. The more physically active get less. Let me repeat that.

The more inactive people get more coronary heart diseases; they are more likely to have a heart attack. The more active people who in their jobs, for example, have more physical activity, are less likely to get a heart attack.

Mr. FLOOD. The term "sedentary" comes in there.

Dr. CHADWICK. The sedentary people tend to be the ones who have higher likelihood of having a heart attack.

I would certainly urge a regular program of physical activity on everyone. I follow that practice and recommend it for everyone.

Mr. CASEY. Isn't that something that should be built up slowly? I see some of these fellows out here on the road now, some of them look older than I am and appear to be in terrific agony jogging down the street and look like they are about ready to drop dead.

Dr. CHADWICK. I think you are quite right. In other words, a physical activity program is one that should be carefully planned for the proper buildup to a maintenance level. Most of the well-recognized plans, like the President's Council on Physical Fitness plan, and the Canadian Air Force fitness plan—these are two of the most common ones that are used—those both provide for a gradual buildup to a maintenance level. When you first start on these programs, the amount of exercise seems ridiculously small, but this is purposely done so that the individual starting out won't sustain some kind of injury or disability because of the program itself.

Mr. CASEY. We had a doctor who dropped dead in Houston playing handball.

Dr. CHADWICK. It is well known that in a person highly susceptible to a heart attack, a period of intense physical activity may very well bring on the heart attack because, of course, it places an extra demand on the heart.

KIDNEY DIALYSIS

In kidney disease the expansion of 12 home dialysis centers is extending this lifesaving procedure to more patients in their own homes at lower costs. These centers are also looking for ways to improve home dialysis.

Mr. FLOOD. In the Department of Defense Subcommittee for 20 years I have watched the development of weapons and weapons systems, hardware and electronic devices for intelligence and for other purposes. The first electronic computer I saw at the end of the war was as big as this room, a Rube Goldberg thing. Now, you can almost put them in your pocket. What are you doing on miniaturization of these kidney hardware items?

Dr. CHADWICK. This is an important area of development and indeed, part of our program——

Mr. FLOOD. Miniaturization, the space people are doing it. What are you doing?

Dr. CHADWICK. Actually most of the fundamental studies on improvement of the gear are being done by the National Institutes of Health or through their grant programs. The National Institute of Arthritis and Metabolic Diseases has supported studies in this area.

We are working with the different kinds of devices to see whether in fact they will operate in the setting, for example, of the patient's home.

Mr. FLOOD. What is a home dialysis center?

Dr. CHADWICK. The home dialysis center is a medical center that trains patients to do the dialysis in the home. In other words, the patient comes into the center, is stabilized by the center in terms of his renal situation, and then——

Mr. FLOOD. Do you train members of the family?

Dr. CHADWICK. Yes, but generally it is found it is best to train the patient himself, because if you train a member of the family and not the patient, this creates rather overdependency.

Mr. FLOOD. Why don't you train both?

Dr. CHADWICK. We do train both, but I wanted to emphasize this point, that the patient really can be quite independent when he is trained to use home dialysis.

In the area of neurological and sensory disease we are studying ways of evaluating voice-sound patterns as a diagnostic and early detection tool for benign and malignant tumors of the larynx.

While working to improve individual disease-detection procedures, we are also concerned with bringing these procedures together in multi-testing systems to expedite early detection in group practice, in clinics and in hospitals. Over the past several years we have achieved successful automation of a battery of test procedures for adults which are already saving hours of scarce physician time. This year we are testing and evaluating automated procedures for detecting diseases in younger age groups.

PROGRAM INCREASES, 1969

The increases we are seeking this year will expedite our preventive efforts in specific areas as follows:

Arthritis.—The consensus of leading experts in the field fully supports the results of our cost-benefits analyses described last year. As you may recall, these studies show that intensive application of the best of what is now known about treating this disease can delay crippling for periods up to 5 years. With public apathy as the apparent primary deterrent to effective programs we are seeking an increase of four positions and $467,000 to show what can be done utilizing this approach.

In respiratory diseases gratifying results from intensive early treatment of children with cystic fibrosis have convinced leading researchers that applications of like procedures to children's pulmonary disorders will be equally productive in preventing serious pulmonary complications from occurring when they reach adulthood. Ten positions and $584,000 are requested for the continuation of this program initiated in 1968 and for intensification of our developmental efforts in adult respiratory diseases.

In smoking and health we are continuing to work to develop better ways of helping people who wish to give up smoking. We in the Public Health Service are convinced that the potentially most effective preventive effort for several of our major killers and disablers would be a reduction in the use of cigarettes by the public. We are requesting an increase of five positions and $500,000 in order to augment activities in smoking and health in four areas. In order to counteract the pressures on youth to take up smoking we need to prepare additional educational material utilizing the results of ongoing research. We must increase our efforts to develop better methods to assist adults who need to give up smoking cigarettes. We need to work with physicians and other health professionals to improve their effectiveness in helping people to give up smoking. Finally, we need an increased capability to provide the public with the information, educational materials, and consultative services which they demand.

We are also requesting 16 positions and $250,000 for planning and initiating a nutrition action program in the Public Health Service. The initial thrust of this program will be to investigate the nutritional status and problems of the poor and recommend appropriate corrective action.

We feel that these increases are necessary to permit continued progress in the development of public health programs for preventing early death and disability from chronic diseases. I will be happy to answer any questions you may have.

CYSTIC FIBROSIS

Mr. FLOOD. Have there been any particular developments since this subcommittee last year indicated a special concern with the problem of cystic fibrosis, or is 1 year too short a period?

Dr. CHADWICK. Well, results in terms of activities, but not results at the moment in terms of improvements in disease pictures.

We are initiating a program of children's pulmonary disease centers with $438,000 that was earmarked in the budget last year.

Mr. FLOOD. And this is certainly progressing from a few years ago.

Dr. CHADWICK. Absolutely, and this should greatly improve the treatment of children who have these chronic respiratory diseases.

SUMMARY OF 1969 BUDGET REQUEST

Mr. FLOOD. Your budget for 1968 is $27,837,000. The request for 1969 is $29,779,000. That is an increase of $1,942,000 and 35 positions.

NUTRITION RESEARCH

The $250,000 and 16 of the new jobs you are requesting are for—

Initiation of a domestic nutrition program which will plan projects aimed at assessing the prevalence and the causes of malnutrition and stimulate additional research.

Now, we know and the Congress knows that the Department of Agriculture for some time, very efficiently and very well, has been conducting research in nutrition. So has the National Institute for Arthritis and Metabolic Diseases. These programs are very good and cost a lot of money. Why do you want another program to do exactly the same thing that is being done so well with so much money by so many people in these other agencies?

Dr. CHADWICK. A fair question, sir. Actually no one else would be doing exactly what we propose to do with this program. The National Institutes of Health is doing basic research on nutrition; finding the basic relationships between nutritional disorders and health. What we would be planning to do is to look at people in the community and find out whether they are suffering from nutritional disorders, how many are suffering from what kind of nutritional disorders, and what kinds of programs would be necessary in order to correct the situation. This is different from the basic research side of it.

The Department of Agriculture looks at what kinds of food people are buying. We are going to look at the people themselves, and examine the people for nutritionally-based disorders.

Mr. FLOOD. You are talking about quite a program.

Dr. CHADWICK. I quite agree this is quite a program for this small amount of money.

Mr. FLOOD. The trouble is it will grow to be a bigger problem with a bigger amount of money.

Dr. CHADWICK. Hopefully, if we can find out how to do it, if we can find out how nutritional surveys can be carried on, how one can best look at a community and find the people who are suffering from nutritional disorders, and how to do something about it, then other people with other funds perhaps can apply the results of our knowledge. When I say "other people with other funds" I am thinking specifically of the State and local health departments utilizing funds through Section 314 and other sources of help.

Mr. FLOOD. I know, Doctor, but this is the 1969 budget. You know the situation. You should. This must be done now, this year, in this budget? Don't tell me you have waited too long to do it already. I have heard that time and time again. "This is so vital to the health, safety and welfare of the Nation that this money for a new program must be appropriated now in view of the situation."

Dr. CHADWICK. Well, we feel that it is, Mr. Chairman.

I hate to use the cliché that you have already referred to, namely, that we have waited too long already, but unfortunately, cliché though it is, it is a fact. The basis for our program is a group of people who have been doing nutritional surveys in foreign countries through the auspices of AID and similar programs. It is a rather paradoxical situation that here we have a team that has been doing surveys in other countries, when we haven't done this kind of thing in our own country.

Dr. STEWART. You are probably aware, Mr. Chairman, that there has been a small group of people at NIH who have carried out nutritional surveys in other countries for the Department of Defense. It was solely financed by the Department of Defense and AID. These were nutritional surveys of the population in regard to the Armed Forces of that particular country. This has been going on for many years.

Last year there were some superficial surveys—in the sense they didn't cover all the population, but these studies in southern rural areas disclosed anemias and other signs of malnutrition among children. We were asked, would you find this in other areas of the country, and we had to say we don't know.

Mr. FLOOD. Who asked it?

Dr. STEWART. The Congress asked in hearings.

Mr. FLOOD. That is a good source of inquiry, isn't it?

Dr. STEWART. We were able to provide reports on the nutritional status in Thailand and in many other countries, which have been carried out by this very competent group, but we were unable to provide this for our country.

The type of survey is different than what Agriculture does. Agriculture usually looks on how balanced is the diet one takes in and do you have the seven basic foods. What we are talking about is what is the protein level, the blood count and this sort of thing, that is the result of malnutrition. The technique used was developed by the expert committee of the World Health Organization and the man who is heading this program is a member of that expert committee. This is the background of this nutrition program.

Mr. CARDWELL. I would like to add that in the inquiries made by Congress, there was an amendment last year which does require that we begin immediately in HEW in collaboration with the Department of Agriculture to undertake studies in this area. In fact, we are launching one this year.

Mr. FLOOD. What are you using for money, cigar store coupons?

Mr. CARDWELL. We are going to propose to Congress a reprograming of moneys affecting both the Office of Education and the Public Health Service.

Mr. FLOOD. You are going to propose it when?

Mr. CARDWELL. There is a letter which is going to be sent to the Congress by the Secretary. It should arrive here very soon.

Mr. FLOOD. To the Congress? You are talking about appropriated money. That is the business of the Appropriations Committee, isn't it?

Mr. CARDWELL. In fact, the letter would be addressed to you, Mr. Chairman, as chairman of this subcommittee.

ARTHRITIS CENTER PROGRAM

Mr. FLOOD. You are requesting an increase of $470,000 and four positions to start an arthritis center program. Tell us what you plan in 1969 and what we might expect in future years for such a program.

Dr. CHADWICK. I will be glad to supply a writeup for the record if you wish, but very briefly I have referred to the cost-benefit analysis that was done.

The problem that we see in arthritis is that the knowledge we presently have about the treatment of arthritis is not being applied. We think that if we could mount a demonstration program in a number of centers throughout the country that would show in a very concrete way on actual people what can be accomplished by aggressively applying the knowledge that we have now on arthritis that this would——

Mr. FLOOD. You have to understand the average man on the street says, "This is an incurable condition."

Dr. CHADWICK. And nothing can be done about it. You are exactly right. Somehow we have to get over that. We are not saying we can cure arthritis, but what we have shown in limited studies is that you can delay the onset of disability.

Mr. FLOOD. There are various types and kinds of arthritis, as there are of cancer?

Dr. CHADWICK. That is right.

Mr. FLOOD. What about tennis elbow?

Dr. CHADWICK. This is a posttraumatic arthritis.

Mr. FLOOD. As a result of trauma?

Dr. CHADWICK. Yes.

Mr. FLOOD. Always?

Dr. CHADWICK. Well, it is trauma in the sense that this active kind of exercise is trauma. I didn't mean trauma in the sense of somebody hitting the elbow.

Mr. FLOOD. There is just trauma because of movement?

Dr. CHADWICK. Yes; trauma because of very severe usage of that joint.

Mr. FLOOD. Much of this cost is going for things other than personnel. I would like to show for the record what the $470,000 actually

covers. Have the record show that. Obviously this isn't all for people.

(The information requested is as follows:)

Three and one-half million Americans are disabled with 2.1 million limited in their major activity by arthritis. More than $3.6 billion is estimated to be the annual cost of this disease. It is, therefore, imperative that action be taken to deal effectively with the problem.

Data from a few clinics suggest that disability among rheumatoid arthritics can be delayed at least 5 years by the vigorous application of what is presently known about the treatment of this disease. Confirmation and application of this finding would bring enormous benefits, not only in the relief of suffering, but also in additions to the economy resulting from the additional years of productive life which arthritis patients would receive. What is needed now is a pilot demonstration program in a patient population adequate to clearly show the medical community what can be accomplished. Model arthritis treatment programs established in medical centers could conduct the necessary clinical studies and train the necessary medical and allied health personnel.

The requested increase of $467,000 will provide $425,000 in contract moneys to initiate one model arthritis program in a medical center. In addition it will provide $42,000 in salaries and associate staff costs for the four new positions that have been requested to insure the center program is effectively planned and initiated to achieve maximum benefit.

ECONOMIC BENEFITS OF ARTHRITIS PROGRAM

Mr. FLOOD. How did you calculate there would be a return of about $40 to the economy for each dollar spent on this program.

Dr. CHADWICK. This is based on a relatively easy and straightforward calculation, based on the assumption that you can delay the onset of crippling and disability in arthritis by 5 years. You can then calculate the income that would be produced by an individual during that 5 years in which he would still be productive rather than disabled by arthritis, and this is the calculation fundamentally that went into this 40-to-1 ratio. The cost of treating a person against the economic return from that individual during the additional 5 years of productive life that he would have.

RESPIRATORY DISEASE CONTROL PROGRAM

Mr. FLOOD. The largest increase you are requesting is 586,000 and 10 jobs for the respiratory disease control program. Suppose you got that increase, what would you do with it and what would happen if you didn't get it?

Dr. CHADWICK. This would be in two areas. One is to carry forward the program we have initiated this year of the pediatric pulmonary centers. We referred to that just a few moments ago. We have initiated it this year and part of the funds in the increase this year would permit us to move that forward. You see, we were only able to start two centers with the funds that were available in fiscal year 1968.

Mr. FLOOD. What would you do with this request?

Dr. CHADWICK. We would add at least another center with the funds and possibly two. It would depend again upon how much the cost would be——

Mr. FLOOD. How do you pick areas A, B, or C for such a program? How do you decide the location of one of these centers?

Dr. CHADWICK. We invite proposals from qualified people, or anyone. In other words, we invite people to propose to do the work under this contract.

For example, in our present effort, we have 16 proposals that have come in for the two contracts that we will be able to let for children's pediatric pulmonary centers. We will then get a group of experts in to help us review those applications; not to select one because that is our authority, but we will ask them to help us review these and the choice will be made on the basis of the two that seem to be the best.

Mr. FLOOD. There is no chance of it winding up in one geographic center?

Dr. CHADWICK. No, sir; this is another criterion.

Mr. FLOOD. Another thing would be the lowest bid, would it not?

Dr. CHADWICK. I think you are quite right. In other words, part of the purpose of this program is training physicians in the community and also showing other medical centers and so on what can definitely be done, and so there is a high premium placed on seeing to it that there is adequate geographic distribution of these centers. This one of the reasons why two centers are inadequate.

Mr. HULL. How do these folks find out about this? How do you get the word to them to bid on these various and sundry things?

Dr. CHADWICK. There is a variety of ways we do this, but the most effective way is through the organizations that are concerned in these disease areas.

For example, when we knew we had funds for the pediatric pulmonary centers, we went to the organized groups that are dealing in this general area.

Mr. HULL. What organized groups are you referring to?

Dr. CHADWICK. The Academy of Pedriatics is one that knows where the groups are in the country that have special competence in the area of pediatric pulmonary diseases. The Cystic Fibrosis Foundation, has been working with pediatricians in the pulmonary area because of the pulmonary manifestations of cystic fibrosis. The National TB Association and the American Thoracic Society are familiar with the people who know the most about these diseases.

Mr. HULL. Are they all in one area? Are they in the East, West, South, or North?

Dr. CHADWICK. They are national organizations, as you know, sir. The Academy of Pediatrics is actually based, if I recall, in Evanston, Ill. The others are based in New York. But, of course, they have chapters and organizations throughout the country.

ARTIFICIAL KIDNEY PROGRAM

Mr. FLOOD. In your direct statement and in connection with some of my questions we have already discussed the artificial kidney program.

Mr. CHADWICK. Yes, sir.

Mr. FLOOD. The committee would like you to develop this further for the record. This subcommittee is very prideful about having had a part in the initiation and development of the artificial kidney program. So we also quite naturally have a particular interest in the current status and the view ahead. And in this additional material I want you to show to what extent are other Federal funds available, and even more particularly what is the availability of non-Federal funds for the artificial kidney program.

Mr. CHADWICK. Yes, sir; we will be very happy to supply this for you.

(The information follows:)

The provision of end-stage kidney disease treatment to the 9,000 new patients who require it each year, as well as the carryover from previous years, presents a formidable problem to medical, governmental and community leaders in the United States. The artificial kidney has now been proven a valuable addition to our medical arsenal for maintaining health and saving lives. A key role in this development was the recognition by the Subcommittee on Appropriations of the medical implications of successful demonstration of the practicality of the artificial kidney. Spurred by federally-sponsored programs, about 125 hospitals in this country are now providing artificial kidney treatment and a survey conducted in February 1968, indicated that more than 1,100 patients are receiving this care. Approximately half of these patients are receiving care partially or totally from Federal Government sources and support for the remainder comes from a variety of personal and public sources.

Federal grant funds authorized to demonstrate the use and effectiveness of artificial kidney machines in community hospitals resulted in the establishment of 14 centers during the period of 1963 to 1965, under the Community Health Services and Facilities Act. These centers have treated over 400 kidney patients to date, of which 312 were receiving artificial kidney treatment at the end of December 1967 and others had received kidney transplants. Thirteen of these centers were still receiving grant support when the Comprehensive Health Planning and Public Health Service Amendments of 1966 were enacted and have been continued under these funds.

The subcommittee's continuing interest in this problem resulted in increased appropriations in fiscal year 1967 and 1968, $3,000,000 and $2,162,000 respectively, in direct operating funds for the establishment of centers to train patients in the practice of kidney dialysis in the home environment. Twelve training centers were contracted with the new 1967 funds and were continued and provided with expanded capability with the 1968 appropriation. By June 30, 1968, the completion of their first full year of operation, these centers will have trained and placed approximately 120 patients in the home. Furthermore, detailed cost information regarding the conduct of this kind of dialysis program will be available within the next year.

Severe restraints to the development of a nationwide artificial kidney treatment program have emerged in the form of inadequate financial support for this very expensive therapy and inadequate number of medical and paramedical individuals who are trained in the regime and techniques peculiar to artificial kidney treatment. Two projects, one on the east coast and one on the west coast, have been funded to provide organized, intensive training for physicians, nurses, and technicians, in artificial kidney techniques and procedures. To date, about 70 qualified individuals have been trained by these centers and comprehensive training manuals on the requisite procedures to be followed by members of the dialysis unit team are in the process of preparation.

The financial problems derive from the magnitude of the resources that are required, and the multitude of organizations and interested parties which must collectively collaborate in the development of a sound financial plan. While funding the cost of artificial kidney treatment does not appear to be an insurmountable problem in all cases, a careful development of resources is a prerequisite to meeting the financial needs of a dialysis unit. This has proven to be a very difficult problem at the local level. One of the most successful and oldest centers in the country is now experiencing difficulty in maintaining the level of community support which is required for successful operation. On the other hand, one Federal grantee, early this year, has identified a substantial future level of support for a relatively large portion of his operation through the combination of several Federal and private sources. Operating in a State with relatively liberal attitudes in respect to indigent care, this grantee, with the help of State and local assistance, has assembled a multifund package for the future, incorporating title XIX of the Social Security Act, vocational rehabilitation funds under the social and rehabilitation services program in his State, the Veterans' Administration for qualified patients, and funds from foundations, hospitals and third party payment programs (that is, health insurance).

The use of Federal and private funds in the support of artificial kidney treatment was recently examined by a special committee chaired by Carl W. Gottschalk, M.D., and comprised of authorities drawn from a variety of disciplines (economics, medicine, public administration, and others). This group developed recommendations for a far-reaching Federal program which has served as the

basis and stimulator to legislation which has been recently introduced (H R. 14901, H.R. 14937, and S. 2882). The committee felt that the magnitude of the problem limits successful resolution to the Federal level as the only level possessing the scope and size of resources necessary to solve the problem. It was their judgment that no present source of Federal funds constitutes a broad enough base for an attack on kidney dialysis funding needs in this country. Appropriation size, restrictions on use, or other limitations prevent either attacking the problem in the breadth required (numbers of patients), or the depth necessary (length of treatment) to present a rational solution to national needs. Similar defects in private sources of support (primarily insurance) were observed and the prospect for health insurance completely covering the required care in the future did not appear promising. The special committee considered the Department of Health, Education, and Welfare, crippled childrens program, vocational rehabilitation, Veterans' Administration, Medical Dependents' Care of the Department of Defense, Public Health Service's regional medical programs, title XVIII and title XIX programs of the Social Security Administration, as well as private insurance.

The crippled childrens program supports high-quality care for eligible children for disability costing from several hundred to several thousand dollars. Most of the treatment provided is of limited duration. At present, children under age 15 are not considered suitable candidates for long-term kidney dialysis therapy. The Vocational Rehabilitation Administration provides services essentially for restoring disabled persons to the labor force. Eligibility for service terminates when the restored worker returns to work. A key element of hemodialysis therapy is that the patient is usually able to work, and indeed responds better to such treatment when he can return to near-normal pursuits, while continuing periodic dialysis. The Veterans' Administration can now accept patients from the general population on a space-available basis and if compensated for the care. However, veteran patients are in excess of the available Veterans' Administration facilities. The regional medical programs of the Public Health Service were not designed to directly provide patient care. Title XIX (medicaid) of the Social Security Act requires that the patient be, or become, medically indigent for coverage. A patient is unlikely to inflict continuous penury on his family in order to obtain long-term dialysis therapy for one member, particularly when his basic disease remains a threat to life. In addition, there are wide variations in the provisions of the medicaid programs in those States that have activated their title XIX programs, which influence their suitability for support of this form of medical therapy. Provisions of title XVIII (medicare) provide financial assistance to eligible persons 65 years of age and over. Aged persons are considered by physicians to be the least appropriate candidates for end-stage artificial kidney treatment. Other provisions of medicare relative to the intervals required between covered illnesses are not responsive to the continuing repeated dialysis needs of most end-stage kidney patients.

Intense and continuing attention on the part of the Center for Chronic Disease Control is being exerted to educate and modify restraints in Federal programs and to identify alternative sources of Federal support for kidney dialysis treatment programs. Staff of the kidney disease control program are maintaining close liaison with key members of the programs mentioned above to insure that a cooperative attack on the kidney disease financial problems is earnestly followed through wherever possible. This close relationship is serving to stimulate a mutual interest in those localities and conditions within which common goals for coordinated solutions to disease treatment needs can be achieved. Concomitant with our efforts to develop Federal resources, widespread inquiry into non-Federal support are being mounted jointly with the directors of dialysis programs, hospital administrators, volunteer and private agencies and individuals, and governmental authorities at all levels. The kidney disease control program is devoting an increasing share of its staff resources in working with these groups in the quest for private assistance in solving the financial dilemma of artificial kidney treatment.

In November 1967, the program conducted a telephone survey among the eight privately financed dialysis programs in this country which, at that time, had eight or more artificial kidney patients. The survey, to identify the relative sources of private support for patients, revealed the following with respect to 143 patients. Of the total private support of patients available in the seven hospitals which responded:

46 percent was from health insurance.

19 percent from private foundations, including fundraising organizations.
15 percent was from State and local funds, including 17 medicaid patients.
13 percent was from patient's personal funds.
6 percent was from the hospitals involved.
1 percent was from private donations.

These programs, by necessity, have limited themselves in patient selection to those individuals who had either private or insurance resources of sufficient magnitude to finance the care. They are not, therefore, representative of the greater number of patients in this country who, unfortunately, do not have such resources at their command. Furthermore, concern has been expressed regarding the future of these programs and their patients, when the insurance provisions are exhausted as they inevitably must be. Even the broadest and most extensive insurance coverage can provide dialysis care for a limited period of time (1 to 2 years); and, unfortunately, in most instances it will not compensate for the less expensive home dialysis treatment. There is some indication, however, that efforts to alter this restriction regarding home dialysis may be successful at least in some cases.

From the time of the first grants for the demonstration of community artificial kidney programs, we have sought to be alert to the necessity of generating other funds to support the treatment of patients beyond the life of the grant. Written guidelines to the grantees prior to grant submission emphasized the importance of early community participation in the development of financial support in order that the continuation of the project would be assured when Federal funding was withdrawn. The kidney disease control program has urged each grantee to employ a qualified financial administrator in the dialysis program to assist not only in efficient management, but fundraising and efforts designed to assure continuation as well. Most of the grantees have followed this suggestion. In addition to these efforts, and the interagency collaboration noted earlier, we have taken the following steps directly through regional or other offices:

1. Through the dissemination of materials and consultation we have attempted to educate and alert responsible State and local officials to the problems and the requirements of ongoing and potential programs in their area.
2. We have incorporated detailed costs studies into the present projects to identify the size of the different costs involved, as well as to assist in the establishment of cost categories which would qualify for other Federal, State, or private support.
3. We have extended increasing staff guidance to individual artificial kidney units in the identification of impending financial difficulties and possble opportunities for solution.
4. We will soon be funding a project to obtain in-depth identification and analysis of the various resources on a State-by-State basis, which can be brought to bear on the artificial kidney treatment problem, and to analyze means of activating this support nationally.
5. We are supporting a project to develop a plan for a comprehensive State kidney disease program, which will include the means of determining local needs, of providing services through coordination of medical resources, and to identify potential sources of support. It is our hope that this type of plan will be of assistance to other States or health planning jurisdictions in attacking the kidney disease problem.
6. We have funded a project to develop a plan for a model artificial kidney treatment program in a rural State, which we hope will also serve as a prototype for States with similar geographic problems and medical resources.
7. We are attempting through the development of materials and direct contact, to educate the health insurance industry regarding the need and specific requirements of treatment programs for end-stage kidney disease.

SUMMARY

We are, unfortunately, confronted with the fact that there is not yet in existence in this country a reliable public or private mechanism geared to the support of widespread artificial kidney treatment. Many of the elements are present and with concerted, cooperative efforts it may be that they can, in time, be interlaced so as to make the medical and social solution to this problem possible. In the meantime, each dialysis program director has the difficult task of trying to convince the many local resources and agencies to assist him in developing a workable total funding package. This has proven to be a very difficult task and where

it has been accomplished it has often proven sufficiently tenuous to discourage the responsible physicians from any aggressive expansion.

Several States (California, Washington, Oregon, Illinois, New York, and Massachusetts) have recognized the immensity of the problem and have taken direct steps through State appropriations to assist in the operation and development of programs for the treatment of patients with kidney disease. It is too early to tell whether or not this will set a precedent for other States to follow or whether or not this exercise of local responsibility will develop far enough to meet the requirements of program development. In any case members of the National Center for Chronic Disease Control, as well as the other interested Federal and non-Federal organizations, will continue to exert a maximum effort directed toward the identification and amplification of all sources of support.

ADVANCEMENT OF KIDNEY TRANSPLANT EFFORTS

Mr. FLOOD. With regard to kidney transplants—you are not engaged in that area, are you?

Dr. CHADWICK. We are beginning to see what we can do to help advance kidney transplant efforts. We feel that this shows great promise for the treatment of end-stage renal disease. We feel it would be useful for us to try to stimulate renal transplant in the same way that we in the earlier stages and are now stimulating the use of the artificial kidney.

Mr. FLOOD. Transplants of kidneys have been proceeding for some time.

Dr. CHADWICK. Yes, sir.

Mr. FLOOD. Any many were successful for a period of time.

Dr. CHADWICK. Yes, sir.

Mr. FLOOD. But because of the great publicity of recent months given to the transplant of hearts, there have arisen widespread concerns and discussions about the ethical, moral, and legal aspects of transplants of organs. You are aware of this?

Dr. CHADWICK. Yes.

Mr. FLOOD. Mr. Natcher.

EFFECT OF MAINTAINING 1968 LEVEL FOR 1969

Mr. NATCHER. Doctor, would there be considerable difficulty if you received $27,942,000 for fiscal year 1969?

Dr. CHADWICK. In the future, yes, sir.

Mr. NATCHER. Where would you experience the most difficulty, Doctor? Assuming that your appropriation for fiscal 1969 is the same as 1968. I am not considering the amount under House Joint Resolution 888. Just assuming that it is the amount here of your $27,942,000.

Dr. CHADWICK. In those areas in which we had requested increases there would be a slowdown of progress. For example, the pediatric pulmonary disease program would not proceed. It would slow down because of the fact that we would not be able to start additional centers. We would have the two centers that we started with fiscal 1968 money, but we would not be able to extend this to other geographic areas. The chairman of this committee made the point that geographic spread is so important in this area. In the case of arthritis, we would not be able to initiate the center program, which by delaying disability among sufferers from this disease, promises to return $40 to the economy for each dollar invested.

Going back to the chronic respiratory diseases, we are also planning to initiate a similar kind of demonstration program for adult respiratory diseases. We have made a small start with the $1 million we have in the budget now. We would not be able to extend that and cover more people and more geographic areas.

In the case of our nutrition program, we would not be able to initiate that program. That is a new item that has no funds in the current budget. In the case of our smoking and health program we would not be able to utilize some of our findings in research in helping children to keep from taking up smoking. This is one of the areas we are hoping to concentrate on this year.

We would hope to intensify our efforts in helping health professionals to counsel patients who need to give up smoking. We are doing something in that now.

For example, the American College of Chest Physicians is going to conduct for us a conference on the management of smoking in the doctor's office to try to see how the physican can help patients who need to give up smoking.

We are not going to be able to make as much progress in that area if we do not have the increase. In the case of public information, we are getting a great many more requests for information from the public than our current staff is able to adequately meet. This is something that is very important because when people are concerned enough about it that they feel they need information, for us to not be able to adequately meet that need I think is a rather serious situation. These are some of the areas in which we would be unable to make progress without these increased funds.

Mr. NATCHER. Thank you, Mr. Chairman.

Mr. FLOOD. Mr. Hull?

Mr. HULL. I have no questions, Mr. Chairman.

Mr. FLOOD. Thank you; it has been very interesting.

JUSTIFICATION MATERIAL

PUBLIC HEALTH SERVICE

Chronic Diseases

Amounts Available for Obligation

	1968	1969
Appropriation	$27,942,000	$29,779,000
Comparative transfer to "Mental Retardation", Social and Rehabilitation Services	-1,857,000	---
Unobligated balance for Mental Retardation grants brought forward	1,857,000	---
Total	27,942,000	29,779,000

Obligations by Activity

Page Ref.		1968 Estimate Pos.	1968 Estimate Amount	1969 Estimate Pos.	1969 Estimate Amount	Increase or Decrease Pos.	Increase or Decrease Amount
	1. Grants:	--	$4,052,000	--	$4,193,000	--	+$141,000
11	a. Research	--	3,752,000	--	3,893,000	--	+141,000
13	b. Training	--	300,000	--	300,000	--	---
	2. Direct operations:	944	23,785,000	979	25,586,000	+35	+1,801,000
15	a. Cancer control	222	3,160,000	222	3,160,000	--	---
17	b. Smoking and health	37	2,075,000	42	2,575,000	+5	+500,000
19	c. Diabetes and arthritis control	90	1,720,000	94	2,187,000	+4	+467,000
21	d. Heart disease control	400	6,976,000	400	6,976,000	--	---
24	e. Respiratory disease control	32	1,584,000	42	2,168,000	+10	+584,000
27	f. Neurological and sensory disease control	90	1,660,000	90	1,660,000	--	---
29	g. Preventive services	18	665,000	18	665,000	--	---
31	h. Kidney disease control	55	5,945,000	55	5,945,000		---
33	i. Nutrition	--	---	16	250,000	+16	+250,000
	Total obligations	944	27,837,000	979	29,779,000	+35	1,942,000
	Unobligated balance reserve	--	105,000	--	---	--	-105,000
	Total, obligations and reserve	944	27,942,000	979	29,779,000	+35	+1,837,000

Obligations by Object

	1968 Estimate	1969 Estimate	Increase or Decrease
Total number of permanent positions	944	979	+35
Full-time equivalent of all other positions	64	69	+5
Average number of all employees	845	882	+37
Personnel compensation:			
Permanent positions	$7,862,000	$8,163,000	$+301,000
Positions other than permanent	362,000	395,000	+33,000
Other personnel compensation	34,000	34,000	---
Total personnel compensation	8,268,000	8,592,000	334,000
Personnel benefits	1,116,000	1,145,000	+29,000
Travel and transportation of persons	845,000	945,000	+100,000
Transportation of things	99,000	149,000	+50,000
Rent, communications, and utilities	395,000	425,000	+30,000
Printing and reproduction	70,000	90,000	+20,000
Other services	400,000	450,000	+50,000
Project contracts	11,461,000	12,728,000	+1,267,000
Services of other agencies	584,000	610,000	+26,000
Payments to:			
Public Health Service management fund	128,000	---	-128,000
National Institutes of Health management fund	22,000	---	-22,000
Supplies and materials	186,000	196,000	+10,000
Equipment	221,000	256,000	+35,000
Grants, subsidies, and contributions	4,052,000	4,193,000	+141,000
Total obligations by object	27,837,000	29,779,000	+1,942,000

Summary of Changes

1968 enacted appropriation	$27,942,000
Comparative transfer to "Mental Retardation", Social and Rehabilitation Service	-1,857,000
Unobligated balance for Mental Retardation grants brought forward	1,857,000
Unobligated balance, reserve	-105,000
1968 total estimated obligations	27,837,000
1969 estimated obligations	29,779,000
Total change	+1,942,000

Increases	Base Positions	Base Amount	Change from Base Positions	Change from Base Amount
A. Built-in				
1. Annualization of civilian and military pay raises	---	$ ---	---	$98,000
2. One extra day of pay in 1969	---	---	---	25,000
B. Program				
1. Research grants	---	3,752,000	---	141,000
2. Expansion of smoking and health program	37	2,075,000	5	500,000
3. Expansion of diabetes and arthritis program	90	1,720,000	4	470,000
4. Expansion of respiratory disease program	32	1,584,000	10	586,000
5. Initiation of nutrition program	---	---	16	250,000
Total program increases	---	---	35	1,947,000
Decreases				
A. Built-in				
Nonrecurring contribution to the Public Health Service management fund	---	128,000	---	-128,000
Total net changes requested	---	---	+35	+1,942,000

Explanation of Changes

Research grants

An increase of $141,000 will provide for a total of 47 grants to be supported in 1969, the same number as in 1968. The major emphasis will continue to be in applied research directed toward the development of new preventive measures for the control of chronic diseases.

Smoking and health

A program increase of $500,000 and 5 positions is requested to improve the informational materials for use with children and meet the increasing demand for information and consultative services from the news media and public. Research will also be supported to determine what can be done by physicians and other health professionals to help patients who wish to give up smoking.

Diabetes and arthritis

A program increase of $470,000 and 4 positions will permit initiation of an arthritis center which will determine what can be accomplished with an aggressive therapeutic program started early in the disease process. The hypothesis to be tested is that one to five productive years can be added to the lives of people suffering from arthritis.

Respiratory disease control

A program increase of $586,000 and 10 positions is requested for the full-year operation of the pediatric pulmonary disease control programs, and for projects which will provide multi-disciplinary approaches to applied research, development and training for control of chronic adult respiratory diseases.

Nutrition

A program increase of $250,000 and 16 positions will support the initiation of a domestic nutrition program which will plan projects aimed at assessing the prevalence and causes of malnutrition and stimulate additional research.

Contribution to the Public Health Service management fund

The $128,000 decrease for the nonrecurring contribution to the management fund is due to a change in the method of funding. In 1969, it is proposed to fund Office of the Bureau Director costs directly in the activity, "Bureau program direction and management services", in the Radiological Health appropriation rather than through contribution to the Public Health Service management fund.

Authorizing Legislation

Legislative authority for the award of grants for research and research training is contained in Section 301 of the Public Health Service Act.

Explanation of Transfers

	1968 Estimate	1969 Estimate	Purpose
Comparative transfer to: "Mental Retardation", Social and Rehabilitation Services	$1,857,000	---	These functions were transferred due to agency reorganization.

Introduction

The National Center for Chronic Disease Control provides for the advancement of the Nation's health by preventing and controlling chronic diseases such as cardiovascular diseases, chronic respiratory diseases, cancer, diabetes, arthritis, chronic kidney diseases, and neurological and sensory disorders. Other programs are directed at prevention of chronic diseases by assisting those who wish to stop smoking, and through the development of good health practices such as periodic physical examinations and improved nutrition. The Center is concerned with diseases which include seven of the ten leading causes of death and 12 of the 25 leading causes of disability.

Through applied research, new and improved methods will be developed aimed at the prevention and control of chronic diseases. New technology, as it is developed, is used to adapt specialized processes or procedures so that their application can be made available in communities throughout the United States. Specialized training of health professionals and technical personnel, the establishment of standards and guidelines for the operation of programs, and the provision of services are necessary to accomplish the Center's goals.

A major area of responsibility is the provision of technical assistance, professional consultation and information to States and localities on the conduct of their programs which are financed in part through grants from the Comprehensive Health Planning and Services program.

1. Grants	1968 Estimate		1969 Estimate		Increase or Decrease	
	No.	Amount	No.	Amount	No.	Amount
a. Research	47	$3,752,000	47	$3,893,000	--	+$141,000
b. Training	8	300,000	8	300,000	--	---
Total	55	4,052,000	55	4,193,000	--	+ 141,000

a. Research grants

	1968 Estimate		1969 Estimate		Increase or Decrease	
	No.	Amount	No.	Amount	No.	Amount
(1) Non-competing continuations	39	3,225,000	27	2,651,000	-12	-574,000
(2) New grants	8	504,000	20	1,197,000	+12	+693,000
(3) Supplementals	(3)	23,000	(5)	45,000	(+ 2)	+ 22,000
Total	47	3,752,000	47	3,893,000	--	+141,000

The research program of the National Center for Chronic Disease Control has two major thrusts. First, epidemiological studies are required to clarify and describe the extent and nature of chronic disease as it exists throughout the United States. Studies will be supported to learn the number of cases and newly developing cases of such chronic diseases as heart disease, arthritis, cancer, cystic fibrosis, diabetes, epilepsy, emphysema and kidney diseases. Basic information which shows the distribution of chronic diseases in relation to geographic, environmental, social and economic factors is needed so that programs to solve the attendant problems can be developed and scientifically planned. Behavioral or habit patterns of individuals in relation to the development of disease will be studied. Experimental epidemiological studies to prevent or control chronic diseases through changes in health related behavior or patterns of daily living will be planned and evaluated. The second major thrust requires studies to develop disease detection systems which can screen and diagnose most disease problems in masses of populations on an efficient and economical basis. The approach, of course, allows the people of the United States to avoid the full scale cost of disabling chronic diseases. Studies are planned to use automated systems to screen for and diagnose disease. New efforts will also be made to develop medical instruments suitable for integration into comprehensive disease detection programs.

Projects supported through this program are beginning to report significant findings which will have a major impact on health. Examples of these achievements are in the following areas: better understanding of the effects on health of stressful situations and better methods of measuring and standardizing blood pressure measurements by having subjects wear a blood pressure measurement device during the day in which the changes in blood pressure are automatically recorded and later correlated with the information the subject records in his diary as to his feelings or situation at the time.

The increase of $141,000 requested will allow the Center to support 47 projects, the same number as was supported in 1968.

	1968 Estimate		1969 Estimate		Increase or Decrease	
	No.	Amount	No.	Amount	No.	Amount
b. Training grants	8	$300,000	8	$300,000	--	---

The National Center for Chronic Disease Control will continue to support the training of investigators for research activities concerned with the application of epidemiologic methods to the prevention and control of chronic diseases, and study of the relationship of social problems to the development and treatment of chronic illness.

Eight projects and 31 students are currently supported in the Center Research Training Program. Many more students who are not directly supported receive training from the projects by taking essentially the same curriculum or some portion of it. Research investigations have been started on chronic disease problems such as the extent and nature of the occurrence of leukemia, a comparison of the sick role in chronic and acute disease patients, and the social and psychological attributes associated with obesity. These investigations will be reported in the dissertations of the students. The eight projects will be continued with the funds requested.

2. Direct operations

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
Personnel compensation and benefits.....	944	$9,374,000	979	$9,737,000	+35	+$363,000
Other expenses.....	--	14,411,000	--	15,849,000	--	+1,438,000
Total.....	944	23,785,000	979	25,586,000	+35	+1,801,000

Summary of Program

a. Cancer control.....	222	3,160,000	222	3,160,000	--	---
b. Smoking and health.	37	2,075,000	42	2,575,000	+5	+500,000
c. Diabetes and arthritis control.	90	1,720,000	94	2,187,000	+4	+467,000
d. Heart disease control.....	400	6,976,000	400	6,976,000	--	---
e. Respiratory disease control.....	32	1,584,000	42	2,168,000	+10	+584,000
f. Neurological and sensory disease control.....	90	1,660,000	90	1,660,000	--	---
g. Preventive services	18	665,000	18	665,000	--	---
h. Kidney disease control.....	55	5,945,000	55	5,945,000	--	---
i. Nutrition.....	--	---	16	250,000	+16	+250,000
Total.....	944	23,785,000	979	25,586,000	+35	+1,801,000

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
a. Cancer control	222	$3,160,000	222	$3,160,000	---	---

It has been estimated that about 190,000 cases of cancer are cured annually, and that an increase of 95,000 cases could be cured if existing knowledge and skill were optimally utilized. To do this it will be necessary to continue systematic programs of action against obstacles that have impeded progress in the fight against cancers of specific forms and body sites. These include programs to: (1) improve early detection, diagnosis, and prevention of cancer; (2) find and demonstrate ways of integrating these procedures into all our systems of medical care; (3) improve the cancer awareness of the health professions, and disseminate the most effective cancer knowledges and skills throughout the Nation; and (4) develop a hopeful and positive attitude toward the care and prevention of cancer in the general public.

The major effort of the Public Health Service and others toward the control of cancer of the lung is preventive. Meanwhile, cancer of the lung continues to exact a growing toll. It is feasible to detect cancer of the lung through sputum cytology and it may be feasible to improve diagnosis of suspected early lung cancer through the use of an improved bronchoscope that cancer control began to develop in 1968. In 1969, it is planned to initiate testing of these concepts in cooperation with selected institutions.

The cancer control program for development of X-ray mammography and of training in this procedure for diagnosis of breast disease already is well established. In 1968, evaluations of radiation dosage, of the use of xerographic instead of film X-ray images and of cost reduction proposals will continue. Thermographic mammography - detection of morbidity by heat-mapping of the skin - and application of ultra-sonics to this problem also will come under exploration in contractual projects. Problems of cost and skilled time requirements in all these techniques, and technical uncertainties in the newer modes have as yet prevented these concepts from developing into true initial screening techniques for detecting breast cancer in asymptomatic women. By 1969, the emphasis will shift to field-testing to compare these different techniques as a backup of conventional physical examinations. In 1969, a national conference on control of breast cancer is to be convened under joint sponsorship of the Cancer Control Program, the American Cancer Society, and medical specialty societies to develop agreement on concepts of early detection.

For control of leukemia, the program will emphasize widespread adoption of techniques of blood fraction management that have been demonstrated to be helpful in the care of patients.

Toward the control of cancers of the head and neck, the program is pressing for the integration of proven examination techniques into routine medical practice.

Improvement in control of cancer of the colon and rectum is being sought through promotion of conventional examination techniques, and through evaluation and improvement of the flexible proctosigmoidoscope which has been developed under the guidance of the Cancer Control Program. Evaluation of the prototype instruments in selected medical centers is underway. Simultaneously, engineering studies are being conducted to develop a plastic fiber optical component to replace the glass fiber element in this and other endoscopes. The plastic fibers are expected to have superior flexibility and durability, which will reduce the cost and increase the utility of these instruments.

The feasibility of control of cancer of the uterus through cytological examination already has been demonstrated. In 1968 and continuing into 1969, the continuing work in this area includes extensive public education, work with health professionals to integrate cytological examinations and preventive measures into regular medical practice, and exploration of various means of reducing the cost of examination procedures. Opportunities for reducing these costs may be found, first in improved identification of individuals who are at high risk of the disease, and secondly in reducing the costs of identifying negative cytological test specimens. Both these avenues will be explored further during 1969.

In 1969 also the study of leads to early detection procedures for other cancers will continue. These include cancers of the prostate, the urinary tract and the stomach. Detection of these cancers in asymptomatic stages now occurs largely during examinations for other purposes. The rates of early detection and cure cannot be improved until relatively simple test procedures of known reliability and better definition of high risk groups can be developed. At the same time, the public education program, newly intensified in 1968, will be continued. Progress in the control of cancer will not accelerate rapidly until everyone understands that the hope of cure is strong enough to justify public cooperation in programs of routine examination.

There is no change to this activity because the built-in decrease of $26,000 due to the change in financing of the management fund is offset by built-in increases for the extra day of pay in 1969 and the annualization of civilian and military pay raises.

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
b. Smoking and health	37	$2,075,000	42	$2,575,000	+5	+$500,000

Cigarette smoking exacts a large toll of death and disability in the U. S. population. Yet despite its association with lung cancer, heart disease, chronic respiratory diseases and such other conditions as ulcers and sinusitis, one-half the adult male population and one-third the adult female population continue to smoke. At the same time thousands of youngsters take up smoking each day.

A report recently issued by the National Center for Health Statistics shows that higher rates of disability exist among cigarette smokers as compared with people who have never smoked. They account for 10% of the 853 million bed days spent each year by those age 17 and over, 13% of the 2,369 million days of restricted activity, and 19% of the 399 million workdays lost per year.

If the death and disability rates associated with cigarette smoking are to be reduced and if cigarette-related disease is to be checked, we must reduce the number of persons now smoking, a number which amounts to 50 million adults; encourage young people not to take up smoking (at present almost half the boys and girls in this country have become cigarette smokers by the time they are 18) and we must develop less hazardous smoking. Concurrently, we must help develop a climate of opinion so that as less hazardous smoking is achieved, smokers will accept it.

The National Clearinghouse for Smoking and Health is currently carrying on a program in four major areas. These areas are behavioral research, community program development, work with health professionals, and health information services. All segments of the population--physicians, other health professionals, teachers, civic groups and the general public--are involved.

Continued research into smoking behavior is necessary. It is difficult for people to give up smoking and apparently very easy for young people to begin. We need to know much more about these two processes. A systematic investigation into smoking behavior is now under way by the Clearinghouse.

We will continue to develop better ways to carry out smoking and health programs in the States and in the communities. Today school systems everywhere are busy with teacher training, curriculum revisions and classroom experiences to educate young people to the hazards of smoking. Youth groups, through the cooperative support of

the Children's Bureau, are building smoking education into their programs. Community groups are functioning in virtually every city and county, supported by medical societies, local school systems, health departments, parent groups and voluntary health agencies.

Two community laboratories are now under way to test out various methods and techniques which other communities may be able to adopt later on. One of these, in Syracuse, is new; the other, in San Diego, has been in existence for approximately a year. It was begun under the sponsorship of the San Diego County Medical Society, and now encompasses groups and agencies from throughout the area, including health agencies, school systems, parent groups, industrial organizations, and labor groups.

Work is being initiated to develop an intensified program to increase the influence of physicians, other health professionals and educators on the smoking behavior of their patients and clients. Seventy percent of adult cigarette smokers say they have never talked to a physician about smoking, yet there is evidence that among smokers who have discussed smoking with a physician, the number who give up smoking is significantly higher than among those who have not.

A basic health information program is being carried out by the Clearinghouse involving a continuing surveillance and dissemination of information on the results of medical, behavioral, educational, and program research. The recent FCC ruling, requiring radio and TV to provide more time to information on the hazards of cigarette smoking makes necessary further development of this program immediately.

The increase of 5 positions and $500,000 will be used to augment programs in four areas. In order to contain the pressures on youth to take up smoking we need to prepare additional educational material utilizing the results of ongoing research. We must increase our efforts to develop better methods to assist adults who need to give up smoking cigarettes. We need to work with physicians and other health professionals to improve their effectiveness in helping people to give up smoking. Finally, we need an increased capability to provide the public with the information, educational materials, and consultative services which they demand.

The net budget increase of $500,000 results from a program increase of $500,000 offset by a built-in decrease of $6,000 due to the change in financing of the management fund and $6,000 for other built-in items of increase. These items include the additional day of pay in 1969 and the annualization of military and civilian pay raises.

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
c. Diabetes and arthritis control	90	$1,720,000	94	$2,187,000	+4	+$467,000

(1) Arthritis

Arthritis is the Nation's number one crippler. It costs the United States' economy more than 3½ billion dollars a year. Gradually, it withdraws from active productivity large numbers of otherwise capable people. Conservative estimates indicate that proper application of currently available knowledge can delay onset of disability from this disease by at least five years. Investigation will be continued to improve treatment methods, physician and public knowledge of available resources and understanding of the natural history of the disease.

Major effort will be devoted to the initiation of an arthritis center program which will show what can be accomplished with an aggressive, therapeutic program started early in the disease process in the delay or prevention of disability in the arthritic. The central purpose of the program is the development and evaluation of means for providing exemplary care for arthritics; training and clinical research elements are essential to the accomplishment of that goal. In the first year the operational plan of the center will be finalized, staffing will be undertaken, training programs delineated, and patient care instituted. A center will process three to four thousand patients per year. The physicians trained in the center will initiate clinics that will treat additional patients in surrounding communities. The program is based on the hypothesis that one to five productive years can be added to the lives of people suffering from arthritis, and that such an increase will return about forty dollars to the economy for each dollar spent.

The increase of $470,000 and four positions will provide for the initiation of one arthritis center during the year.

(2) Diabetes

Diabetes is the eighth leading cause of death in the United States. Each year more than 32,000 persons die from diabetes. Additional thousands of diabetics die prematurely from other conditions such as cardiovascular and renal disease caused or aggravated by diabetes. Diabetes in some way limits the activity of nearly half a million Americans. It is, for example, the third leading cause of blindness. There are approximately 1.6 million diabetics in the nation who are unaware they have the disease. An additional 2.8 million persons have medically attended diabetes.

During 1969, major emphasis will continue to be on the improvement of methods for the early detection of individuals with diabetes and on

the improvement of the diabetic's knowledge of how to maintain the regime his physician has established for him. Effort will be devoted to the continuing investigation of the epidemiology and natural history of the disease.

The net budget increase of $467,000 results from a program increase of $470,000 offset by a built-in decrease of $10,000 due to the change in financing of the management fund, and $7,000 for other built-in items of increase. These items include the additional day of pay in 1969 and the annualization of military and civilian pay raises.

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
d. Heart disease control	400	$6,976,000	400	$6,976,000	---	---

The cardiovascular diseases, which include stroke, are the leading causes of death and disability in the United States. In 1966, some 1,017,550 people, or about half of all those who died that year, did so because of these diseases. More than an estimated 1,000,000 man years of restricted activity result from the cardiovascular diseases, and the annual national economic loss from these diseases is estimated to be in excess of $25 billion. Our present state of knowledge does not yet permit effective measures at the community level to prevent all of the cardiovascular diseases but a number of potentially fruitful areas are being investigated, particularly with respect to the prevention of coronary heart disease or heart attacks. This disease is the single greatest cause of death in the United States and is responsible for one-third of all deaths among men between the ages of 35 and 64.

One of these areas which shows promise has to do with the fact that increased amounts of habitual physical activity are associated with a less severe incidence of coronary artery disease. Three physical activity studies, begun in 1967 at the University of Wisconsin, the University of Minnesota and Penn State University, will be continued in 1969 to learn how to motivate high risk individuals to accept planned programs of increased physical activity.

Coronary care unit techniques are essentially based on the monitoring of electro-physiological signals from the hearts of patients during that most crucial period just following a heart attack so that immediate, vigorous treatment such as re-starting the heart, may be begun by trained individuals who are always in attendance. During 1968, in the 13 training centers funded, over 1,000 nurses will be trained in the care of patients with acute myocardial infarction in coronary care units. A similar number will be trained during 1969. Although this number is less than 10 per cent of the trained personnel needed to staff the number of coronary care units that appears desirable in this country, the experience gained in these initial efforts will be invaluable in guiding other training courses in the future.

There are many opportunities to conserve scarce professional time and actually improve the quality of care patients receive by adapting modern computer data processing techniques to coronary care units.

By constantly monitoring and analyzing vital patient data, computers can often alert physicians well in advance of cardiac arrest or a life threatening dysrhythmia. Prototype, automated, coronary care units will be supported in two hospitals. One of these will incorporate a constant automatic computer analysis of patient electrocardiograms, as an integral part of the system.

Efforts will also continue to assist small hospitals to adapt proven life-saving coronary care concepts to their resources and modes of operation. These activities are being supported in four hospitals of less than 200 beds in various parts of the country. Methods and techniques developed in these units will be invaluable for the some 1,500 hospitals throughout the country with fewer than 100 beds, where a large number of heart attack victims are cared for.

The effectiveness of coronary care units could be increased significantly if more patients who need this type of care could be brought to them sooner. During 1969 two coronary reception areas will be set up adjacent to already established coronary care units to develop and evaluate procedures to identify, admit, and monitor heart attacks much earlier in the course of the event.

Hypertension is the most frequently found condition of all the cardiovascular disorders and is itself a significant cause of death and disability as well as being heavily incriminated in the causation of coronary disease and stroke. The detection, diagnosis and management of people with high blood pressure in the community represents a continuing and increasing need. Particularly important is the need to understand the mechanisms of elevated blood pressure so that patients can be effectively treated. The program will continue to support expert medical committees to define the criteria to be applied to those who have elevated blood pressure levels, relative to their management by medical and surgical techniques. The evaluation of different types of community programs to support the continuing therapy and management of the hypertensive patient will be continued.

Cerebrovascular disease, frequently a result of high blood pressure, is a condition which occurs so frequently that few families escape its impact. Statistics indicate that there are over 400,000 new stroke patients each year, yet little is available in most communities for the prevention of the disease or the care of victims of this third most frequent cause of death. Research will continue in acute care techniques for stroke victims - similar in some respects to the techniques which have improved the outlook for heart attack patients. The evaluation of different forms and schedules of stroke rehabilitation will also continue.

The introduction of the fluorescent anti-body technique for rapid identification of streptococcal infection has provided a powerful tool for the eventual control of rheumatic fever and rheumatic heart disease, but the need for this service has already exceeded the ability of most communities and institutions to provide it. Fortunately the procedure is one which appears to lend itself well to automation. During 1968 and 1969, a prototype automatic device will be assembled and subjected to laboratory testing. If successful, this could result in a marked reduction in the unit cost of each test and significantly increase the availability of the service to persons in far more varied circumstances throughout the country than is possible today.

Activities will continue to attempt to identify new risk factors associated with stroke and coronary heart disease. During 1969, investigations will continue into the impressive differences in cardiovascular death rates which have been observed between different geographical areas in this country. New techniques such as analysis by neutron activation will permit definition of contributing factors previously not within reach. Methodological research in identifying and defining the social and psychological factors that influence the utilization of knowledge to prevent and control the incidence of cardiovascular diseases will be advanced.

There is no change to this activity because the built-in decrease of $55,000 due to the change in financing of the management fund is offset by built-in increases for the extra day of pay in 1969 and the annualization of civilian and military pay raises.

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
e. Respiratory disease control	32	$1,584,000	42	$2,168,000	10	$584,000

The number of deaths attributed to emphysema and chronic bronchitis rose from 3,157 in 1950 to 23,432 in 1965. The number of deaths has been doubling every five years. This rate of increase is greater than for any other cause of death and is four times the rate for lung cancer. This high rate of increase has been going on since 1950 for males and since about 1956 for females. It is happening in nearly all of the 50 states and there are no signs of any moderation in the upward trend.

How much of this increase is a result of a real change in causes of death and how much represents changes in the assignment of the cause of death remains unknown. It does, however, signal a major health problem, the ultimate magnitude of which also remains unknown.

Limited data available on illness and disability from these diseases also confirm the need for effective control programs. During 1967, 250 million man-hours were lost from work and 14,000 persons under the age of 65 were certified as permanently disabled from emphysema and chronic bronchitis, requiring a total of $90 million in Social Security disability payments. Nevertheless, the known size of the problem necessitates a major effort to determine relevant facts about chronic respiratory diseases so that further steps can be taken to reverse this trend.

It is with this in mind that statistical and epidemiologic studies have been initiated to enable the program to define the nature of the problem both quantitatively and qualitatively. Epidemiologic studies, in cooperation with other HEW programs and private agencies, and specialized training programs to be carried out in major medical schools are in the process of activation. The National Tuberculosis Association - Public Health Service Task Force on Emphysema which convened in October, 1966, and a committee composed of curriculum planning officers of Southern California schools of medicine (Dr. Charles T. Carman, Chairman) have both stressed the present lack of capability for pulmonary disease teaching in medical schools. Because these diseases have only recently emerged as important causes of death and disability, medical school training programs have been unable to adjust their curricula to meet the need. Certain types of therapy which are available need to be administered or supervised by skilled paramedical staff, who are also limited in number. Services to patients with chronic respiratory conditions are, therefore, non-existent in many areas of the country.

Asthma, bronchitis, bronchiectasis and cystic fibrosis represent major chronic respiratory diseases of infants and children. The immediate problem, however, in pediatric pulmonary diseases lies in the lack of adequate treatment facilities and in the shortage of specially trained physicians who are

competent to diagnose these conditions and institute appropriate regimens of therapy.

In 1968, the chronic respiratory diseases have been attacked on a broad front. Programs for the encouragement of specialized training have included the development of course content and short-term training curricula and the preparation of training aids. Projects for the development and evaluation of rehabilitative measures; the operational requirements for long-term community programs; the immediate and long-term benefits of acute intensive care for respiratory failure, have sought improvement in patient care. Definition of the public health problem in terms of economic burden, standardization of data reporting, detection and classification of the diseases, the determination of national needs and resources are examples of epidemiologic studies which have also been initiated this year. Public information activities have made a heretofore little known disease a household word - emphysema. Physicians and public alike have been awakened to the growing threat this disease holds for them and their families.

The most practical solution to the problem of pediatric pulmonary disease would appear to be the establishment of strategically located programs of clinical research, service and training. The development of such competence within established schools of medicine would provide sources of well trained pediatricians for service in special pediatric clinics, to which cases could be referred for study and treatment. Private physicians attending short courses at pediatric pulmonary disease centers would return to their communities with an improved capability for diagnosis and treatment. Funds in 1968 will permit the establishment and first-year support of at least two centers for the control of pediatric pulmonary diseases.

Of the increase for 1969, $164,000 and six positions is requested for the full-year operation of pediatric pulmonary disease control programs, including those center based projects initiated in 1968. The facilities, treatment and staff associated with pulmonary diseases of children and infants (asthma, bronchitis, bronchiectasis, cystic fibrosis) are, of necessity, significantly different from those used in the management of diseases of adults.

Two other medical center-based programs for the control of adult respiratory diseases (emphysema, chronic bronchitis, asthma, chronic interstitial pneumonia and bronchiectasis) provide multi-disciplinary approaches to applied research, development and training. These include projects to find better methods for casefinding, diagnosis, acute and long-term management, and short-term training of practicing physicians. In order to carry out these projects planned and initiated in 1968, an increase of $422,000 and four positions is requested in 1969. These projects will investigate the reasons why certain patients with emphysema show only mild symptoms and little impairment of day-to-day activities while others follow a more rapid deterioration of function and die at a relatively early age; the number and

distribution of effective facilities for treating patients with these diseases; the role of various agents in causing these diseases or in precipitating acutely debilitating episodes of illness; and the pattern of psychological, social and economic burdens these diseases create in the patient, his family and the response of the community which must, in most cases, eventually bear the cost of his illness. This increase will also permit the presentation of demonstration courses for the continuing education of private physicians in several selected geographic areas.

The net budget increase of $584,000 results from a program increase of $586,000 offset by a built-in decrease of $8,000 due to the change in financing of the management fund and $6,000 for other built-in items of increase. These items include the additional day of pay in 1969 and the annualization of military and civilian pay raises.

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
f. Neurological and sensory disease control	90	$1,660,000	90	$1,660,000	---	---

This program provides for the development of new methods and techniques for prevention, early detection and diagnosis, and improved treatment to control visual, communicative, and neurological disorders.

Over 16,000,000 people in the United States have neurosensory disorders. The methods used by this program to control these disorders in this country are the support of studies and applied research; the provision of specialized consultation to officials of State, local, academic and related agencies and institutions; the development of public information programs; dissemination of promising research results to professionals; and technical assistance to training and service programs.

Program emphasis will continue on early detection of glaucoma. Public and professional information programs will stress the importance of tonometry as a routine part of a physical examination. Epidemiologic data on glaucoma will be gathered and analyzed. A study to aid in the prediction of chronic simple glaucoma will be continued.

Early detection of pre-school visual disorders will also be emphasized. The public will be informed of the importance of having the child's eyes checked. Communities will be advised of the effectiveness of pre-school tests to be used in screening programs.

In 1969, the program will continue efforts to improve the quality of eye care services available, e.g. use of the ocular fundus photograph for screening and diagnosing for eye pathology will be evaluated; an International Symposium on the Treatment of Proliferative Diabetic Retinopathy will be sponsored and the resulting monograph edited and distributed to professionals.

In 1969, the results of a National Conference on Noise as a Public Health Hazard, sponsored jointly with the National Center for Urban and Industrial Health, will be distributed. This conference will have defined the noise hazard problem and formed specific recommendations for control and minimization of this hazard.

Investigation will continue into the clinical usefulness of evoked response audiometry, a technique which permits the audiologist, by observing brain waves, to determine hearing loss in people too young or too physically or mentally impaired to offer verbal response. Another study, to determine selected speech and neurological characteristics of dysarthria (imperfect articulation in speech due to neurological lesions), will also continue in 1969. The program will continue the evaluation of pitch perturbation as a diagnostic and screening tool for laryngeal pathology, both benign and malignant.

Evidence is available that current audiometers have a tendency to drift out of adequate calibration without the fact being known to the user of the equipment. The development of an audiometer which has self-calibrating features as well as methods for determining the instrument's level of calibration will be supported.

The computerization of EEG interpretation offers promise of improving the diagnosis of neurological disorders and the saving of neurologists' time. A project directed toward this end will be continued.

The program will continue its training activities, stimulating and aiding in the implementation of programs to train medical and allied health personnel and programs to provide continuing education to those already providing services to persons with neurosensory disorders. Persons trained include speech pathologists, audiologists, EEG technicians, neurologists, ophthalmologists, otolaryngologists, general practitioners, social workers, and nurses.

There is no change to this activity because the built-in decrease of $12,000 due to the change in financing of the management fund is offset by built-in increases for the extra day of pay in 1969 and the annualization of civilian and military pay raises.

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
g. Preventive services	13	$665,000	18	$665,000	---	---

Treatment of chronic disease, important as it is, generally focuses on the late stages of the disease process rather than on prevention. Comparatively little attention is devoted to the early or developmental aspects, before symptoms appear, and to the risk factors or precursors of disease and the borderline or prediagnostic stages.

Prototype chronic disease detection laboratory systems which utilize highly automated testing procedures at relatively low cost have been demonstrated. These systems, further developed and widely adopted, can help provide the capability of quality periodic health examinations for the people of this nation by virtue of their proven effectiveness when used as a mechanism for doing the routine, nonmedical procedures of a health checkup.

When so used, these laboratory systems can produce, for the doctor, a wealth of basic information about his patient, derived from blood and urine tests, physical measurements, and the patient's medical and psychological history. Prepared with this information when he sees his patient for the scheduled health examination, the physician can then do those things for which he has been uniquely trained--verifying the patient's response to the history items that are particularly significant or questioning in more depth the nature of reported symptoms.

The extensive laboratory work-up can provide the doctor with clues to developing disease which might not bring the patient to his office with a complaint for many years.

The objective is to give the doctor a chance to incorporate preventive medicine into his practice without becoming bogged down with the details of scheduling laboratory appointments, coordinating test results, making routine measurements, and all the other minutiae that deter patient and physician alike from a positive approach to routine health examinations.

A pediatric screening study is now underway in an effort to determine whether the system which so well serves the adult preventive medicine program is also feasible for children. The goal is a preventive medicine system for the entire family.

Despite all the progress that can be reported, additional experimental and developmental work is needed before this concept can be widely and routinely incorporated into the practice of medicine. During 1969, the activities of this program will be directed toward evaluating and improving this technique. Studies are now underway to develop optimal methods for the detection of asymptomatic and early disease, vigorous intervention in the control of the disease at this stage, and evaluation of results.

There is no change to this activity because the built-in decrease of $5,000 due to the change in financing of the management fund is offset by built-in increases for the extra day of pay in 1969 and the annualization of civilian and military pay raises.

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
h. Kidney disease control	55	$5,945,000	55	$5,945,000	---	---

Each year, an estimated 9,000 persons who are medically suitable candidates for artificial kidney therapy die of kidney disease. These persons, most of whom are in the prime of life, could be kept alive and productive through the use of artificial kidney therapy. Kidney diseases occur in all age groups, but unlike the majority of chronic diseases, they are particularly likely to cause death during the middle, productive years.

The latest available data derived from the Public Health Service's National Center for Health Statistics indicates that 57,144 persons died of kidney-related diseases in 1965. This figure includes nearly 20,000 deaths attributed to hypertensive renal cardiovascular diseases. Infectious and hypersensitivity diseases led to 42 million days of restricted activity for 7.6 million individuals during 1965. There were 19 million days of bed disability, and 5 million work days lost by these individuals.

For 1968, the Congress provided an increase of $2,137,000, which is being used to increase home patient capacity in the 12 centers established in 1967 to develop and evaluate artificial kidney therapy in the home environment. The hypotheses is that artificial kidney treatment, properly administered and controlled in the home, can substantially reduce the cost of artificial kidney therapy without sacrificing quality of patient care. As a result of two factors - well-planned, staffed and equipped training centers, plus a statistically significant patient population - the developmental home artificial kidney programs will be able to: (1) test the feasibility of widespread and prolonged home treatment with the artificial kidney and various methods of providing it; (2) generate and evaluate cost data on patients in both the training center program started earlier, and the new home treatment program; (3) generate and evaluate uniform patient and medical data; and (4) determine the extent to which other sources of funds can be stimulated to support hemodialysis. Information and data derived from these programs over the next several years will help the Public Health Service in determining requirements, and developing guidelines, criteria and plans for efficient and effective ways to curtail needless loss of life resulting from kidney failure.

Work underway toward developing new methods for prevention of renal diseases is continuing. Sixteen contracts are currently in effect. Half are directed toward development and evaluation of

improved screening and diagnostic measures for pertinent kidney diseases, as well as the definition of the natural history of bacteriuria and its response to treatment. The remainder support studies of acute and chronic glomerulonephritis to identify points at which intervention may prevent progression of the disease process. Increasing attention is being concentrated on the broad scale application techniques which have been shown already to be effective in treating renal disease, while concurrently pursuing better treatment techniques. In developing the mechanisms required for community application of recently developed, acceptable techniques, pathways are built for speeding the application of new findings currently under development.

Inquiry is being made into factors involved in combining kidney transplantation with dialysis services in the treatment of end-stage kidney disease. Existing hemodialysis facilities in hospital centers, and in patients' homes treat less than 1,000 patients with end-stage kidney disease. While renal transplantation cannot meet the needs of all the remaining untreated uremic patients, the contribution of active clinical transplantation units toward reducing the total number of those untreated and reducing end-stage treatment costs could be significant.

There is no change to this activity because the built-in decrease of $6,000 due to the change in financing of the management fund is offset by built-in increases for the extra day of pay in 1969 and the annualization of civilian and military pay raises.

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
i. Nutrition	---	---	16	$250,000	+16	+$250,000

The suddenness with which this country has become aware of its serious nutrition problems is matched by the complexity of these problems. Although there have not been comprehensive evaluations of the nutritional health status of major segments of the U.S. population, the existing scattered surveys and other clinical and observational evidence indicates that serious problems do exist, especially in certain vulnerable groups including persons living in poverty, adolescents, pregnant women, and the aged. Conditions related to inadequate or improper nutrient intakes reported in the United States include underweight, retarded physical growth, anemia, increased susceptibility to infectious diseases, higher incidence of certain chronic diseases related to obesity, goiter, impaired learning ability, reduced work capacity, and increased mortality in pregnancy and childbirth. Retarded mental ability in children known to have suffered malnutrition in the first two years of life has been reported.

During 1969, the requested 16 positions and $250,000 will provide for the planning of future programs aimed at identifying and assessing the prevalence, location, and causes of malnutrition, including undernutrition, i.e. caloric and nutrient insufficiency, goiter, anemia, and overnutrition, i.e. obesity. Major emphasis initially will be directed toward planning for programs aimed at the vulnerable population groups - poverty families, preschool children, obese adolescents, pregnant and lactating women, and the aged. These programs will be conducted in collaboration with state and local institutions, and other federal agencies, and will include the identification of federal and local resources available for assisting in immediate and long range remedial action.

These funds and positions will also provide for planning the development of demonstration, testing, and evaluation projects to formulate guidelines for overcoming and preventing the nutritional problems found in the identification and assessment phase; planning the surveillance and evaluation activities to assure the rapid identification of nutritional problems and the evaluation of existing preventative programs; planning educational programs to update and train medical and allied health personnel, and information programs for the general public that will be based on guidelines developed on nutrition requirements as related to environmental and physiological conditions; and planning programs to stimulate additional research in nutrition, as specific problems are discovered, and to apply new knowledge as rapidly as possible.

Expert advisory committees will be convened to develop guidelines on nutrient requirements and recommendations for remedying any inadequacies that may exist.

COMMUNICABLE DISEASES

WITNESSES

DR. DAVID J. SENCER, DIRECTOR, NATIONAL COMMUNICABLE DISEASE CENTER
JAMES D. BLOOM, ASSISTANT EXECUTIVE OFFICER
LELAND W. SMITH, FINANCIAL MANAGEMENT OFFICER
DR. RICHARD A. PRINDLE, DIRECTOR, BUREAU OF DISEASE PREVENTION AND ENVIRONMENTAL CONTROL
VERNON G. MacKENZIE, DEPUTY DIRECTOR, BUREAU OF DISEASE PREVENTION AND ENVIRONMENTAL CONTROL
PETER J. BERSANO, FINANCIAL MANAGEMENT OFFICER, BUREAU OF DISEASE PREVENTION AND ENVIRONMENTAL CONTROL
DR. WILLIAM H. STEWART, SURGEON GENERAL
CHARLES MILLER, CHIEF FINANCE OFFICER
JAMES B. CARDWELL, DEPUTY ASSISTANT SECRETARY, BUDGET

OBJECT CLASSIFICATION (IN THOUSANDS OF DOLLARS)

	1967 actual	1968 estimate	1969 estimate
Personnel compensation:			
Permanent positions	23,478	24,300	26,251
Positions other than permanent	1,907	2,336	1,331
Other personnel compensation	645	622	644
Total personnel compensation	26,030	27,258	28,226
Personnel benefits	2,797	3,043	3,119
Travel and transportation of persons	2,012	2,280	2,463
Transportation of things	1,290	1,100	1,109
Rent, communications, and utilities	1,473	1,549	1,702
Printing and reproduction	340	379	389
Other services	1,649	2,295	2,468
Project contracts	13,266	15,049	15,046
Services of other agencies	591	424	438
Payment to:			
Public Health Service management fund	863	900	----------
National Institutes of Health management fund	27	27	----------
Supplies and materials	5,154	5,765	3,165
Equipment	2,565	1,138	1,433
Grants, subsidies, and contributions	11,277	8,747	6,485
Insurance claims and indemnities	1	----------	----------
Subtotal	69,334	69,954	66,043
Quarters and subsistence charges	−19	−26	−26
Total obligations	69,315	69,928	66,017

PERSONNEL SUMMARY

Total number of permanent positions	3,265	3,067	3,226
Full-time equivalent of other positions	299	324	222
Average number of all employees	3,091	3,101	3,133
Average GS grade	8.0	8.2	8.3
Average GS salary	$8,507	$9,261	$9,345

PROGRAM AND FINANCING (IN THOUSANDS OF DOLLARS)

	1967 actual	1968 estimate	1969 estimate
Program by activities:			
1. Grants:			
(a) Research	3,368	3,791	3,875
(b) Community immunization	10,528	9,100	2,610
2. Direct operations:			
(a) Communicable diseases	17,183	16,495	19,138
(b) Tuberculosis	3,561	3,659	3,616
(c) Veneral diseases	4,267	4,881	4,952
(d) Pesticides	7,480	7,145	7,087
(e) Foreign quarantine	8,194	8,199	8,245
(f) Aedes aegypti eradication	14,651	16,658	16,494
Total program costs funded [1]	69,232	69,928	66,017
Change in selected resources [2]	83	----------	----------
Total obligations	69,315	69,928	66,017
Financing:			
Comparative transfers from other accounts	−24,054	----------	----------
Unobligated balance available, start of year	−3,874	−2,610	−2,610
Unobligated balance available, end of year	2,610	2,610	----------
Unobligated balance lapsing	223	419	----------
New obligational authority	44,220	70,347	63,407
New obligational authority:			
Appropriation	44,220	72,109	63,407
Transferred to other accounts	----------	−1,762	----------
Appropriation (adjusted)	44,220	70,347	63,407
Relation of obligations to expenditures:			
Total obligations	69,315	69,928	66,017
Receipts and other offsets (items 11–17)	−24,054	----------	----------
Obligations affecting expenditures	45,261	69,928	66,017
Obligated balance, start of year	17,129	17,023	22,951
Obligated balance, end of year	−17,023	−22,951	−28,968
Adjustments in expired accounts	−266	----------	----------
Expenditures	45,102	64,000	60,000
Expenditures are distributed as follows:			
Out of current authorizations	28,802	48,000	38,000
Out of prior authorizations	16,300	16,000	22,000

[1] Includes capital outlay as follows: 1967, $2,565,000; 1968, $1,138,000; 1969, $1,433,000.
[2] Selected resources as of June 30 are as follows (in thousands of dollars):

	1966	1967	1968	1969
Stores	7	----------	----------	----------
Unpaid undelivered orders	6,793	6,883	6,883	6,883
Total selected resources	6,800	6,883	6,883	6,883

Mr. FLOOD. The committee will come to order.

BIOGRAPHICAL SKETCH OF DR. DAVID J. SENCER

(The biographical sketch follows:)

BIOGRAPHICAL SKETCH

Name: David J. Sencer.
Position: Director, National Communicable Disease Center.
Birthplace and date: Grand Rapids, Mich., November 10, 1924.
Education: College, 1942–44: Wesleyan University, Middletown, Conn.; college, 1945–46: University of Mississippi; M.D., 1946–51: University of Michigan; internship, 1951: University Hospital, Ann Arbor, Mich.; 1952–54: internal medicine residency; M.P.H., magna cum laude, 1957–58: Harvard University School of Public Health.

Experience: February 1966–present: Director, NCDC; October 1964–February 1966: Deputy Chief, CDC, Atlanta; December 1960–October 1964: Assistant Chief, Communicable Disease Center, U.S. Public Health Service, Atlanta, Ga.; February 1959–November 1960: Program officer, Bureau of State Services, U.S. Public Health Service, Washington, D.C.; October 1955–February 1959: Medical officer in charge, Muscogee County TB field research facility, USPHS, Columbus, Ga.; January 1955–October 1955: Medical consultant, tuberculosis program, U.S. Public Health Service.

Association memberships: American Medical Association, American Public Health Association, American Thoracic Society, American Society of Tropical Medicine and Hygiene, Georgia Tuberculosis Association, Delta Omega.

Mr. FLOOD. Dr. Sencer, I see you have a statement. How do you wish to proceed?

Dr. SENCER. If it is agreeable with you, I would like to proceed and read it. We have some material that will illustrate some of the points we will make.

Mr. FLOOD. Very well.

GENERAL STATEMENT

Dr. SENCER. Mr. Chairman and members of the committee, it is again a pleasure to appear before this committee to present the budget for the National Communicable Disease Center. I would emphasize the word "Center"; for, although the budget is presented in a series of seemingly unrelated pieces, these pieces unite to form an integrated approach to the control of disease, particularly those diseases which are put upon communities, not just individuals. On the surface, it may seem difficult to see the relationship between laboratory improvement and venereal disease control; between foreign quarantine and tuberculosis control; between urban rats and immunization against disease; and between pesticides and epidemic services. A few examples will show the interrelationship of the activities mentioned to provide comprehensive community disease control activities.

RODENT CONTROL PROGRAM

Mr. FLOOD. You use the phrase "urban rats." I suppose this has to do with the rat control program. What do you mean by "urban?"

Dr. SENCER. The problem of rats today can be divided into two categories. In one category are the rats that concern agriculture. In the other category are the rats concerned with people that live in our major urban areas.

Mr. FLOOD. Major urban areas? What about a city of 150,000 or a city of 50,000?

Dr. SENCER. I consider a city of 150,000 a major urban center and I think undoubtedly in many parts of the country there would be rats infesting many parts of cities of 50,000; yes, sir.

Mr. FLOOD. So you are not just talking about these great megalopolis areas?

Dr. SENCER. No, sir.

LABORATORY IMPROVEMENT RELATING TO VENEREAL DISEASES

Moving on to laboratory improvement as it relates to venereal diseases:

Although we must live in the present and look to the future, we cannot forget the lessons of the past. "Laboratory improvement" has re-

cently had major emphasis at the Center, but our current program continually draws upon the experience gained in improving laboratory services for syphilis diagnosis—for many years a major activity of our venereal disease program.

Mr. FLOOD. How do you diagnose syphilis?

Dr. SENCER. Syphilis can be diagnosed in many ways. The first is taking a blood test to see if any antibodies are present.

Mr. FLOOD. How do you select subjects, off the street or do they come to you? Where do you get the subjects?

Dr. SENCER. There are several ways. One of the most effective ways of finding people potentially infected is by knowing their associates.

Mr. FLOOD. Syphilis is highly infectious?

Dr. SENCER. Yes, it is highly infectious.

Mr. FLOOD. Then you have no trouble finding your subjects?

Dr. SENCER. No, sir.

Standardization, certification, and training, which are integral parts of laboratory improvement, have been perfected in the field of syphilis serology. The long experience that we have had in working with State and local health departments to assure high-quality syphilis diagnosis is being used as a model in assuring high-caliber laboratory diagnosis, not just for the infectious diseases, but in the whole field of clinical chemistry.

FOREIGN QUARANTINE—TUBERCULOSIS

For many years, our foreign quarantine program has had the responsibility for determining whether immigrants to the United States have diseases which would be dangersous or expensive if introduced into this country. Prime among these has been tuberculosis. There has been no systematic followup of those people who have been admitted to the United States with pulmonary difficulties but who show no evidence of active tuberculosis. Drawing upon the good relationships between our tuberculosis control program and State and local health departments, we are developing methods not only of followup to determine whether they have become ill, but also to provide them with modern tuberculosis preventive techniques such as chemoprophylaxis with isoniazid.

Mr. FLOOD. You no doubt saw the story in the last couple days about a children's hospital where a nurse was infected. In a routine check it was found that this nurse was infected. The mothers were bringing their babies in for a vaccination, I suppose?

Dr. SENCER. No, it is a tuberculin test.

Mr. FLOOD. How do you do that, a smear?

Dr. SENCER. No, you inject into the skin PPD, or tuberculin, and 48 hours later you observe the reaction and if they have tubercule bacilli in the body it will be red and swollen.

Mr. FLOOD. It sounds comparatively simple. Can it be done by a technician?

Dr. SENCER. It depends on the State law. Under some of the State laws it can only be done by a doctor or a nurse, but if it were not for that many people could be trained to do it.

Mr. FLOOD. Are you trying to talk to people in those States to see if that can be corrected?

Dr. SENCER. Yes. We have been working with people in a variety of States. This weekend we had a tuberculin testing program at the

NCDC where all the employees and their families were taking tests and we will provide chemoprophylaxis to anyone who is infected.

Mr. FLOYD. I do not see this advertised. Almost everybody knows about chest X-rays, but what you are talking about very few people know.

Dr. SENCER. I think it is for the same reason not many people know about syphilis these days. Syphilis and tuberculossis have become diseases that have not attracted much attention. Fortunately, many people do know about chest X-rays.

Mr. FLOOD. Why don't people know about this?

Dr. SENCER. I would say there are probably more people who know about it than might make the newspapers. This year there has been a great deal of tuberculin testing of school children. Massachusetts, for example, has passed a State law saying that all people connected with the schools have to be found completely free of tuberculosis annually.

Mr. FLOOD. You are on top of the disease; are you not?

Dr. SENCER. It has a long way to go. We have 50,000 active cases a year and 9,000 deaths, and this is the drug that can control it [indicating a bottle of isoniazid].

Mr. FLOOD. This is a contagious and infectious disease, is it?

Dr. SENCER. Yes, sir. One of the interesting things about tuberculosis is that there is a long period of latency.

Mr. FLOOD. About how long?

Dr. SENCER. From 6 months to 25 or 30 years, and by treating a person before he gets the disease you can prevent a tremendous amount of tuberculosis.

TUBERCULOSIS CARRIERS

Mr. FLOOD. What is a tuberculosis carrier?

Dr. SENCER. I think that is an old term for a person who has a positive tuberculin test. They used to think people who had a positive test were carriers but not necessarily infectious cases, but now we know they are infected and have the capability of becoming infectious to other people.

Mr. FLOOD. But there are people who can carry the bug and who are not themselves infected?

Dr. SENCER. Infectious. They can carry the bug. They may not have an overt disease and, therefore, may not be infectious to other people.

Mr. FLOOD. Are these carriers widespread?

Dr. SENCER. We estimate about 25 million people are infected with tuberculosis.

Mr. FLOOD. That is a lot of people.

Dr. SENCER. Yes. That is why we have not talked about eradication, because when you have that many people infected it would be unrealistic to talk about eradication.

Mr. FLOOD. Is there an age at which the rate is higher than other age brackets?

Dr. SENCER. The highest rate of tuberculosis is in the elderly but one-half of the cases of tuberculosis occur below the age of 45. We think young people who are infected and are in puberty or getting married are in a state of stress and the risk of disease then becomes greatest.

Mr. FLOOD. Should everyone have a tuberculin test?

Dr. SENCER. I think it is an excellent idea.

RODENT CONTROL

Going to rodent control and immunization against disease:

The rat that infests our crowded urban areas and bites an unsuspecting child is quite likely biting a child who has not received needed immunizations and is living in an area where venereal diseases and tuberculosis are still major health problems. We are encouraging communities, as they undertake urban rodent control programs, to adopt the concepts of community preventive medicine that have been developed in our immunization and demonstration programs. These programs are aimed at having the people in the community—not just the leaders—recognize their own problems, and develop bold and effective solutions to these problems.

BUBONIC PLAGUE

Mr. FLOOD. What is the danger from a child being bitten by a rat other than abrasions?

Dr. SENCER. There are some diseases from rat bites.

Mr. FLOOD. Bubonic plague?

Dr. SENCER. Not in the cities. Plague in the United States at the present time is primarily a rural disease in the West. It is not in the domestic rats but in the prairie dogs and rodents in rural areas.

Mr. FLOOD. But there is plague?

Dr. SENCER. Yes, primarily in the high plateaus.

Mr. FLOOD. What is a plague?

Dr. SENCER. A plague is a bacterial disease transmitted from infected rodents to man by a flea. It enters the body and through the bloodstream enters a lymph node, causing a swelling known as a bubo, from which the term bubonic plague is derived.

Mr. FLOOD. What was the last case we had in a human?

Dr. SENCER. We had five cases last year, two deaths.

Mr. FLOOD. Where?

Dr. SENCER. Colorado, New Mexico, and Texas.

Mr. FLOOD. How many died?

Dr. SENCER. Two. Now there is an epidemic of plague going on in Vietnam. The NCDC was recently requested by the State Department to send a team to Indonesia where there is also a serious problem with plague.

Mr. FLOOD. What about our servicemen; are they bringing back any plague?

Dr. SENCER. One serviceman developed plague 7 days after he returned here. He was in a hospital in Dallas and it was unsuspected for about 11 days until a consultant came in and asked where he had been.

Mr. FLOOD. Since the plague is transmitted to humans by a rodent through a flea, why is it so contagious among human beings?

Dr. SENCER. It is only when it becomes pneumonic that it is highly contagious. There was an epidemic in California.

Mr. FLOOD. Pneumonic is an advanced stage?

Dr. SENCER. Yes.

A health department in a midwestern city called to report a series of bizarre illnesses and deaths in a hospital nursery. A team of epidemiologists was sent to investigate this outbreak thought to be caused by a virus. It soon became apparent that they were not dealing with an infectious agent but with a chemical toxin. At this point, our pesticides program was called in to provide expert consultation and assistance. The upshot of the investigation was that the culprit was pentachlorophenol, a chemical that was being used to wash diapers. Although this chemical had been registered and was clearly labeled not to be used for hospital laundering, overzealous persons had used it anyhow, in order to provide whiter diapers. This tragic episode not only highlights the interrelationship of programs but also points to a major problem in the field of pesticides. It is not enough to determine the toxicity of a pesticide, nor is it enough to recommend certain labeling practices. There must be an active program of working with State and local health departments, stimulating them to develop educational programs that will prevent catastrophe, thus avoiding the necessity for investigating outbreaks afterwards. As you may recall, major episodes of poisoning occurred in Saudi Arabia, Mexico, and South America last year.

Mr. FLOOD. As I recall that story, some of this product was stored in a closet someplace?

Dr. SENCER. It was in a hospital laundry, a big barrel of it.

Mr. FLOOD. Is that not odd, with the express prohibition of it?

Dr. SENCER. This is a blowup of a label [indicating]. When you have a label this size, you will not see it. The chemical company—this is a fictitious name—the chemical company that produced this was very distraught because their own salesman had encouraged this kind of use. I would not be surprised he lost his job.

Mr. FLOOD. A slap on the wrist?

Dr. SENCER. But they removed the product from the market.

Mr. FLOOD. What can you do about it?

Dr. SENCER. The Public Health Service has no jurisdiction. This is under the Department of Agriculture.

Mr. FLOOD. So the producer of this product said "oops, sorry;" is that it?

Dr. SENCER. Yes, but they did take corrective action by removing the product from the market.

Mr. FLOOD. Ex post facto?

Dr. SENCER. Yes, ex post facto. But they were within the law. I think this points out the need for a better educational program rather than relying just on labels. There were about 700 cases of poisoning in Saudi Arabia.

Mr. FLOOD. As a result of what?

Dr. SENCER. As a result of shipping endrin directly on top of a shipment of flour. When they investigated this they found it had gotten through the burlap bags.

Mr. FLOOD. I thought that was in South America.

Dr. SENCER. First it was in Saudi Arabia then in Tijuana and then in South America.

Mr. FLOOD. I believe in South America they indicted the producer and even the truckdriver. Do we do that?

Dr. SENCER. It is not so much the indictment as the method of shipment of these materials. The Department of Health, Education, and Welfare has convened a working team to try to develop means of safe shipment of dangerous materials.

MEASLES ERADICATION

It is always dangerous to promise something, particularly before a committee such as this, for we must anticipate being held accountable. However, last year we were rash enough to promise measles eradication. While we must not be overconfident, I can report substantial success. Last year only 62,000 cases of measles were reported, an alltime low compared with 400,000 to 500,000 reported each year in the prevaccine era. This year with a continued push toward epidemic control and a continued emphasis on a maintenance program of immunizing year-old children, we can accomplish eradication, and, what's more, insure its perpetuation. There has been resistance in some States.

Mr. FLOOD. This committee thinks your achievement is dramatic. We congratulate your group and the doctors, nurses, aides, and all the people who made this a tremendous and successful operation.

RESISTANCE TO MASS IMMUNIZATION

Mr. SMITH. Is this resistance by medical societies to mass immunization nationwide or just in some States?

Dr. SENCER. It is not nationwide. The medical associations have been working with the health departments in organizing mass immunization campaigns. The first campaign was in the State of Rhode Island and it was a joint effort on the part of the medical society and the health department.

Mr. SMITH. In how many States are they holding mass immunization campaigns?

Dr. SENCER. I cannot answer that offhand. In the past there was resistance by some of the medical societies in Texas to mass campaigns.

Mr. LAIRD. There are not many States left that are resisting, are there?

Dr. SENCER. No, and the resistance is not from organized medicine so much as from small local societies.

Mr. SMITH. Has Iowa carried out mass immunizations programs in most counties?

Dr. SENCER. Iowa has a good program of catching people when they are very young. Where you do not have a large accumulation of people sometimes a mass immunization program is not the best way of doing it.

Mr. FLOOD. I might say in my part of the country they took the lead and it has been a great program.

Mr. CASEY. You say there is resistance in Texas?

Dr. SENCER. In some parts of Texas public health programs are quite frequently resisted by organized medicine.

Mr. CASEY. You had some good programs in Houston.

Dr. SENCER. It is coming nicely. Unfortunately, in other parts of Texas it is not as good. We have recently been called to provide assist-

ance in the valley area to put out an epidemic of polio and yet we have had immunization for polio since 1955.

Mr. SMITH. They resisted immunization for polio too?

Dr. SENCER. Yes.

Mr. FLOOD. I can hardly believe it.

Dr. SENCER. I can show you many letters resisting it in Rio Grande Valley.

Mr. CASEY. That is 450 miles from me.

Dr. SENCER. One of the reasons it has been so successful in Harris County, there has been a good relationship between Dr. Pigford and the medical society.

TUBERCULOSIS VACCINE

Mr. FLOOD. I was instrumental in bringing some people into my district who took options on a great piece of real estate and had plans to build quite a big plant that would employ up to a thousand people several years ago to manufacture a vaccine against tuberculosis. All of a sudden it didn't work out and that was the end of it. Do you remember that?

Dr. SENCER. I do not remember that particular one. There has been a vaccine that has been used in tuberculosis but I think most people would agreee there is practically no place for it in this country.

Mr. FLOOD. This was abandoned.

Dr. SENCER. The vaccine is being used in areas where there is more tuberculosis.

Mr. FLOOD. We were all excited about it. One thousand jobs where I come from are very important. But we were advised it did not work and they abandoned the program.

Dr. SENCER. The vaccine has effectiveness, but in this country the real danger group as far as tuberculosis is concerned are the 25 million already infected.

Mr. FLOOD. Suppose I am not infected, should I go get a vaccination?

Dr. SENCER. No. In this country there is very little transmission of tuberculosis going on from one person to another.

Mr. FLOOD. Why don't you conduct a campaign on tuberculosis such as this remarkably successful campaign on measles?

Dr. SENCER. If the vaccine could eradicate the disease it would be worthwhile, but all the vaccine does is give a temporary immunity.

GERMAN MEASLES

Mr. FLOOD. In discussing measles you ignore German measles. Why?

Dr. SENCER. At the present time we have no adequate preventive measure for German measles.

Mr. FLOOD. But you are the head of the Communicable Disease Center. Isn't that in your shop?

Dr. SENCER. Yes. Our laboratories have developed a diagnostic technique that is now being used in most laboratories and we have produced diagnostic reagents to do the test.

Mr. FLOOD. What is the status of the campaign against German measles? Are you getting any place? Will you have a breakthrough tomorrow morning?

Dr. SENCER. I don't think you can say tomorrow morning. The target date for a vaccine, I think, is 1970. Vaccine development is being supported at the present time by the NIH.

Mr. FLOOD. That is pretty good.

Dr. SENCER. Yes. One of the problems we are having is with another German situation, the "Green Monkey" disease, which may hinder us.

Mr. FLOOD. Really I should go into these research matters with Dr. Shannon of NIH. All you do is apply things?

Dr. SENCER. We apply it and evaluate it; yes, sir.

COST OF ISONIAZID

Mr. SMITH. What is that in that bottle marked $1.50 (indicating exhibit on hearing table)?

Dr. SENCER. That is isoniazid. That is how much it costs.

Mr. SMITH. Costs whom? Does the druggist sell it for that?

Dr. SENCER. No. That is what the health department pays that buys it in bulk.

Mr. SMITH. What does it sell for in a drugstore?

Dr. SENCER. I think if you buy this through a retail druggist, about $12 a year.

FOREIGN QUARANTINE

Last year, we promised a new look in foreign quarantine, one which would change the emphasis from inspection to active epidemiologic surveillance. We have begun to redirect the emphasis of our foreign quarantine program. On June 6, the Surgeon General announced that we were no longer requiring vaccination against smallpox for persons coming from Mexico. This is based on sound epidemiologic principles. There has been no smallpox in Mexico since 1951, therefore why require vaccination as a prerequisite to entrance into the United States?

"GREEN MONKEY" DISEASE

The changes in quarantine have not just been procedural, as on the Mexican border, but they also include reaching out to investigate disease wherever it may occur. In August of this year, reports appeared in the newspaper of laboratory workers dying in Germany of a disease apparently associated with green monkeys being used for the production of vaccine.

Mr. FLOOD. What do you mean by green monkeys?

Dr. SENCER. This is the nomenclature given to a monkey that is indigenous to East Central Africa and because it has a green cast to its fur it is called the African green monkey. The United States imports thousands of these monkeys each year, and our vaccine production for poliomyelitis is dependent upon this monkey. We could not be satisfied with newspaper accounts. We actively investigated the outbreak in Germany and Yugoslavia and found it to involve a highly fatal and highly contagious disease.

Mr. FLOOD. How could you investigate anything in Germany?

Dr. SENCER. We were invited by German health authorities to send an epidemiologist to find out what was going on. With the help of the German authorities, we defined the epidemiology of this disease and

are working on measures to protect laboratory workers against possible infection, or even death, from this agent.

The Center redirected efforts within the laboratory to begin active investigation of the agent of this disease, which is an entirely new micro-organism. We do not take credit for the isolation of this agent, which was accomplished in laboratories in Great Britain, but we do take pride in the fact that our laboratories have now developed a diagnostic technique and are adapting this to a method of screening monkeys to assure that we use only those monkeys which will not be harmful to personnel in laboratories and obviate any danger of transmission of this disease through vaccine.

INFLUENZA SURVEILLANCE AND LABORATORY BACKSTOPPING

To say that we are proud of our prediction of influenza outbreaks this year would be to neglect the tragic implications of this disease. But our ability to predict an outbreak such as we are experiencing this year is a tribute to the surveillance activities of the Center—surveillance of the trends of this disease in the past, surveillance in the laboratory of the viruses causing the disease, and surveillance of the effectiveness of the vaccine.

Mr. FLOOD. This is the middle of March and the epidemic has terminated, has it not?

Dr. SENCER. Yes. There will probably be a few scattered outbreaks on the west coast but not much.

Mr. FLOOD. When does it occur?

Dr. SENCER. It started early this year. It usually starts in January or February but this year it started before Christmas and we had quite a severe excess mortality and this was followed by school closings, and so on. It started in Kalamazoo, Mich., and spread over the United States. There was very little flu on the west coast but they had it last year.

Mr. FLOOD. There are different kinds of flu?

Dr. SENCER. Yes, and the vaccine is not always effective.

To many, surveillance may be a passive function, a sitting, waiting, and watching. As we at the Communicable Disease Center use surveillance, it is anything but passive. It is an active searching out of disease. It is an active investigation of the changing character of disease agents. We do not simply record the change and the occurrence, but we stimulate action to improve our methods of control. It is in part due to our efforts in this active investigation that continued change in the composition of the vaccine used for influenza is being brought about. If a vaccine is ever to be effective in the control of influenza, an even better product will be necessary. This can be accomplished only if we have a continued influx of new ideas and new people into our program and if we look at the whole field of respiratory disease of which influenza is but one. But to concentrate our efforts solely on influenza and upper respiratory disease because this year it is a major problem would be short-sighted.

We need to expand our active surveillance and laboratory backstopping for other diseases caused by micro-organisms. Among these are salmonellosis, malaria, hepatitis, encephalitis, streptococcal disease, rabies, and a disease which has not been present in the United States since 1949, but which is an ever-continuing threat until it has been

eradicated from the world—smallpox. It is for these purposes that we are requesting increases of $1,068,000 to improve our capabilities in epidemiologic services and laboratory support of communicable disease control programs.

TRANSMISSION OF RABIES

Mr. FLOOD. Do rats transmit rabies?

Dr. SENCER. This has not occurred in this country. We have not had any confirmed report on rabies in rats in the United States. There was a flurry in the newspapers about the possibility of this occurring in Hawaii but it proved to be a misdiagnosis.

Mr. LAIRD. We have rabid squirrels.

Dr. SENCER. Yes. This has infrequently been reported. The big problem in this part of the country is in foxes, in skunks in the Midwest, and raccoons in the South.

To help obviate the need for future expenditures for domestic smallpox and malaria control, the Center is providing professional and operational staff to AID-supported programs in 37 countries, where our Government is assisting in eradicating these diseases. In west Africa in less than a year our staff has organized programs that have vaccinated over 25 million people against smallpox. This has happened in spite of logistic and operational problems that defy imagination or description.

LABORATORY IMPROVEMENT

Last year we reported to Congress on the state of the art in laboratory diagnostic capabilities across the country. Subsequently Congress took affirmative action to improve the quality of laboratory services available to the people of this country. On December 5, 1967, President Johnson signed into law the Clinical Laboratories Improvement Act of 1967. The major feature of this act is a program of licensing laboratories which are in interstate commerce, but it must be remembered that the title is Clinical Laboratory Improvement Act. Licensing is but one step in the improvement of the services rendered by our laboratories. This program will reach only those laboratories which are in interstate commerce, but the procedures that are developed to implement this can be a model to our States in developing similar programs to improve the services available in the thousands of laboratories which are not in interstate commerce. It is important, therefore, that those regulations that we promulgate, that those methods that we adopt to assure a high level of proficiency, that the standards that are developed for the personnel in the laboratories and that the quality control mechanisms are of the highest level possible, for we cannot be satisfied with anything less than the best. This will require scientists who are willing to devote their efforts to methods of standardization and to techniques of proficiency testing. They will have to work with laboratories across the Nation in fully implementing these techniques so that the highest degree of confidence can be placed in our laboratories. For this initial program we are requesting an increase of $1,575,000 in this budget.

A new phrase has entered into American terminology as a result of our space effort—zero defects. Our goal at CDC, not always attainable, but a goal, is zero occurrence of those diseases for which we have preventive measures. Until we can reach the goal of zero concurrence,

we must continue to strengthen our investigations, our surveillance, and our laboratory support in a unified way to provide the best possible protection to the people of our communities.

I will be pleased to answer any questions.

SUMMARY OF BUDGET REQUEST

Mr. FLOOD. Your budget for 1968 is $69,928,000 and the request for 1969 would make $66,017,000 available. Of course that includes the carryover. That amounts to a decrease of $3,911,000. However, this community immunization program is being phased out which accounts for a reduction of $6,490,000. So this means there is a net increase of $3,479,000 for other activities.

Dr. SENCER. Yes, sir.

COMMUNITY IMMUNIZATION PROGRAM

Mr. FLOOD. Do you have any yardsticks or any statistics that would indicate the success of the community immunization program?

Dr. SENCER. I think the most impressive statistic has been the success of the measles eradication program. Federal funds and Federal people have worked with State and local people to initiate these programs.

I mentioned we were investigating an epidemic of polio. This was an epidemic of only five cases but still we consider this an epidemic whereas a few years ago if it was an epidemic of less than 100 cases, we did not get too excited.

Preliminary information from the Bureau of the Census this year, which conducts a survey every September, would indicate we had a higher level of immunity this year than last year.

MEASLES AND POLIO INCIDENCE

	1955	1960	1965	1966	1967 (provisional)
Measles	555,156	441,703	261,904	204,136	62,326
Polio (paralytic)	13,850	2,525	61	106	36

LABORATORY IMPROVEMENT PROGRAM

Mr. FLOOD. The committee has had an interest for sometime in your laboratory improvement program.

Dr. SENCER. Yes, sir.

Mr. FLOOD. That accounts for half of the increase we have been talking about. Now you finally have a newly enacted law to help you; you now have a weapon. Tell us the requirements of this law. What do you have to do to carry it out?

Dr. SENCER. The laboratories who will apply for a license are in interstate commerce and will apply to the Department for a license. We will in the next 6 to 9 months be working with laboratorians to develop standards.

Mr. FLOOD. Laboratorians?

Dr. SENCER. Yes. They are the pathologists, chemists, microbiolo-

Mr. LAIRD. The budget does not indicate that.

Mr. FLOOD. You used the word "dangerously."

Mr. LAIRD. And "out of control." What do you have in the budget to handle this?

Dr. SENCER. We have an increase of $157,000 for gonorrhea.

Mr. LAIRD. This is a serious problem?

Dr. SENCER. Yes, it is a serious problem. There is much we do not know about gonorrhea. We found in limited studies that in certain population groups 35 percent of the women are silent carriers of the disease and we know we do not have the tools for control yet.

Mr. FLOOD. You are talking about $157,000 and you say this disease is out of control?

And you say it is dangerous. I am quoting you.

Dr. SENCER. Yes.

Mr. FLOOD. What did you ask the Bureau of the Budget for?

Dr. SENCER. We were reduced by the Bureau of the Budget $1,537,000.

Mr. FLOOD. What did you ask for?

Dr. SENCER. An increase of $1.7 million.

Mr. FLOOD. You asked for an increase of $1.7 million and the Bureau of the Budget gives you $157,000?

Dr. SENCER. Yes, sir.

Mr. FLOOD. And they knew it was out of control?

Dr. SENCER. I think our justifications pointed this out; yes, sir.

Mr. FLOOD. Go ahead. What about treatment for gonorrhea? This is not just a bad cold.

Dr. SENCER. No, sir. We have adequate treatment for it.

Mr. FLOOD. Will one shot in the arm clear it up?

Dr. SENCER. Probably two. You have to have a high level of penicillin in the blood for some time to kill it off.

Mr. FLOOD. Now they know two shots in the arm are enough. How often do they come back?

Dr. SENCER. There is a high percentage of recurrence.

Mr. FLOOD. Can you cure the condition in the female as well as in the male?

Dr. SENCER. The problem is we cannot diagnose it in females as well as in males.

Mr. FLOOD. What about the reports from the family physician? Are they reporting these cases to you?

Dr. SENCER. We have been trying to get physicians to report syphilis. We have not put much effort in gonorrhea but if our experience is the same as syphilis I do not think we will get good reporting. I think we need to try to find a method of screening populations so we can rapidly detect those people who are infected.

Mr. LAIRD. Mr. Chairman, on this point, last year this committee increased the amount available for gonorrhea control by $500,000 over the amount requested in the budget.

Dr. SENCER. Yes, sir.

Mr. LAIRD. What progress did you make? Was that money used?

Dr. SENCER. It is in the process of being used. As you realize, we were under a continuing resolution until quite recently.

Mr. LAIRD. What do you mean by quite recently?

gists, who will set the standards for laboratories. The program will consist of several elements, including:

(1) Internal quality control procedures.

(2) A program of proficiency testing by preparing and submitting to the laboratories check specimens for testing.

(3) Standards for the experience and education of people in laboratories.

(4) Records kept by laboratories that are adequate to protect the public.

These are the things legally we are required to do. However, there will also have to be continued training and consultation. Licensure standards are a basic minimum. By working with laboratories we can elevate them. Each year I would like to see our requirements for licenses higher and higher and higher.

ERRONEOUS LABORATORY TEST RESULTS

Mr. FLOOD. What about this shocking figure we get that 25 percent of all clinical laboratory tests are erroneous?

Dr. SENCER. I think this figure will stand up. The College of American Pathologists reported that 50 percent of all hemoglobin tests were unacceptable. This is one of the simplest tests.

Mr. FLOOD. Why would that be?

Dr. SENCER. Part of it is due to not paying attention to standards. Another reason is that laboratory work does not pay well and so you cannot attract and hold the most capable people in laboratories.

Mr. FLOOD. We have evidence that a certain blood from some sort of a rodent was sent to seven different laboratories and they got back seven different reports on the same blood. Why?

Dr. SENCER. I think the biggest problem is the lack of competent personnel.

Mr. FLOOD. And they all thought they were dealing with human blood. How could that happen?

Dr. SENCER. Dr. Shafer, of New York City, suggested it would be better if all laboratories dumped specimens down the sink and reported it as normal, because 95 percent will be normal. It is not only having trained personnel but providing proper supervision. In one of the Midwestern States we know of a pathologist who supervises 11 different laboratories in 11 different communities. You cannot convince me that is good supervision.

Mr. FLOOD. And he is on 11 different payrolls?

Dr. SENCER. I do not know his financial arrangement.

GONORRHEA PROGRAM

Mr. FLOOD. In our report last year we strongly encouraged you to do more about the ever-increasing incidence of gonorrhea.

Dr. SENCER. Yes, sir.

Mr. FLOOD. What are you planning in this area for 1969? Is there a flareup of gonorrhea?

Dr. SENCER. I would say it is out of control; yes, sir.

Mr. FLOOD. Out of control?

Dr. SENCER. Yes. There has been a 12-percent increase in reported gonorrhea cases in each of the last few years. You can say it is increasing and increasing dangerously.

Dr. SENCER. Half the year. So that we were not able to put this money to use. We are now using it in communities where we are contracting with health units.

1968 FUNDS AVAILABLE FOR GONORRHEA AND SYPHILIS PROGRAMS

Mr. FLOOD. Let us talk about gonorrhea and syphilis together.

Mr. LAIRD. What was the amount available to you last year after we added the $500,000?

Mr. BERSANO. $915,000.

Dr. SENCER. That is for gonorrhea alone.

Mr. LAIRD. Your budget request was for $415,000, and added to it was $500,000 making the total of $915,000 for 1968. This year it is how much?

Mr. BERSANO. $1,067,000 for gonorrhea control.

That is what is in the 1969 budget before you.

Mr. LAIRD. What request went to the Bureau of the Budget?

Mr. BERSANO. $2,478,000 for gonorrhea control.

Dr. SENCER. The $6.4 million went to the Bureau of the Budget for both syphilis and gonorrhea.

Mr. LAIRD. And you will have unexpended of that $500,000 the committee added about $300,000?

Dr. SENCER. No. I think since much of it will be by contract, most of it will be obligated.

Mr. LAIRD. But some of the work will be done in 1969?

Dr. SENCER. Yes, sir.

Mr. FLOOD. We are not talking about work with the Armed Forces here.

Dr. SENCER. No. That is a separate problem.

SYPHILIS PROGRAM

Mr. FLOOD. Is syphilis dangerous and out of control?

Dr. SENCER. The incidence has stopped increasing. It has not turned the corner and gone down. Here our major problem is not being unable to diagnose it but getting it reported. Only about 25 percent of the syphilis cases being treated by private physicians are being reported.

Mr. FLOOD. Anything else?

EDUCATIVE PROGRAMS TO COMBAT COMMUNICABLE DISEASES

Dr. SENCER. One of our main emphases in this area has been a program of educating the young people.

Mr. FLOOD. What are you doing in the high schools? Are you getting there? I know you meet resistance.

Dr. SENCER. Much of the resistance is breaking down.

Mr. FLOOD. What about the PTA's?

Dr. SENCER. The National PTA's and State PTA's have all been interested in our program. In about eight cities we have major efforts going, not just PTA's but all local groups.

Mr. FLOOD. I was in Philadelphia making a speech at a banquet. When I got upstairs after the banquet I turned on the television and a man was talking to a girl about the importance of having tests made to detect possible breast cancers. It was a short community service

feature. It was very impressive. The conversation and the way they handled it was most effective and impressive. Who does that? It was on a Philadelphia TV station.

Dr. SENCER. This was probably done through the local health department or the local cancer society. If you were to come to Atlanta during this month you would find their leading radio station carrying such a program on syphilis.

Mr. FLOOD. Mrs. Flood was with me and I asked her what she thought of it and she thought it was great. It was most impressive. Are you doing anything to encourage this kind of thing at the National and State levels?

Dr. SENCER. We have community motivation programs.

Mr. FLOOD. It was a late show so it was meant for adult audience.

Dr. SENCER. We are doing so much of this in some towns, that I am afraid we are accused of stacking the deck. Every time somebody from the Department comes to Atlanta he gets interviewed about venereal disease. We are working in Houston, New Orleans, Los Angeles, San Francisco, Atlanta, Chicago, Cleveland, New York, and Philadelphia. We are trying to mobilize the community for syphilis eradication. We are working in about 21 percent of the population in this country. This population represents 31 percent of the syphilis reported.

EPIDEMIC SERVICES AND VIRAL, BACTERIAL, AND FUNGAL PROGRAMS

Mr. FLOOD. You have an increase totaling $1,179,000 for the epidemic services program and for your viral, bacterial, and fungal programs?

Dr. SENCER. Yes, sir.

Mr. FLOOD. For all bureaus of the Department, I do not doubt that more funds would be desirable under more normal cirmustances. The circumstances right now are not normal.

What new legislation or other recent developments make these increases necessary under these abnormal fiscal circumstances?

Dr. SENCER. I think we also have abnormal times, too. We recognize that there are fiscal problems at the present time and we think that we have kept our request to the barest minimum that we can conscientiously request to do our job of protecting the public against infectious diseases. I think that we sometimes forget that these are still major problems, but if you were in Houston 2 years ago when there was a major epidemic of encephalitis, or in Dallas with the same sort of situation, where you have disruption of not just people but, also, where the word "epidemic" could hurt the HemisFair in San Antonio, epidemic diseases are still important and need to be combated. When we have the tools to do it, I believe we ought to push forward. I think you should note that included in the viral, bacterial, and fungal item that you mentioned, is work to improve our capability to diagnose German measles when the vaccine is here so there would not be a lag.

At the present time there is a lag going on in terms of use of mumps vaccine because we were not ready in terms of being able to provide laboratory backstopping for determining effectiveness of mumps vaccine.

"AEDES AEGYPTI" PROGRAM

Mr. FLOOD. What progress are you making and what are your problems with the *Aedes aegypti* eradication programs about which you spoke so glowingly last year?

Dr. SENCER. Let me tell you or show you a little progress since we were here. This little black bottle here, when half filled with water, is making it possible. Just a painted peanut butter jar. It has a very fatal attraction for *Aedes aegypti*. They love to come there and lay their eggs on that little paddle in it. We have been able to use it as a method of inspection rather than having a man walking from house to house looking in all the empty tin cans. We can put these out and they will selectively lay their eggs in there. We have used this in areas where human inspectors have been unable to find *Aedes aegypti* and we can pick them up there.

Mr. FLOOD. How do you know where to place them?

Dr. SENCER. You know the places that *Aedes aegypti* breed. They breed around human habitation, around anywhere there are empty containers, bird baths, flower pots, tin cans, garbage cans, and so on.

At the present time, I would say that we are making excellent progress in *Aedes aegypti*. In Puerto Rico and in Texas—these are areas of concern, one, because Texas is the closest place to Mexico, and it is for these international reasons we are in this program; and, two, because in Puerto Rico we had an epidemic of dengue fever in 1962.

Mr. FLOOD. Why is *Aedes aegypti* a problem?

Dr. SENCER. The *Aedes aegypti* mosquito has peculiar bionomics, life cycle. They lay their eggs in water but then if the water dries up, the eggs will survive for a long period of time. You can take a raft of *Aedes aegypti* eggs, put them on a piece of filter paper, put them up in the cupboard, and a year later put them in a jar of water and they will hatch.

This is the mosquito that transmits yellow fever, dengue, and hemorrhagic fever. We had not had yellow fever in the United States since 1924; but the importance of this mosquito is because it is the vector of urban yellow fever; and, if not eradicated in the Western Hemisphere, there is always a chance it will get into countries where it has been a problem before.

Mr. FOOD. I hear there has been a flareup in Panama.

Dr. SENCER. This would be jungle yellow fever. This is transmitted by a different mosquito. It lives in monkey populations in the jungle. Only when a person goes out of the usual situation, a man goes out in the jungle to cut wood, or something like that, he develops yellow fever as a result of this. The danger then is if he comes down to Panama City and there are large populations of *Aedes aegypti*, this then begins to spread from person to person.

Mr. FLOOD. So we have it in the record, tell us when the program started. How much has been appropriated for it? When do you think it will be finished? Give us an estimate of the total cost of this program.

Dr. SENCER. We have continually been revising our estimates of the total cost of the program. We estimate at the present time that if this were adequately funded, we could accomplish eradication in the next 5 years at cost of $221 million.

(Further information follows:)

Cost of Aedes aegypt, eradication

	In thousands
1964	$2,801
1965	5,796
1966	14,171
1967	14,651
1968	16,691
1969	16,494
1970 through 1974	221,594

PROGRESS IN CONTROLLING TUBERCULOSIS

Mr. FLOOD. What progress are you making in your tuberculosis control program? Is there anything you want to add to what we have discussed?

Dr. SENCER. I think that, much as in venereal disease, TB is now a disease that is developing some enthusiasm among health workers. Health workers are getting enthusiastic about controlling TB. It used to be that TB was a hospital problem. Patients were always sheltered into sanitoria, and health workers outside of these hospitals were not interested in TB. Now good, adequate measures of preventing disease are giving us something positive to do rather than look to see if a person is sick. We feel there is a ground swell of interest in TB, particularly around protecting children from getting infected.

REDUCTION IN FOREIGN QUARANTINE PROGRAM

Mr. FLOOD. Is your Foreign Quarantine Service having to cut back on personnel in stations abroad under the President's general proposals to meet the balance-of-payments problem?

Dr. SENCER. We have a proposal that is being considered at the present time that would bring about some reduction. We think that we can do this without endangering the health of the United States.

Mr. FLOOD. Was this appropriation included under the specific statutory exceptions provided by the Congress in House Joint Resolution 888?

Dr. SENCER. I do not know. There is a big change in the immigration patterns that will take place after July 1. The change in the immigration laws.

We are not going to see as much immigration from Western and Northern Europe. By reducing some of our activities there, where there is not going to be the demand for visa applicants, I think we can live within a reduction.

RAT ERADICATION PROGRAM

Mr. FLOOD. What responsibilities do you have or will you have in the rat eradication program?

Dr. SENCER. We are acting as the technical advisers to State and local health departments in developing their programs of rat control. We have been doing this for many years, even before there was a grant people could apply for. We are working with them in developing training programs.

LATENESS OF PROPOSED 1968 SUPPLEMENTAL

Mr. LAIRD. There is no grant they can apply for. I checked at 3 o'clock this afternoon. The supplemental has not been transmitted to the Congress yet.

Dr. SENCER. I misspoke. Excuse me.

Mr. LAIRD. We heard a couple days ago it should be here by Friday. Last year I heard it would be here by the 30th of November. Then I thought the end of January but it did not show up in January. Then I thought it was to be here last Friday. Pretty soon the fiscal year will be over. There is no use making any money available this year. We will have to start in 1969. I thought you misspoke.

Dr. SENCER. I had, sir. I am sorry.

I think it is important that if at all possible we be so organized that as soon as the money becomes available, action can start and there will not be a long lag period. At the present time there are over $17 million of grant applications in our regional offices, many of them very excellent proposals. We are working with some of the other communities to point out how they can improve their program and we would anticipate not any lack of enthusiasm at all.

Mr. FLOOD. Mr. Laird?

NATIONAL COMMUNICABLE DISEASE CENTER AND DECENTRALIZATION

Mr. LAIRD. The new National Communicable Disease Center has been in operation about 8 years?

Dr. SENCER. Since July of 1960.

Mr. LAIRD. At the time that funds were made available, there was some discussion over the fact that this activity had been decentralized. It would not be operating out of Washington and would not be close to the Public Health Service main office here. Do you have communication problems resulting from the fact that you are located in Atlanta and the Public Health Service is located here in Washington?

Dr. SENCER. I think Dr. Stewart would answer that better. I think communications are excellent. He may think we do not communicate well enough.

Dr. STEWART. Mr. Laird, that is entirely right. Communications are excellent.

Mr. LAIRD. This was one of the first decentralizations for this subcommittee involving a new facility.

Dr. SENCER. Yes, sir.

Mr. LAIRD. Planning for construction in North Carolina is going ahead with the Environmental Health Center, and expansion in Cincinnati. The Food and Drug Administration is now going into a decentralization program. The committee has supported decentralization on several occasions and I think that enough time has passed for us to get a fair appraisal from you as to how it works. If you had to do it all over, would you rather be located in Washington?

Dr. SENCER. When the foreign quarantine program was moved to the Communicable Disease Center a year ago, many of the people in the program said, "We cannot leave Washington. We have so many day-to-day contacts." After they had been in Atlanta a week, one of them said so many of those day-to-day contacts can be handled by

telephone and save an awful lot of time. I think decentralization for CDC has been essential to its growth and responsiveness.

We have good luck, I think, in recruiting scientific and managerial personnel.

Mr. LAIRD. Do you have good relationships with Emory?

Dr. SENCER. We have a close working relationship with Emory. It gives our people an opportunity to participate in academic programs which I think for scientists is important, that they maintain at least a hand in the academic.

Just to be perfectly honest, you can move much faster outside of Washington, I think. Last week we got a call the day before Washington's Birthday from the State Department that there was an epidemic of plague in Indonesia and could we provide assistance. The next day was a holiday and Friday morning we had seven people getting their visas. We had 14,000 doses of plague vaccine, all available in this country, and drugs to treat 100 cases of plague.

The official request came from Indonesia Saturday and our people were there on Monday. I think that this would have been hard to do in many of the bureaus in Washington.

Mr. LAIRD. You do not have a plan to change contract arrangements in the Philippines in fiscal year 1969?

Dr. SENCER. We do not really know what the cutback in overseas assignments is going to be. We do not plan on changing the contract arrangements in the Philippines; no, sir.

PATHOLOGISTS

Mr. LAIRD. How are you getting along with the pathologists' association?

Dr. SENCER. They are working very closely with us at the Center. There are, I think, some people who are still outspoken. I do not know whether I should be pleased or not, but I have been invited to address the College of American Pathologists in New Orleans next week. They are a responsible profession and they recognize that they have problems themselves and are working with us to try to correct them.

Mr. FLOOD. Mr. Casey?

DISTRIBUTION OF FUNDS FOR VENEREAL DISEASE CONTROL

Mr. CASEY. Doctor, how do you conduct or use your funds, say, for venereal disease control; how are they distributed?

Dr. SENCER. The funds that show in this budget for venereal disease control are for direct operations of the Public Health Service. This is a combination of research, epidemiological assistance to State and local health departments, and education.

There are funds available in the comprehensive health planning and services program for venereal disease, for control activities, where State and local health departments can apply for grants to assist them in developing better programs for venereal disease control.

Mr. CASEY. That is a section of the budget request we have already heard, is that correct?

Dr. SENCER. Yes, sir.

Mr. CASEY. Would you, rather, than to stretch this out, state the

difference between the use of the funds that you are requesting in this regard and others?

Dr. SENCER. The funds available in the comprehensive health planning and services are for improving the services available in State and local health departments to conduct venereal disease control programs. The funds we are requesting are primarily for demonstration purposes, research, and development of motivational programs to improve the control of venereal disease.

Mr. CASEY. What is a demonstration program?

Dr. SENCER. When we are faced with the problem, for example, in gonorrhea, where we do not know how to attack the overall problem of gonorrhea, we will work with a State and local health department. You could dress it up and call it research, but it is a demonstration of taking those things you know should work and putting them together and seeing how they will influence the course of gonorrhea in the community.

SEX EDUCATION IN THE HIGH SCHOOLS

Mr. FLOOD. Would the gentleman yield?

I am concerned about what I am advised regarding these teenagers; that is, that they have the idea that gonorrhea is not serious.

Dr. SENCER. You hear a lot about the teenager today, his lack of social concern, and so on. I am not sure how much of that is the fact.

Mr. FLOOD. I am not speaking of social concern at this point, but this specific disease of gonorrhea.

Dr. SENCER. I have a teenage daughter and I can assure you that she knows it is more than just a bad cold. She has had good education in this.

In Los Angeles, where they had an intensive effort in schools on gonorrhea and syphilis, there was a decrease in both diseases in the teenage population following this. I would like to say this was due to the educational work. It may have been due to other factors. This did take place. I think that we cannot just rely on the schools. We have to rely on parents, development of methods of bringing education and information to parents so that they can take the responsibility to transmit this to their children.

Mr. FLOOD. What do the people down in your town of Houston, think about this business of sex education in high schools?

Mr. CASEY. We have, Mr. Chairman, several different school districts in our one county, including the Houston School District. Each district makes up its own mind as to whether or not they are going to have that.

Mr. FLOOD. What is your curbstone opinion about it?

Mr. CASEY. I really could not tell you. I did not hear much discussion down there. Right now they are quite disturbed about kids experimenting with drugs. There is quite a bit of that.

Mr. FLOOD. What about in Iowa, Mr. Smith, sex education in high schools?

Mr. SMITH. It is controversial. Some districts have it and some do not.

Dr. SENCER. It was in Houston that we did the initial field tests of the educational materials and the school board that we worked with was very cooperative. I think it is being used just about all through Harris County.

Mr. FLOOD. What is the attitude out in Wisconsin on sex education in high schools?

Mr. LAIRD. I think it would be pretty favorable in most of our schools. They are carrying on a program of that kind in Wisconsin.

Mr. CASEY. I think our only concern that I can determine is the method in which it is done, Mr. Chairman, whether it is treated in a manner in which parents like for it to be treated instead of too bold a way.

ERROR IN LABORATORY TESTS

On what do you base your statement—you made it again this year as you did last year—about there being 25-percent error in laboratory tests?

Dr. SENCER. This is based on a whole series of different surveys that have been done. Some that have been done by the Communicable Disease Center, some by the College of American Pathologists. One of the most recent ones is from the State of New York published within the last 2 months. The State of New York now has a licensure law and is doing proficiency testing as we are proposing to do for interstate labs.

After their first experience in proficiency testing, the authors of this paper said on the basis of this information that they had, the NCDC estimate of 25 percent was too low.

Mr. CASEY. How about hospital laboratories; do you distinguish between them?

Dr. SENCER. I think that you can have as much range in hospital laboratories as you do in reports. There are small labs in smaller hospitals that do have inadequate work. In general, the bigger the hospital the better the staff that they will have and the better the performance. Whether it is 25 percent or 10 percent, if it is correctible, I think that is the important thing.

Mr. CASEY. Mr. Chairman, there is an item I do not intend to go into because I do not feel competent to do so, but I have received correspondence on it and possibly you have, too. I think it is in the American Pathologists Board or College, or whatever it is called. And this man wants an opportunity to make a brief statement before this committee when we have public witnesses, at which time he will challenge some of the statements made.

Mr. FLOOD. I think you should arrange that with Mr. Moyer.

Mr. CASEY. No further questions, Mr. Chairman.

Mr. FLOOD. Thank you, Dr. Sencer.

Dr. SENCER. Thank you, sir.

JUSTIFICATION MATERIAL

PUBLIC HEALTH SERVICE

Communicable Diseases

Amounts Available for Obligation

	1968	1969
Appropriation	$72,109,000	$63,407,000
Transfer to "National Library of Medicine"	-1,762,000	---
Unobligated balance brought forward for community immunization grants	+2,609,996	+2,609,996
Unobligated balance carried forward for community immunization grants	-2,609,996	---
Total	70,347,000	66,016,996

Obligations by Activity

Page Ref.		1968 Estimate Pos.	1968 Estimate Amount	1969 Estimate Pos.	1969 Estimate Amount	Increase or Decrease Pos.	Increase or Decrease Amount
	1. Grants:						
50	a. Research	---	$3,791,000	---	$3,875,000	---	+$84,000
51	b. Community immunization	---	9,100,000	---	2,609,996	---	-6,490,004
	2. Direct operations:	3,067	57,037,000	3,226	59,532,000	+159	+2,495,000
53	a. Communicable diseases	1,430	16,495,000	1,576	19,138,000	+146	+2,643,000
66	b. Tuberculosis	210	3,659,000	210	3,616,000	---	-43,000
68	c. Venereal diseases	333	4,881,000	346	4,952,000	+13	+71,000
71	d. Pesticides	137	7,145,000	137	7,087,000	---	-58,000
73	e. Foreign quarantine	608	8,199,000	608	8,245,000	---	+46,000
74	f. Aedes aegypti eradication	349	16,658,000	349	16,494,000	---	-164,000
	Total obligations	3,067	69,928,000	3,226	66,016,996	+159	-3,911,004
	Unobligated balance, reserve	---	419,000	---	---	---	-419,000
	Total, obligations and reserve	3,067	70,347,000	3,226	66,016,996	+159	-4,330,004

PUBLIC HEALTH SERVICE

Communicable Diseases

Amounts Available for Obligation
(New Obligational Authority)

	1968	1969
Appropriation	$72,109,000	$63,407,000
Transfer to "National Library of Medicine"	-1,762,000	---
Total	70,347,000	63,407,000

Obligations by Activity

Page Ref.		1968 Estimate Pos.	1968 Estimate Amount	1969 Estimate Pos.	1969 Estimate Amount	Increase or Decrease Pos.	Increase or Decrease Amount
	1. Grants:						
50	a. Research	---	$3,791,000	---	$3,875,000	---	+$84,000
51	b. Community immunization	---	9,100,000	---	--- a/	---	-9,100,000
	2. Direct operations:	3,067	57,037,000	3,226	59,532,000	+159	+2,495,000
53	a. Communicable diseases	1,430	16,495,000	1,576	19,138,000	+146	+2,643,000
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74	f. Aedes aegypti eradication	349	16,658,000	349	16,494,000	---	-164,000
	Total obligations	3,067	69,928,000	3,226	63,407,000	+159	-6,521,000
	Unobligated balance, reserve	---	419,000	---	---	---	-419,000
	Total, obligations and reserve	3,067	70,347,000	3,226	63,407,000	+159	-6,940,000

a/ Excludes an unobligated balance brought forward of $2,609,996

Obligations by Object

	1968 Estimate	1969 Estimate	Increase or Decrease
Total number of permanent positions	3,067	3,226	+159
Full-time equivalent of all other positions	324	222	-109
Average number of all employees	3,101	3,133	+32
Personnel compensation:			
Permanent positions	$24,300,000	$26,251,000	+$1,951,000
Positions other than permanent	2,336,000	1,331,000	-1,005,000
Other personnel compensation	622,000	644,000	+22,000
Total personnel compensation	27,258,000	28,226,000	+968,000
Personnel benefits	3,043,000	3,119,000	+76,000
Travel and transportation of persons	2,280,000	2,463,000	+183,000
Transportation of things	1,100,000	1,109,000	+9,000
Rent, communications and utilities	1,549,000	1,702,000	+153,000
Printing and reproduction	379,000	389,000	+10,000
Other services	2,295,000	2,468,000	+173,000
Project contracts	15,049,000	15,046,000	-3,000
Services of other agencies	424,000	438,000	+14,000
Payments to:			
Public Health Service management fund	900,000	---	-900,000
National Institutes of Health management fund	27,000	---	-27,000
Supplies and materials	5,765,000	3,165,000	-2,600,000
Equipment	1,138,000	1,433,000	+295,000
Grants, subsidies, and contributions	8,747,000	6,484,996	-2,262,004
Subtotal	69,954,000	66,042,996	-3,911,004
Deduct quarters and subsistence	-26,000	-26,000	---
Total obligations by object	69,928,000	66,016,996	-3,911,004

Summary of Changes

1968 enacted appropriation	$72,109,000
Transfer to "National Library of Medicine"	-1,762,000
Unobligated balance for community immunization grants brought forward	+2,609,996
Unobligated balance for community immunization grants carried forward	-2,609,996
Unobligated balance, reserve	-419,000
1968 total estimated obligations	69,928,000
1969 total estimated obligations	66,016,996
Total change	-3,911,004

Increases	Base Positions	Base Amount	Change from Base Positions	Change from Base Amount
A. Built-in				
1. Annualization of civilian and military pay raises	---	---	---	$329,000
2. One extra day of pay in 1969	---	---	---	93,000
B. Program				
1. Research grants	---	$3,791,000	---	84,000
2. Expansion of communicable diseases--viral, bacterial, and fungal program	492	4,575,000	59	729,000
3. Expansion of communicable diseases--epidemic services program	86	1,520,000	36	450,000
4. Expansion of communicable diseases--national laboratory improvement program	365	4,606,000	51	1,637,000
5. Expansion of venereal diseases program	333	4,881,000	13	157,000
Total program increases	---	---	159	3,057,000

Summary of Changes
(New Obligational Authority)

1968 enacted appropriation	$72,109,000
Transfer to "National Library of Medicine"	-1,762,000
Unobligated balance, reserve	-419,000
1968 total estimated obligations	69,928,000
1969 total estimated obligations	63,407,000
Total change	-6,521,000

Increases	Base Positions	Base Amount	Change from Base Positions	Change from Base Amount
A. Built-in				
1. Annualization of civilian and military pay raises	---	---	---	$329,000
2. One extra day of pay in 1969	---	---	---	93,000
B. Program				
1. Research grants	---	$3,791,000	---	84,000
2. Expansion of communicable diseases--viral, bacterial, and fungal program	492	4,575,000	59	729,000
3. Expansion of communicable diseases--epidemic services program	86	1,520,000	36	450,000
4. Expansion of communicable diseases--national laboratory improvement program	365	4,606,000	51	1,637,000
5. Expansion of venereal diseases program	333	4,881,000	13	157,000
Total program increases	---	---	159	3,057,000

Summary of Changes -- continued

Decreases	Base Positions	Base Amount	Change from Base Positions	Change from Base Amount
A. Built-in				
1. Non-recurring contribution to the Public Health Service management fund..	---	900,000	---	-900,000
B. Program				
1. Community immunization grants.....	---	9,100,000	---	-6,490,004
Total decreases.....	---	---	---	-7,390,004
Total net changes requested.....	---	---	+159	-3,911,004

Summary of Changes--continued
(New Obligational Authority)

Decreases	Base Positions	Base Amount	Change from Base Positions	Change from Base Amount
A. Built-in				
1. Non-recurring contribution to the Public Health Service management fund..	---	900,000	---	-900,000
B. Program				
1. Community immunization grants.....	---	9,100,000	---	-9,100,000
Total decreases.....	---	---	---	-10,000,000
Total net changes requested	---	---	+159	-6,521,000

Explanation of Changes

Research grants

An increase of $84,000 will provide support for a total of 102 projects, the same number supported in 1968. The grants program supports extramural research projects with practical objectives related to complex problems of disease control on a community-wide basis and delineations of health hazards of pesticides. Among these are epidemiological field studies, evaluation of immunization techniques, and evaluation and development of laboratory diagnostic procedures.

Community immunization grants

The decrease of $6,491,004 results from the termination in 1968 of specific legislative authority for community immunization grants. However, an unobligated balance of $2,609,996 in prior year funds will be available for obligation in 1969. After 1968, funds appropriated under the Partnership for Health Amendments to the PHS Act, P.L. 89-749, in "Comprehensive health planning and services" are available to fund community immunization projects.

Communicable diseases: Viral, bacterial, and fungal diseases

An increase of $729,000 and 59 positions will provide for an expansion of studies in five major areas: (a) respiratory diseases, with emphasis on influenza and the evaluation of vaccines; (b) encephalitis, including the development of prevention and control measures such as the aerial application of insecticides at an ultra low-volume dosage; (c) streptococcal infections, including field studies on prevalence rates, host susceptibility, dissemination mechanisms, and immunological response; (d) central nervous system diseases caused by over 50 different types of coxsackie and echoviruses, for which no vaccines are available; and (e) smallpox with emphasis on the adequacy of immunization levels among high risk groups and the improvement of vaccines and vaccination techniques.

Communicable diseases: Epidemic services

An increase of $450,000 and 36 positions will permit the training of additional Epidemic Intelligence Service officers to help relieve the shortage of qualified epidemiologists and to provide active surveillance of communicable diseases.

Communicable diseases: National laboratory improvement program

An increase of $1,637,000 and 51 positions will provide for implementation of a program authorized in the Clinical Laboratories Improvement Act of 1967, for licensure of clinical laboratories involved in

interstate commerce. The increase will provide for an intensive program to develop, promulgate and enforce standards relating to the quality and accuracy of laboratory performance, and license such laboratories that meet the standards. Efforts to improve and upgrade the quality of laboratory service including the training and experience of the laboratory's director and staff, proficiency testing, and quality of reagents used by the laboratory will be coordinated with the enforcement of standards.

Venereal diseases

An increase of $157,000 and 13 positions will support the expansion of a program to develop effective gonorrhea control measures. Current pilot programs which include studies to determine the effectiveness of various epidemiologic approaches and to detect the asymptomatic female carrier will be expanded to validate early findings and to develop more effective control measures.

Contribution to the Public Health Service management fund

The $900,000 decrease for the nonrecurring contribution to the management fund is due to a change in the method of funding. In 1969, it is proposed to fund the Office of the Bureau Director costs directly in the activity, "Bureau program direction and management services", in the Radiological Health appropriation rather than through contributions to the Public Health Service management fund.

Explanation of Changes
(New Obligational Authority)

Research grants

An increase of $84,000 will provide support for a total of 102 projects, the same number supported in 1968. The grants program supports extramural research projects with practical objectives related to complex problems of disease control on a community-wide basis and delineations of health hazards of pesticides. Among these are epidemiological field studies, evaluation of immunization techniques, and evaluation and development of laboratory diagnostic procedures.

Community immunization grants

The decrease of $9,100,000 results from the termination in 1968 of specific legislative authority for community immunization grants. After 1968, funds appropriated under the Partnership for Health Amendments to the PHS Act, P.L. 89-749 in "Comprehensive health planning and services" are available to fund community immunization projects.

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Authorizing Legislation

Research grants - Legislative authority contained in Section 301 of the Public Health Service Act provides for the award of grants for research.

Explanation of Transfers

	1968 Estimate	Purpose
Transfer to: "National Library of Medicine".....	-$1,762,000	Transfers funding of the National Medical Audio-visual Center to the National Library of Medicine.

Introduction

The Communicable Diseases appropriation provides funds to plan, conduct, and coordinate (1) a national program, including research, investigations, epidemiological services, epidemic aid, consultation, and surveillance activities, for the prevention and control of communicable and certain other preventable diseases; (2) a national program for the detection, assessment, control, and reduction of potential and harmful exposure of man to pesticides and other chemical agents; (3) a comprehensive national laboratory improvement program, including the provision of laboratory technical support for other segments of the Public Health Service, and for State, local and other groups engaged in medical laboratory practice or administration, and including licensure of clinical laboratories in interstate commerce; (4) a program of continuing education for the practicing health professions on methods and techniques of disease prevention and control; (5) a program to eradicate the yellow fever (aedes aegypti) mosquito from the United States, Puerto Rico, and the Virgin Islands in cooperation with Federal, State, local, and other appropriate authorities; (6) a national program to protect the United States against the introduction of communicable diseases from foreign countries; and (7) a research grants program which includes stimulation of research in neglected or under-emphasized fields.

A major area of responsibility is the provision of technical assistance, professional consultation and information to States and localities on the conduct of their programs which are financed in part through grants from the Comprehensive Health Planning and Services program.

Additional funds requested in 1969 will provide for implementation of a program for licensure of clinical laboratories in interstate commerce, as authorized in the Clinical Laboratories Improvement Act of 1967. In addition, funds are requested for the expansion of epidemiologic and laboratory service for the investigation, surveillance and control of certain communicable diseases. A small increase to expand the pilot study in gonorrhea control is also requested.

1. Grants

	1968 Estimate	1969 Estimate	Increase or Decrease
a. Research	$3,791,000	$3,875,000	$84,000
b. Community immunization	9,100,000	2,609,996	-6,490,000
Total	12,891,000	6,484,996	-6,406,004

a. Research grants

	1968 Estimate		1969 Estimate		Increase or Decrease	
	No.	Amount	No.	Amount	No.	Amount
(1) Non-competing continuations	71	$2,762,000	85	$3,477,000	+14	+$715,000
(2) New grants	31	944,000	17	398,000	-14	-546,000
(3) Supplementals	(10)	85,000	--	---	(-10)	-85,000
Total	102	3,791,000	102	3,875,000	--	+84,000

The growth of our population, the change to predominately urban living and new patterns of disease, as well as the persistence of unanswered questions demand that efforts to apply known control measures be supplemented by efforts to increase our knowledge of disease control. The research grants program of the Communicable Disease Center supports extramural research projects with practical objectives related to the complex problems of disease control on a community wide basis.

In 1969, the Communicable Disease Center will continue to award research grants for projects which support its major program objectives--the eventual control of communicable and certain preventable or transmissible diseases, and reduction of the health hazards of pesticides. Examples of projects which will be supported are: (1) evaluation of immunization techniques and their effects on population immunity; (2) development and evaluation of laboratory diagnostic procedures; (3) field studies related to the epidemiology and control of salmonellosis and arboencephalitis; and (4) delineation of health hazards of pesticides.

The total amount of $3,875,000 requested, an increase of $84,000, will support 102 projects in 1969, the same number as in 1968.

	1968 Estimate	1969 Estimate	Increase or Decrease
b. Community immunization grants	$9,100,000	$2,609,996 1/	-$6,490,004

1/ Unobligated balance to be brought forward from 1968.

Section 317(a) of the Public Health Service Act authorized the Surgeon General to make grants to States during the period beginning with 1963 and ending in 1968 for immunization programs against poliomyelitis, diphtheria, whooping cough, tetanus, measles and any other disease of an infectious nature which represents a major public health problem and is susceptible to practical elimination through immunization. Amounts appropriated pursuant to this section were specifically made available during the year for which appropriated and the succeeding year.

In 1968, a total of 90 grants were awarded to States that comprise 91% of the U.S. population. In 1969, carry-over funds will provide for directing program activities toward strengthening ongoing immunization maintenance programs and developing much needed immunization surveillance systems. In addition, under the Partnership for Health Amendments to the PHS Act, P.L. 89-749, community immunization project grants become eligible for support under the appropriation "Comprehensive health planning and services."

2. Direct operations

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
Personnel compensation and benefits	3,067	$29,156,000	3,226	$31,319,000	+159	+$2,163,000
Other expenses	---	27,881,000	---	28,213,000	---	+332,000
Total	3,067	57,037,000	3,226	59,532,000	+159	+2,495,000

Summary of Program

a. Communicable diseases	1,430	16,495,000	1,576	19,138,000	+146	+2,643,000
b. Tuberculosis	210	3,659,000	210	3,616,000	---	-43,000
c. Venereal diseases	333	4,881,000	346	4,952,000	+13	+71,000
d. Pesticides	137	7,145,000	137	7,087,000	---	-58,000
e. Foreign quarantine	608	8,199,000	608	8,245,000	---	+46,000
f. Aedes aegypti eradication	349	16,658,000	349	16,494,000	---	-164,000
Total	3,067	57,037,000	3,226	59,532,000	+159	+2,495,000

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
(a) Communicable diseases	1,430	$16,495,000	1,576	$19,138,000	+146	+$2,643,000

The net budget increase of $2,643,000 results from a program increase of $2,816,000 offset by a built-in decrease of $318,000 due to the change in financing of the management fund, and $145,000 for other built-in items of increase which include the additional day of pay in 1969 and the annualization of military and civilian pay raises. These built-in increases and descreases are distributed over (1) through (8) below.

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
(1) Viral, bacterial, and fungal diseases	492	$4,575,000	551	$5,246,000	+59	+$671,000

Acute respiratory diseases

Acute respiratory disease is the most frequent cause of illness. This disease is of particular importance in infants and young children who frequently develop severe bronchitis, bronchiolitis, and pneumonia following respiratory virus infections. It is a major cause of industrial absenteeism, thus resulting in significant economic loss. Current studies are being conducted to obtain information on the occurrence and prevalence of various respiratory agents occurring in a community and to determine the nature and extent of illnesses caused by these agents.

The increase of $331,000 and 28 positions is to extend epidemiologic observations in different populations and to study intensively the immune mechanisms associated with illnesses caused by various respiratory pathogens. A program has been instituted to evaluate the newer respiratory virus vaccines available to determine their efficacy in preventing acute respiratory disease.

Gastroenteritis

Gastroenteritis is the second most common cause of illness in man. Recently, studies have shown that more than half of the gastroenteritis cases are caused by viruses or unknown agents. Longitudinal investigations conducted in several populations in Arizona have shown that various types of enteroviruses were associated with cases of gastroenteritis. The exact etiologic relationship of these viruses to gastroenteritis is not known. Therefore, major efforts are currently being directed toward determining the viral etiology of gastroenteritis.

A major group of viruses (enteroviruses) cause central nervous system diseases. This group consists of not only the polioviruses, but also the coxsackie viruses and the echoviruses. Poliovirus infections

have been controlled by widespread use of vaccines. However, there are no practical measures or vaccines available for the control of central nervous system diseases caused by over 50 different types of coxsackie and echoviruses. These viruses frequently cause community outbreaks of aseptic meningitis and, occasionally, encephalitis.

Current studies are limited to investigations of outbreaks to determine the exact viral etiology and to determine the epidemiologic characteristics of outbreaks caused by these viruses. The increase of $126,000 and 10 positions will enable field and laboratory activities to obtain sufficient data that will provide a rational basis for developing prevention and control measures.

Encephalitis

Arbovirus encephalitis occurs periodically in epidemic proportions with an average of over two epidemics per year in the United States during the past 35 years. The epidemics have been caused by four different viruses, St. Louis, western, eastern and California. These diseases are important not only as a cause of morbidity and mortality, but because there is no effective treatment and permanent brain damage may result, particularly in children with western and eastern encephalitis.

The prevalence of arthropod-borne encephalitis appears to be on the increase. Major epidemics of St. Louis encephalitis occurred in Houston, Dallas and Corpus Christi, Texas, in 1964 and 1966, and the second largest epidemic of western encephalitis in the Nation's history occurred in Colorado and neighboring states in 1965. California encephalitis was unknown until recently, but repeated outbreaks have occurred in Wisconsin and other north central states during the past 5 years. The extent to which many other arboviruses are involved in human disease is not yet fully known. Mosquitoes are the primary vectors of most of the viruses and wild birds are the principal reservoirs.

Current studies are being conducted to determine the epidemiologic and ecologic factors responsible for epidemic and endemic prevalences of arbovirus diseases in selected study areas of Colorado, Texas, California, Louisiana, Florida, and Georgia. These studies provide the basis for developing and evaluating more effective prevention and control measures, such as the aerial application of malathion insecticide at an ultra-low volume dosage. The increase of $107,000 and 8 positions is to expand both the ecological and experimental control studies in order to meet the urgent needs of State and local health departments for more satisfactory methods for the prediction, prevention and control of arthropod-borne encephalitis.

Streptococcal infections

Streptococcal infection is the most frequently reported disease in the United States. The number of reported cases now exceeds 400,000 per

year, but estimates are that over 7 million cases occur annually. To improve measures for the prevention of streptococcal infection is particularly important as the disease causes serious sequelae such as rheumatic fever, rheumatic heart disease and acute glomerulonephritis (severe kidney disease).

Preliminary field studies have been conducted on seasonal prevalence and the socio-ecologic factors in a group of families in three communities in Colorado. The data obtained indicated that prevalence rates averaged about 25 percent in healthy school children between the ages of 6 and 13 years and that certain "carrier" families were responsible for most of the endemic prevalence of streptococcal infections within the communities. To devise and evaluate appropriate measures for the prevention and control of the disease, observations must be made on at least 100 families in order to obtain meaningful data. The increase of 8 positions and $95,000 will permit expansion of activities to intensify evaluation of factors relating to virulence, host susceptibility, clinical and immunological response, mechanism of dissemination and perpetuation of the disease. Improvement, development and standardization of the procedures for identifying streptococci and their antibodies, and the production and evaluation of antisera are necessary also if we are to reach our objective--development of methods to control streptococcal disease and its serious sequelae by interrupting dissemination of Streptococcus in the community.

Smallpox

Until the goal of world-wide smallpox eradication is reached, it is incumbent upon the United States to maintain a high competency of skills in the laboratory diagnosis of smallpox since the introduction of the disease into this country is a constant threat. In the past, the CDC did not have this competency. Today the Center does, and with the increase of 5 positions and $70,000 we will be able to progress with the development and implementation of: (1) studies of immunization levels among high risk groups and when indicated, specific programs to increase immunization to acceptable levels; (2) surveillance of complications of smallpox vaccinations; (3) studies on improving vaccines and vaccination tools and techniques; and (4) professional training for State and local health personnel in the diagnoses and epidemiology of smallpox.

Rubella

Rubella (German measles) infection is a major cause of congenital deformity in the United States. In 1967, the Center expanded its serodiagnostic studies in an effort to meet the demand for sensitive and accurate diagnostic tests for rubella. In addition these studies of the physical, biological, and antigenic characteristics of rubella virus

are being performed as the basis for further investigations of the pathogenesis, infectivity, and immune responses associated with rubella virus infections. The need for such knowledge increases as the development of an effective German measles vaccine progresses.

Hepatitis

Infectious hepatitis, a virus infection involving the liver, is of world-wide distribution. The disease is cyclical in the United States and we are now experiencing an increase in incidence. There are no effective control measures. Studies have been conducted in cases of infectious hepatitis and in selected populations in Arizona in an attempt to isolate the etiologic agent or agents. Experiments have been made in an attempt to infect chimpanzees with viruses recovered from human cases of infectious hepatitis.

Laboratory activities are being redirected to emphasize work on isolation of viruses from cases of hepatitis in man and in chimpanzees using different tissue culture techniques and animal host systems. Recently, infectious hepatitis has been transmitted from marmoset to marmoset. Therefore, it is planned to explore the use of marmosets as an experimental host for virus isolation and immunologic studies.

Hospital infections

Of the 30 million annual admissions to acute-care hospitals in the United States, some 1,500,000 (5%) acquire an infection during hospitalization, increasing costs by a minimum of $75 million per year. The staphylococcus and streptococcus, once the dominant causes of hospital infections, are still important, but the gram negative bacteria and even some viruses are becoming increasingly prevalent, particularly the E. coli, pseudomonas, and proteins groups, many of which are resistant to multiple antibiotics. They cause serious infections of the urinary tract, lungs, skin, and sometimes meningitis and septicemia. The current collaborative program of investigation and surveillance will be continued in an effort to identify specific causes of infection and to explore methods of control in the hospital environment.

"Green Monkey" disease

During August and September 1967, a total of 28 persons in Germany fell ill from a disease associated with autopsies on green monkeys. Seven of these people died--a case fatality rate of 25 percent. On the invitation of the German Ministry of Health, CDC assisted in the investigation of this unknown disease. This epidemic has concerned the medical world for it appears that a new disease has been tragically discovered. More important is the ominous threat of further illness and death spread by an animal commonly used in research and in the production of vaccines. The Center is continuing its investigation of the disease to define the potential hazard to the United States and to determine the public health measures to be taken to prevent a similar outbreak in this country.

Currently the Center is attempting to isolate the causative agent, identify the agent, and develop a serologic test needed for diagnostic purposes.

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
(2) Biology and control of disease vectors	184	$1,344,000	184	$1,338,000	---	-$6,000

Plague

Plague is a highly fatal infectious disease which is transmitted by the bite of a rat flea or other species of fleas, by direct contact with infected rodents, or by pneumonic spread from person to person. The reservoirs of infection are rats and various species of wild rodents. Sylvatic plague is prevalent in wild rodents of the western United States. The hazard of becoming complacent about the transmission of wildlife plague to humans is illustrated by the 1965 and 1966 outbreaks in New Mexico, where a total of 12 human cases were detected. These cases of plague were acquired in Colorado, Utah, Arizona, Nevada, and California.

Because of the potential danger of introducing plague into the United States from Vietnam and other Southeast Asian countries, current studies by the Communicable Disease Center Laboratory in San Francisco are being revised to permit increased surveillance of rats in seaports, as well as in enzootic foci in the United States. Emphasis will be placed on determining the exact geographic distribution of plague foci and the ecologic factors associated with these foci and redefining the eastern boundary of sylvatic plague infection. The program to evaluate the potential hazard of plague in outdoor recreational areas where large numbers of people congregate will be continued. Plans have been made for collaboration and exchange of knowledge with WHO and other agencies throughout the world on the ecology and control of plague.

Schistosomiasis

Schistosomiasis is one of the foremost disease problems of the world, affecting approximately 200 million people. It is widely distributed, occurring in Africa, Asia, South America, southern Europe, Australia, and a number of islands in the West Indies, including Puerto Rico and the Virgin Islands. The infection is caused by a parasitic worm (blood-fluke) which lives in the veins of various organs, such as the liver, urinary bladder, and intestines, and results in a serious chronic disease. Approximately 15 percent of the population of Puerto Rico is infected with Schistosoma

mamsoni; in highly endemic areas, infection rates may be as high as 50 percent. The disease can only be controlled by eliminating the intermediate snail host or vastly improving sanitation.

Field investigations are designed to (1) develop and improve upon means of control and diagnosis already under investigation; (2) develop and evaluate both chemical and biological control techniques; and (3) provide collaboration and exchange of knowledge with other investigators throughout the world. The current studies include determination of infection foci and ecological factors influencing persistence of infection; evaluation of chemical molluscicides and biological agents to control the host snail; and evaluation of new or improved diagnostic methods. The ultimate goal--to reduce the prevalence of schistosomiasis throughout the world--awaits the development of effective methods to control the intermediate snail host.

Rat control

In 1968, CDC will redirect general vector control activities to provide technical support for the nationwide rat control effort provided for in funds requested to carry out the Partnership for Health Amendments of 1967. The Center is providing technical training and consultation to local rodent control workers in an attempt to provide trained personnel sorely needed in this campaign to rid our urban areas of the threat of disease and disability caused by rats.

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
(3) Diseases of animals transmissible to man	66	$1,255,000	66	$1,244,000	---	-$11,000

Rabies

Continued surveillance of diseases that man shares with animals (rabies, Q fever, psittacosis, and leptospirosis) provides a needed measurement of the changing pattern of these diseases caused by man's manipulations of natural host-vector ecological relationships.

Methods of evaluating effects of various sylvatic rabies control programs are dependent upon accurate measurements of animal populations. Ecological studies of wild host populations to produce methods of measuring wild species populations with a known degree of accuracy will be started. These studies will be supplemented by work to determine the degree of interspecies transmission and establish a more logical base for control measures. Detailed antigenic analysis and comparisons will be made of viral strains isolated from the more important host species such as bats, foxes, skunks, etc. Electron microscopy will be employed to reveal any ultrastructural differences between viral strains.

Development of an antirabies immune globulin of human origin will provide a valuable therapeutic tool in the treatment of persons exposed to rabies. A more potent, antigenically "clean" rabies vaccine for use in man, both in therapy and prophylaxis, is a critical need. Studies are under way in each of these areas.

This is the third year of a five-year joint US-Mexican rabies control program supported by a PHS contract. A program was started in 1966 in Baja California and was expanded in 1967 to the present five-year program which encompasses all of the cities in Mexico along the border of the United States. These programs are now active in all of the contract cities and are designed to be continued by the Mexico Ministry of Health at termination of contract support. Laboratory diagnostic aid and training is provided to Mexicans, as well as other Nationals, in support to this and other programs through the Communicable Disease Center Rabies Investigations Laboratory, Lawrenceville, Georgia, designated a WHO Reference Laboratory for Rabies in 1967.

Salmonellosis

Currently, the Center is engaged in continuing longitudinal studies of salmonellosis as it occurs in our population. Only by careful attention to each outbreak will the new sources of infection be found. While the number of infections has remained relatively constant (18,000 - 20,000 per year) recent episodes have highlighted the dangerous potential for spread of salmonellosis. The discovery of salmonella in nationally distributed products poses a grim possibility of the spread of disease throughout our population.

It is imperative in the shadow of this health threat, that the Center stand ready to identify sources of salmonellosis infection to prevent or contain interstate outbreaks. This requires surveillance, collaboration with State and local health departments, laboratory reference service, production of reagents, and epidemic aid.

Efforts are currently being directed toward the determination of the true incidence of salmonellosis, the vehicles of infection, and the sources and reservoirs of the disease agent. Since there is no specific method as yet to prevent the disease, high priority is given not just to investigations but also to training of public health personnel in the most current methods of prevention.

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
(4) Communicable disease control demonstrations, consultations, and investigations	65	$843,000	65	$836,000	---	-$7,000

Despite the reduction in the reported incidence of some communicable diseases in the United States, there remains an annual toll of about 140,000 communicable disease deaths, an estimated 300 million acute infections, and approximately 1.5 billion days of communicable disease illness in this country.

The demonstration technique offers new combinations of approaches and methods to some of the unmet public health needs of the community. In particular, the demonstrations have provided local health units with a tool to identify the pockets of communicable disease, evaluate the socioeconomic problems involved, reach the "disadvantaged" populations that are usually associated with high disease incidence, and through stimulation of this group obtain their participation in community sponsored corrective action. Community action programs involving this group have taken place against such diseases as tuberculosis, polio, enteric diseases, hepatitis, diphtheria, smallpox, tetanus, salmonellosis; and to solve such public health problems as animal bites, disease vectors, water and sewage treatment, and refuse storage and disposal.

During 1967 demonstration programs were in operation in seven Public Health Service Regions with 53 communities participating in some phase of activity. In demonstration areas, staff specialists will provide assistance in public health education, behavioral motivation, and evaluation. Improved methods for locating disease problems within urban and rural areas will be developed. Field research will be continued to determine the factors of human behavior which prevent certain population groups from participating in disease control activities. Statistical competency will be strengthened to evaluate the efficiency of program methodology and to analyze masses of community data for ecological clues to control or eradication.

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
(5) Epidemic services	86	$1,520,000	122	$1,958,000	+36	+$438,000

Active surveillance of communicable disease as practiced at the Communicable Disease Center includes the identification of disease patterns, study and identification of sources of infection, an early warning system to alert State and local health departments to potential epidemic situations,

and the provision of epidemic aid. At the heart of the program stands the Center's Epidemic Intelligence Service, a corps of trained epidemiologists available to furnish immediate assistence in the investigation and control of disease outbreaks. During 1967, the EIS responded to approximately 100 calls for epidemic aid.

There are two vitally important elements which are integral parts of these positive surveillance services -- field evaluation of new or improved diagnostic and control techniques and the development of practicing epidemiologists. The expanding emphasis on general health and research programs in this country has accentuated the critical need for training more qualified epidemiologists. Multipurpose surveillance officers must be constantly available to meet new and emerging disease problems - today, encephalitis, tomorrow an epizootic of rabies. The techniques of epidemiology and surveillance must begin to be applied to broad health problems that are upon us, for the term epidemiology literally means a study of that which is put upon the people. For example, the great attention being paid to family planning has pointed up an area of deficiency. Much is known about population dynamics and the physiological basis for family planning, but virtually no attention has been paid to the application of epidemiological techniques to the evaluation of such programs. Although this is not a communicable disease, the problem has reached epidemic proportions in many segments of our society and the talents of the epidemiologist must be applied. Many of the communicable diseases are concentrated in the segments of the population most in need of practical programs that will allow them to space their children as they desire. It is therefore logical to integrate the training of epidemiologists for family planning with epidemiologists for communicable disease control. The demands for international epidemiologists will also continue to increase as this country enlarges efforts to assist other countries in raising the health standards of their people. In 1969, an increase of $438,000 and 36 positions is requested for expansion of the Epidemic Intelligence Service to help relieve the shortage of epidemiologists.

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
(6) National laboratory improvement program	365	$4,606,000	416	$6,181,000	+51	+$1,575,000

Although significant strides have been made in improving and strengthening State and local laboratory competency, much remains to be done to keep pace with the needs and combat such problems as poor performance, shortage of trained personnel, obsolescence of laboratory scientists, lack of standardized procedures, lack of standardized reagents, insufficient performance evaluation, and inadequate facilities. As an example of the need for standardization procedures, there are at least 29 methods for the determination of cholesterol, the majority of which give inaccurate results. The need for standardized and improved reagents is pointed out by the fact that 18% of the final packaged commercial products and 24% of the prepackaged products are found unacceptable by CDC standards. The quality of reagents used in the examination of specimens directly influences the accuracy of test results.

The program to improve laboratory performance will continue to direct its efforts in these major areas:

(1) The CDC will continue accumulating baseline data on State and local public health laboratories and some aspects of hospital laboratory operations. These data will serve to determine trends and evaluate future activities.

(2) Reference diagnostic services will be provided to all State and territorial public health laboratories for communicable, congenital, and chronic diseases. Even the most competent laboratories sometimes have reason to request assistance. In 1969 the Center expects to receive approximately 20,000 specimens for reference diagnosis which will be subjected to approximately 120,000 tests. In addition, our laboratories will provide referee services in intrastate laboratory performance evaluation programs.

(3) Standardization and evaluation of new and modified tests will be carried out on a large scale involving many samples and variations of techniques. Methods for glucose, cholesterol, and hemoglobin determinations, as well as techniques in microbiology, will be evaluated to determine which procedures give consistent values and how results in different laboratories can be compared.

(4) We will evaluate commercially produced microbiological reagents and revise published specifications which define acceptable criteria for production and testing. Also the Center will produce and furnish some reagents which are not commercially available to State public health laboratories and other Federal laboratories and grantees. An estimated 1,500,000 milliliters of reagents and 7,000 cultures will be distributed in 1969.

(5) "Unknown" microbiological, hematological, and clinical chemistry specimens will be mailed to State and territorial public health laboratories and hospital laboratories for examination. Results will be analyzed and recommendations for additional training, tests, or changes in procedures will then be given to the participating laboratories. This consultation includes selection of techniques, performance evaluation, quality control, instrumentation, interpretation of results and animal care.

(6) Training is a major element of the CDC National Laboratory Improvement Program. In 1969, 575 students are expected to receive 5,100 days of training in 35 formal courses at the CDC; 3,000 days of training will be provided to 1,000 students in field courses; and 160 students will receive 1,600 student-days of individualized bench training. A Laboratory Directors Training Program, sponsored jointly by the University of North Carolina and the CDC, will provide a curriculum leading to a doctorate degree in public health for present and future State public health laboratory directors.

(7) Laboratory management consultation will be provided which includes organization, manpower utilization, provision of central services, safety, and other administrative activities. In addition, experts at CDC will provide assistance in laboratory facilities planning, space utilization and modernization.

The serious deficiencies which continue to exist in the nation's clinical laboratories, however, cannot all be solved solely by workingwith individual State public health laboratories. Information derived from studies conducted by the Communicable Disease Center and other investigations indicates that, although there is considerable variation from laboratory to laboratory, erroneous results are obtained in an average of 25% of all clinical laboratory tests. These inaccurate results often mean the difference between a healthy, productive life and extended convalescence or death.

It is estimated that there are between 13,000 and 14,000 clinical laboratories in the nation. Approximately 1,000 of these transact business in interstate commerce. States cannot effectively control the quality of performance and thus protect their citizens from poor laboratory service, when this service is offered by mail from outside the State boundaries. Federal action is necessary to insure that the clinical laboratories which transact business in interstate commerce comply with minimum standards and will serve as a stimulus to and model for action at the State and local levels.

An increase of $1,575,000 and 51 positions is requested for improvement of laboratories authorized by the Clinical Laboratories Improvement Act of 1967 (P.L. 90-174). Under this authority it will be unlawful for any clinical laboratory to operate in interstate commerce after July 1, 1969 unless such a laboratory has been licensed by the Secretary. In carrying out this mandate, the Secretary is required to promulgate such regulations and standards as are necessary to insure adequate performance of laboratories. By carrying out this mandate, the health and welfare of millions of Americans will be better protected. The requested funds will permit initiation of an intensive program to develop, promulgate and enforce standards relating to: (1) the quality and accuracy of laboratory performance; (2) the training and experience of the director and staff of the laboratory; (3) proficiency testing; and (4) the quality of reagents used by the laboratory. Enforcement will be coupled with a positive effort to improve and upgrade the quality of laboratory services so that the public's health can be improved as well as protected.

The program to achieve this goal will consist of the following elements:

(1) identification of the estimated 1,000 laboratories covered by this legislation;

(2) periodic on-site inspection by professional staff;

(3) evaluating the laboratories proficiency by preparing and submitting check specimens for testing;

(4) providing training and consultation for laboratories found to be deficient;

(5) assurance of internal quality control procedures; and

(6) enforcement of the provisions of the law where improvement is unsuccessful.

The Center has appointed several ad hoc and a permanent advisory committee to assist in the promulgation of regulations and development of standards. To supplement the work of the Center's laboratories and to provide equitable and prompt administration, certain laboratories across the country will be designated to serve as referee and control laboratories. This function will be performed under contracts with universities and other research organizations. In addition to this reference work, scientists from these laboratories will assist scientists from the Center in making on-site inspections of clinical laboratories. Equipment must be purchased and contracts for the development of automated equipment must be initiated if the Center is to maintain its leadership in this rapidly developing field. With such a start the Center will be in a position to promptly and properly carry out these new responsibilities.

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
(7) Training of public health workers	108	$1,481,000	108	$1,470,000	---	-$11,000

Changes in program emphasis, new developments in old programs and newly developed programs present constant problems of training and retraining, and continuing education for public health workers is designed to meet these problems and to speed the flow of information from the research laboratory to the application in the field.

The current explosion of knowledge in the health field has left a large gap between knowledge and practice that can only be filled through in-service education of public health teams and through education of the public. The majority of this kind of teaching in the past has been accomplished by the written or spoken word. The technology of training which has also been developing over the past 10 years has not been adequately used in the health field to meet training needs. Much remains to be done in this area to even begin the task of adequately meeting training requirements. During 1969 emphasis will be placed on updating slides, films, overhead projectuals, flip charts, and other common teaching tools and on training more instructors in the use of these simple training devices.

During 1967, 22 seminars were presented to State public health associations, State chapters of the Academy of General Practice and the Academy of Pediatrics on salmonellosis, immunization, tuberculosis, and viral hepatitis. A new seminar on viral diseases has been developed. The American Medical Association has requested that the seminar services be made available to their State and local associations. Programmed instruction and home study courses are being offered to public health workers who are unable to attend centralized training programs. The training aspects of epidemic assistance are being met through "instant training" courses. Methods have been sought to improve the basic training of physicians in the diagnosis, epidemiology, and control of the more rare communicable diseases through the provision of teaching library volumes to each school of medicine, osteopathy, and public health in the United States.

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
(8) Immunization services	64	$871,000	64	$865,000	---	-$6,000

Primary emphasis was placed during 1967 on the nationwide drive to eradicate measles. The Center is now providing leadership and assistance to communities in (1) establishing the use of measles vaccine as an integral and on-going part of public and private immunization services; (2) establishing effective informational and motivational programs to attain and maintain public interest and understanding of the seriousness of measles and the increased need for maintaining optimal immunization levels; (3) conducting mass immunization clinics, where appropriate, to quickly reduce backlog of susceptibles in order that on-going immunization programs can keep pace with the annual newborn population; and (4) continuing close surveillance of the overall immunization status of the national population and providing appropriate epidemic assistance.

Emphasis will continue to be given in complementing local efforts in the areas of motivation and public information. Prototype materials, including motion pictures and a number of forms of audiovisuals, will be developed and made readily available for local use. In addition, consultative competencies are being developed in all phases of program operation and particularly in those areas which are vital to reaching susceptibles in lower socio-economic areas.

The decline in the reported incidence of measles following the nationwide eradication effort has been quite dramatic. In 1966 a total of 203,010 cases of measles were reported. The preliminary 1967 total of 62,232 reported cases of measles is the lowest number for any year according to records dating back to 1912 when reporting of measles cases began on a national basis. However, as we are moving toward the surveillance stage for this disease, as with polio, the need for continued education of the public concerning the necessity for maintaining optimal immunization levels becomes of paramount importance in order to prevent the resurgence of these diseases.

In 1969 the foregoing activities will continue, but special emphasis will be placed on establishing intensified surveillance activities, particularly for mumps and rubella.

A mumps vaccine has been licensed for use and the prospects are promising that a rubella vaccine will be available within two years. The Center needs to have knowledge of the impact of these immunizing agents in normal community use; therefore, immunization surveillance activities will be continued.

		1968 Estimate		1969 Estimate		Increase or Decrease	
		Pos.	Amount	Pos.	Amount	Pos.	Amount
(b)	Tuberculosis	210	$3,659,000	210	$3,616,000	---	-$43,000

The control of tuberculosis depends on shortening the period during which active infectious cases are communicable; assuring that previously active cases which have been treated and are now inactive do not relapse; and preventing the development of infectious cases of tuberculosis. The Center's effort will be directed toward these basic objectives throughout the United States by working with State and local health departments to assure better casefinding and case supervision and to develop more extensive programs of chemoprophylaxis.

During 1969 primary emphasis will be placed on encouraging State and local health agencies to strengthen their control activities designed to prevent the spread of tuberculosis infection to our school-age children. Specifically, this emphasis at the State and local level will include efforts to:

(1) tuberculin test four million children entering school--to detect reactors, i.e. those already infected;

(2) examine reactors' associated--to find the sources of infection and other reactors;

(3) examine school teachers and employees--to identify reactors and potential sources of infection.

The aim is to forestall the spread of infection from adults to children, as this is the only way to assure a generation free from tuberculosis--the first big step toward significant reduction of the disease.

If an impact is to be made on the tuberculosis problem in the United States, State and local health departments must work toward raising from 85 to 90 percent the completion of initial examination of close contacts in 60 days; from 50 to 90 percent the bacteriologic examination of active cases at home at least every six months; from 20 to 90 percent the treatment of close contacts. The Center is working with State and local health agencies in meeting these objectives by:

(1) assisting medical schools by providing training aid and films on tuberculosis and,

(2) providing short term training to physicians, nurses and other tuberculosis workers.

Supplementing these efforts the Center is engaged in other activities designed to enhance State and local tuberculosis control programs. The objective is to upgrade overall effectiveness through better patient management on a community and individual basis and by providing timely disease intelligence:

(1) The computerized tuberculosis register system developed by the Center will be offered to all health jurisdictions. This should improve the possibility for effective management of all TB patients, contacts, and suspects.

(2) State and local health agencies will be encouraged to provide TB services not only on the basis of the patients' needs but also on the type of service they will accept. The aim is to improve the medical management of the disease, in all its aspects--active, inactive, suspect, contact, and infected.

(3) The frequency of tuberculosis infection in the United States will continue to be monitored by Center personnel through the skin test program of young men inducted into the Navy. This index also provides information to pin-point geographic "hot spots", with detailed plotting of rates within 250 large urban areas. A comparable surveillance program is the testing of pre-treatment drug resistance of tuberculosis patients in 25 cooperating hospitals. Results of this continuing survey provide an early warning system if the frequency of drug resistant tubercle bacilli should ever increase above its present low level.

A major element in the present control program is a one-year prophylactic course of isoniazid for persons who are at high risk of developing active disease. The data presently available from 10 years of follow-up after one year of drug treatment shows a 65% reduction in tuberculosis. The carefully organized follow-up has 98% of the 10,000 study population under observation with no identification of delayed toxicity. Applied nationwide, this reduction would make a dramatic impact on the tuberculosis problem.

In recent years a high priority has been given to developing skin testing antigens that would differentiate true tuberculosis infection from infection with mycobacteria. Today we are beginning to reap the benefits of this research and laboratory facilities at the Center are being geared to the production and standardization of large lots of the specific antigen

for tuberculosis and appropriate atypical antigens. This will allow us to be more precise in identifying those persons truly at risk of developing disease and thus take appropriate preventive measures.

The net budget decrease of $43,000 results from a built-in decrease of $73,000 due to the change in financing of the management fund and $30,000 for other built-in items of increase. These items include the additional day of pay in 1969 and the annualization of military and civilian pay raises.

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
(c) Venereal diseases	333	$4,881,000	346	$4,952,000	+13	+$71,000

The Communicable Disease Center promotes and supports efforts designed to achieve the eradication of syphilis and the control of gonorrhea. The Center provides leadership in the development of venereal disease control procedures and provides assistance to State and local health departments in achieving the most effective utilization of resources in the conduct of control programs through (1) the collection and analysis of data; (2) the development of informational and educational materials; (3) the development of venereal disease control procedures; and (4) laboratory services including consultation, training courses for State laboratory personnel, reagent check testing on commercially prepared products, and the evaluation of therapy schedules.

Syphilis

Syphilis persists as a major public health problem with 21,090 primary and secondary cases reported in 1967. While this represents a slight decrease over the previous year, intensive efforts must be continued if the goal of eradication is to be reached. State and local health departments are conducting syphilis eradication programs with financial assistance under health services project grants. Vital to the operation of these efforts is assistance provided by the Center. Trained personnel are assigned to State and local health departments to assist in the conduct and evaluation of the syphilis eradication effort. In addition to serving as a valuable manpower resource in the field, this field staff acts as a direct channel for the application and incorporation of refinements and advances in syphilis epidemiologic techniques which are under continuous development at CDC.

With the build-up of military strength, problems have arisen in effectively controlling venereal diseases in and around military bases. Cooperative efforts between the Center, the military and civilian health jurisdictions located around military bases have been reaffirmed and redefined in the "Seven Point Agreement of 1967" signed by the President of the Association of State and Territorial Health Officers and the Secretaries of Defense, Transportation, and Health, Education, and Welfare.

In syphilis research the objective of the Center is to develop an effective vaccine and to improve diagnostic procedures. The suitability of primates as experimental models for humans has been established. The International Bank for Trepunemal Strains, located at CDC, is accumulating isolates of T. pallidum and other treponemal strains, which it is hoped will be suitable for the ultimate development of a syphilis vaccine. The possibility of a breakthrough in the development of a vaccine would be greatly enhanced if a method of cultivating T. pallidum were found. The only current source of T. pallidum is in vivo growth in rabbit testes.

The development and field trial of diagnostic tests for syphilis capable of detecting the disease before the patient enters the infectious stage are being continued. Such a diagnostic test will greatly enhance eradication efforts by detecting incubating syphilis and ensuring treatment before infectious lesions appear.

Gonorrhea

The seriousness of the gonorrhea problem in the United States is demonstrated by the rapidly increasing number of cases reported and the continued development of increased resistance by the causative agent to penicillin therapy.

The following table reflects the annual percentage increase in reported cases during recent years:

1957 to 1964 Average	1965	1966	1967
+4.9%	+6.7%	+8.0%	+12.1%

In 1967, 375,606 cases were reported in the United States compared to 216,476 cases in 1957. The reported cases, however, are known to be only a fraction of the actual cases occurring so the true extent of the problem is not known. We estimate that the actual number of cases occurring is in excess of 1,200,000 per year.

In order to reverse the increasing rate of gonorrhea, the development of control measures is necessary while effective therapy is still available. The Communicable Disease Center has initiated pilot programs through contracts with local and State health departments, laboratories, and other health service organizations to determine the extent of the problem and to evaluate various approaches to gonorrhea control. These health organizations will screen large numbers of females to locate and treat previously undetected female cases of gonorrhea and will study resulting effects on the incidence of male cases. Included are studies designed to determine the effectiveness of various epidemiologic approaches such as casefinding and contact interviews used in controlling syphilis, and pilot programs to detect the asymptomatic female carrier. The increase requested will permit expansion of these efforts, both in scope and geographic area, to validate early findings and to develop more effective control measures. The efforts directed toward

control measures would be enhanced and the development of an eradication program would be possible if an effective and practical screening device were available. Research efforts of the Center are directed toward these ends.

The net budget increase of $71,000 results from a program increase of $157,000 offset by a built-in decrease of $119,000 due to the change in financing of the management fund and $33,000 for other built-in items of increase. These items include the additional day of pay in 1969, and the annualization of military and civilian pay raises.

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
(d) Pesticides	137	$7,145,000	137	$7,087,000	---	-$58,000

The pesticides program is directed toward the detection, assessment, control, and reduction of potentially harmful and/or unnecessary exposure of man to pesticides. To achieve these ends, the Center: (1) investigates health hazards of economic poisons and related materials used in public health and agriculture; (2) defines the health hazards involved in the use of or incidental exposure to these materials; (3) develops procedures for the prevention or alleviation of these hazards; (4) provides epidemiological assistance and gives consultation and technical training in the prevention, diagnosis, and treatment of pesticide poisoning in humans, with emphasis on collaboration with State health department laboratories to develop additional competence in this field; (5) prepares and distributes current pesticide research information; (6) reviews pesticide applications for human health implications prior to issuance of registration certification by the Department of Agriculture.

Community studies on pesticides are conducted under contract with State health departments and medical schools to determine what the actual hazards of exposure to pesticides are to the health status of man. The studies are being conducted in Hawaii, Washington, California, Idaho, Utah, Arizona, Colorado, Iowa, Texas, Louisiana, Mississippi, Michigan, New Jersey, South Carolina, Florida, and Puerto Rico. No additional projects are contemplated for 1969. In 1967, the ecological aspects of pesticides as to who uses what pesticides where, when, how, and why were up-dated for correlation with measured levels of pesticides in human tissue and in the environment. Studies of the clinical physiologic and biochemical effects of this exposure on population groups will be continued during 1969. Particular attention will be given to more accurately define these effects and to determine not only their significance on man's health status but the causative or contributory relationship with type and degree of pesticide exposure.

As recommended by the President's Science Advisory Committee on use of pesticides, the community studies are endeavoring to determine the actual magnitude of risk which chronic exposure to small amounts of pesticides may carry. While pursuing this primary goal, short term objectives of improved diagnostic and therapeutic capabilities are being reached with more efficient surveillance systems for those with high exposures, and safer techniques to minimize the exposure of those who must handle pesticides.

It is estimated that during 1968, 20,000 applications for registration will be reviewed by the staff, and it is expected that approximately the same number will be reviewed during 1969. These

reviews will involve a more thorough in-depth evaluation of toxicological data and proposed uses of all pesticide formulations new and in use, when there is any question of potential health hazard to humans.

Valid data from laboratory and environmental observation must provide the basis for Public Health action to prevent adverse effects from use of pesticides. We have initiated extensive toxicological and chemical studies of chlorinated hydrocarbons, organophosphorus compounds and carbamates. Particularly pertinent are continuing long-term chronic toxicity studies on primates with these materials, coupled with a comprehensive study of the pharmacological effect on man of residues of these compounds at levels most frequently encountered. Present investigations will seek to tie in advances in technology to improvement in procedures for measuring minute residues of not only the more recently released pesticides but also the older ones about which there is insufficient information. In this connection a central analytical laboratory has been established which will be used to make measurements in connection with the foregoing studies and develop new and improved ultrasensitive methods that will permit measurement of these pesticides at levels below the minimum.

A limited program of training and assistance is presently provided to State and local health departments to meet a critical need for competent and better trained personnel in pesticides epidemiology and analytics. In addition to providing detailed training in analytical chemistry to the state laboratories, short-term training courses will be developed for personnel of state and local health departments and other interested agencies. These will include courses on chemical epidemiology and on health-pesticides-control programs designed for the local health teams which consist of physicians, nurses, sanitarians and other allied personnel. Also, a short-term course on the administration of pesticides programs will be developed for local health administrators.

In accordance with the recommendations of the President's Science Advisory Committee Report, a surveillance program was undertaken in 1967 to determine on a continuing basis the levels and significance of pesticide residues stored by the general population. Severe restrictions were imposed by technical inadequacies, i.e., practical analytical procedures applicable to tissues and sensitive in the ranges anticipated have been developed only for chlorinated hydrocarbons and these are lipotrophic chemicals which are found in heaviest concentration in adipose tissue. This program is operational, with tissues being collected at 12 sites, and with analytical support being supplied by four regional laboratories operating on a service basis in conjunction with the local Community Study project.

The net budget decrease of $58,000 results from a built-in decrease of $79,000 due to the change in financing of the management fund and $21,000 for other built-in items of increase. These items include the additional day of pay in 1969 and the annualization of military and civilian pay raises.

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
(e) Foreign quarantine	608	$8,199,000	608	$8,245,000	---	+$46,000

Under the rapidly changing conditions of international traffic, particularly the increase in number of air travelers, the speed of jet travel, and the increase in number of ports of entry, prevention of the introduction of significant communicable diseases into the U.S. becomes increasingly difficult and highly complex.

In 1969 an estimated 150,000,000 travelers will arrive in the U.S. from all over the world - an increase of 11,000,000 as compared with 1968. Approximately 136,000,000 will enter at land border crossings. Fourteen million will arrive aboard 146,000 airplanes and 41,900 vessels - two million more international air and sea travelers than in 1968. Many of them will land at airports open to international traffic for the first time. It is not just the amount of travel, but the areas from which the traveler comes that increase our concern. Last year over 600,000 persons were issued health alert notices indicating that they had been in a country where smallpox, plague, yellow fever, typhus, cholera or relapsing fever was present. An additional 2500 were issued surveillance notices requiring action by local health departments. The changing character of travel and disease conditions abroad is evident in that the increase in health alert notices was 132 percent.

It is impossible to build a completely protective shield around the U.S. to keep out disease from abroad. Our health defenses must rely upon updated operations at our ports of entry and the development of an "early warning" system to alert this country to the occurrence of communicable diseases anywhere in the world. The program is being reoriented to meet current day disease problems - incorporating a medical epidemiologic approach to inspection of all who cross our borders.

Domestic operations at our borders and ports of entry are being reassessed. For example, in June 1967, the Surgeon General announced the discontinuance of a smallpox vaccination requirement for aliens entering the U.S. from Mexico. This resulted from the epidemiologic reevaluation of the status of smallpox in Mexico. The change has permitted redirection and strengthening of inspectional services at the border. Continued emphasis will be placed on improving organization and operation of inspectional services at all ports of entry with particular attention given to the quality of public health service rendered.

The threat of introduction of epidemic diseases will be met by "defense in depth." This includes immunization prior to travel abroad, surveillance, and prompt recognition and diagnosis if entry should occur.

The net budget increase of $46,000 results from a built-in decrease of $101,000 due to the change in financing of the management fund and $147,000 for other built-in items of increase. These items include the additional day of pay in 1969, and the annualization of military and civilian pay raises.

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
(f) Aedes aegypti eradication	349	$16,658,000	349	$16,494,000	---	-$164,000

The program for the eradication of the Aedes aegypti mosquito from the United States (10 southeastern States and Hawaii) and its possessions (Puerto Rico and the Virgin Islands) was approved and funds first appropriated in 1964. Eradication has a dual purpose. First, a successful program will fulfill this nation's commitment to other countries in the western hemisphere where eradication has already been accomplished. Secondly, the potential though remote threat of yellow fever, or dengue fever, will be removed. The widespread Caribbean dengue fever in 1963 illustrates this threat. That epidemic could have spread throughout the Aedes aegypti infested area of the southeastern United States.

During 1967, operations were under way in varying stages in the heavily infested areas of Puerto Rico, Virgin Islands, Hawaii, and in parts of Texas, Florida, Georgia, Alabama, and South Carolina. By the end of the year approximately 8.5 percent of the target area was in the attack phase of operations. In 1968 advanced efforts will have been expanded into about 11 percent of the area containing a population of approximately 5.5 million people. Included are approximately 1,600 zones in which gains are being consolidated under maintenance activities. This progress is being accomplished by expansion of ongoing programs into contiguous areas in an attempt to prevent reinfestation of treated areas. Recently, reinfestation has moved westward into Louisiana from heavily infested parts of Mississippi. Also resistance to DDT has occurred in southern Florida. These factors and their implications to the eradication effort will be evaluated. In addition, research will be performed on the use in the eradication effort of a recently discovered biological agent which attacks the Aedes mosquito.

The States in which this program has operated have reaped two very significant side benefits. Source reduction activities aimed at eliminating breeding spots for the mosquito have resulted in the general clean-up of many urban neighborhoods. This program also affords the opportunity for employing large numbers of unskilled workers needed to perform basic activities. Youth corps workers have been employed in many locations.

The net budget decrease of $164,000 results from a built-in decrease of $210,000 due to the change in financing of the management fund and $46,000 for other built-in items of increase. These include the additional day of pay in 1969, and the annualization of military and civilian pay raises.

MONDAY, MARCH 11, 1968.

AIR POLLUTION

WITNESSES

DR. JOHN T. MIDDLETON, DIRECTOR, NATIONAL CENTER FOR AIR POLLUTION CONTROL
ROBERT PERMAN, EXECUTIVE OFFICER
DR. RICHARD A. PRINDLE, DIRECTOR, BUREAU OF DISEASE PREVENTION AND ENVIRONMENTAL CONTROL
VERNON G. MacKENZIE, DEPUTY DIRECTOR, BUREAU OF DISEASE PREVENTION AND ENVIRONMENTAL CONTROL
PETER J. BERSANO, FINANCIAL MANAGEMENT OFFICER, BUREAU OF DISEASE PREVENTION AND ENVIRONMENTAL CONTROL
DR. WILLIAM H. STEWART, SURGEON GENERAL
CHARLES MILLER, CHIEF FINANCE OFFICER
JAMES B. CARDWELL, DEPUTY ASSISTANT SECRETARY, BUDGET

OBJECT CLASSIFICATION [IN THOUSANDS OF DOLLARS]

	1967 actual	1968 estimate	1969 estimate
Personnel compensation:			
Permanent positions	6,262	8,903	13,562
Positions other than permanent	124	246	325
Other personnel compensation	59	73	112
Total personnel compensation	6,445	9,222	13,999
Personnel benefits	792	954	1,447
Travel and transportation of persons	648	1,237	1,578
Transportation of things	138	500	679
Rent, communications, and utilities	432	1,174	1,745
Printing and reproduction	425	456	655
Other services	1,169	2,401	3,385
Project contracts	3,354	10,573	36,261
Services of other agencies	1,858	3,060	5,000
Payment to:			
Public Health Service management fund	433	582	----------
National Institutes of Health management fund	74	70	----------
Supplies and materials	868	907	1,353
Equipment	1,531	2,075	2,699
Lands and structures	----------	251	350
Grants, subsidies, and contributions	17,647	32,849	37,582
Total obligations	35,814	66,311	106,733

PERSONNEL SUMMARY

Total number of permanent positions	888	1,085	1,630
Full-time equivalent of other positions	27	50	67
Average number of all employees	731	1,000	1,468
Average GS grade	8.0	8.2	8.3
Average GS salary	$8,507	$9,261	$9,345

PROGRAM AND FINANCING

[In thousands of dollars]

	1967 actual	1968 estimate	1969 estimate
Program by activities:			
1. Grants:			
(a) Research	6,218	7,431	8,000
(b) Fellowships	426	468	468
(c) Training	2,040	2,691	2,859
(d) Control programs	6,963	20,259	24,255
(e) Survey and demonstration	2,000	2,000	2,000
2. Direct operations	15,258	33,465	69,151
Total program costs funded [1]	32,905	66,311	106,733
Change in selected resources [2]	2,909		
Total obligations	35,814	66,311	106,733
Financing:			
Unobligated balance available, start of year		−4,040	
Unobligated balance available, end of year	4,040		
Unobligated balance lapsing	207	1,914	
New obligational authority (appropriation)	40,061	64,185	106,733
Relation of obligations to expenditures:			
Total obligations (affecting expenditures)	35,814	66,311	106,733
Obligated balance, start of year	12,960	17,901	34,212
Obligated balance, end of year	−17,901	−34,212	−66,945
Adjustments in expired accounts	−209		
Expenditure	30,664	50,000	74,000
Expenditures are distributed as follows:			
Out of current authorizations	18,687	34,000	42,000
Out of prior authorizations	11,977	16,000	32,000

[1] Includes capital outlay as follows: 1967, $1,572,000; 1968, $2,326,000; 1969, $3,049,000.
[2] Selected resources as of June 30 are as follows: Unpaid undelivered orders 1966, $2,221,000 (1967 adjustments, −$248,000); 1967, $4,882,000; 1968, $4,882,000; 1969, $4,882,000.

Mr. FLOOD. Now we have the request for air pollution.

The presentation on air pollution is to be made by Dr. John T. Middleton, the Director of the National Center for Air Pollution Control.

BIOGRAPHICAL SKETCH OF PRINCIPAL WITNESS

I see that you have a biographical sketch here, Doctor, which we will place in the record.

(The biographical sketch follows:)

JOHN T. MIDDLETON

John T. Middleton, Director of the National Center for Air Pollution Control, was professor and Director of the University of California Statewide Air Pollution Research Center at the time of his appointment to the newly created National Center on January 1, 1967. His pioneer studies of the environment as a regulating factor in disease development in agricultural crops enabled him to first recognize photochemical air pollution as an adverse economic factor to California agriculture in the mid-1940's.

Dr. Middleton has served in the past as chairman, California Motor Vehicle Pollution Control Board; member, Governor's Interagency Committee on Air Pollution, and Executive Task Force on Waste Management; consultant, U.S. Public Health Service, National Advisory Committee on Community Air Pollution, Executive Office of the President, Office of Science and Technology, and the World Health Organization. He is a member of numerous professional associations and is currently serving as a director for the Air Pollution Control Association.

Dr. Middleton has a B.S. degree from the University of California and a Ph. D. from the University of Missouri. An author and lecturer, he is a recognized international authority in the broad field of air pollution.

Mr. FLOOD. I also see that you have a statement. How do you wish to proceed?

Dr. MIDDLETON. Mr. Chairman, if it meets your pleasure, I would like to read it.

Mr. FLOOD. Go ahead.

GENERAL STATEMENT

Dr. MIDDLETON. Mr. Chairman and members of the committee, the budget proposal before you, is the first submitted under the Air Quality Act of 1967. It covers the first full year of operation under the act and the figures reflect a proposed supplemental for 1968.

This act, which became law last November 21, adds important new dimensions to the Federal effort to restore our air resource to an acceptable quality and prevent its future contamination. It is a tremendous and exciting step forward, one which will have a stimulating effect on the research and control efforts of both government and industry. It is also providing the Nation with the added assurance that there is both sensitivity and concern at the Federal level toward insuring that the air we breathe is clean, safe, and healthful.

The Clean Air Act of 1963 and its subsequent amendments provided for an attack on air pollution through two broad areas of activity; the first involves the solution of significant technical problems through research, development, and demonstrations; and the second, the application of available control techniques through a variety of coordinated abatement and control measures. The most recent amendments provide additional measures for more effective action in both of these two broad areas. The budget before you proposes programs for 1969 which carry forward ongoing work and add new and expanded activities required by the act.

PROGRESS TO DATE

Before enumerating some of these programs, I would like to mention some of the more significant achievements that the National Center for Air Pollution Control has accomplished to date. These are:

The establishment in 1965 of grants-in-aid to States and communities for air pollution control. Since that time, air pollution control program budgets at the State, regional, and local level have increased by about 82 percent. While this progress is encouraging, the current level of control activity represents only about 50 percent of the minimum State and local effort which is needed to attain a reasonably effective degree of air pollution control. Federal financial assistance to States becomes especially important in view of new provisions under the 1967 act which make it mandatory for States to develop air pollution standards and programs. Approximately 168 agencies have been assisted by this program.

The initiation of a program of survey and demonstration grants. New and innovative processes and techniques for air pollution control are being developed, such as a grant to the State of New Jersey for demonstrating methods and equipment for use in measuring the performance of automobile exhaust emission control systems.

The establishment of a Federal abatement activity designed to bring about abatement proceedings whenever reasonable action has not been

taken by the appropriate control authority. There have been 10 such actions to date, most of which have resulted in significant steps toward improving the quality of the air. These actions will ultimately be of benefit to about 20 million people.

AUTOMOBILE EMISSION CONTROL PROGRAMS

The initiation of a Federal emission control program for automobiles beginning with the 1968 models. This involves the setting of automotive emission control standards, the testing of new model cars equipped with control systems, and the certifying of those models which meet the standards. This means that new cars now being sold in this country release significantly less pollution into the air than they have in the past.

Mr. FLOOD. Have more stringent requirements been established for the future?

Dr. MIDDLETON. More stringent standards have been proposed and published in the Federal Register last January. They propose an additional constraint which will provide cars with about 70-percent control.

Mr. FLOOD. Is that good?

Dr. MIDDLETON. That is a step forward. It is inadequate to the task. There needs to be much better control and more promptly than we have been able to secure so far.

The fifth item—an expanded research and development effort aimed at solving the very complex problems relating to automotive vehicle emissions, sulfur oxide pollutants, and the development of data for use in establishing air quality criteria. During 1968, the resources and capabilities of private industry were used to a much greater degree than in the past, especially in the area of sulfur oxide contractual research.

DESIGNATION OF ATMOSPHERIC AREAS

The designation of the eight atmospheric areas of the Nation in the Federal Register as a first step toward the subsequent designation of air quality control regions. This is a required first step toward the designation of air quality control regions which will pave the way for more effective control of air pollution on a regional basis.

Mr. FLOOD. What are those eight areas? Do you want to place in the record the eight atmospheric areas?

Dr. MIDDLETON. I will be very pleased to supply that.

(The information follows:)

[From the Federal Register, vol. 33, No. 10, Jan. 16, 1968]

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

Office of the Secretary

AIR POLLUTION PREVENTION AND CONTROL

Definition of Atmospheric Areas

Notice is hereby given that, pursuant to section 107(a)(1) of the Clean Air Act, as amended by the Air Quality Act of 1967 (Public Law 90-148), the Atmospheric areas of the Nation are defined as set out below on the basis of those conditions which affect the interchange and diffusion of pollutants in the atmosphere.

Important meteorological parameters that affect the interchange and diffusion of airborne pollutants are the frequency, persistence, and height variation of stable (inversion) layers of air and speed and direction of wind. Accordingly, the boundaries of the Atmospheric areas are based on annual averages of (a) low-level inversion frequency, (b) maximum depths of vertical mixing, and (c) the frequency of light winds.

Collectively, an assessment of these parameters provides a measure of the dilution climatology of an area, that is, a history of the experience of air movements as it relates to the dilution of pollutants. This concept of dilution climatology is embodied in the High Air Pollution Potential (HAPP) Advisory System, initiated by the National Center for Air Pollution Control (NCAPC) in the eastern United States in 1960 and the western United States in 1963, and now administered by the Environmental Science Services Administration (ESSA). The HAPP Advisory System provides a forecast of weather conditions conducive to the accumulation of air pollutants over large areas, a factor which was considered in the definition of these Atmospheric areas.

Because of the direct relationship of the area boundaries to the average meteorological conditions of large-scale areas, these boundaries do not necessarily reflect the actual meteorology in the immediate vicinity of the boundaries. In other words, there will always be special "boundary conditions" characterized by the movement of air, together with airborne pollutants, across the boundary. The boundaries are shown as zones on the map in order to reflect this boundary condition.

Furthermore, since the boundary between any two areas is defined by average annual conditions, it is transitory on the basis of shorter period (e.g., seasonal or diurnal) variations in meteorological conditions, with the result that Pittsburgh, for example, is under the influence of the average dilution climatology of the Appalachian Atmospheric area during certain times of the year and under the influence of the Great Lakes-Northeast Atmospheric area at other times during the year. Similarly, Portland, Oreg., New York City, or any other place in the near vicinity of an Atmospheric area boundary, could be under the influence of a neighboring Atmospheric area during certain periods.

Major topographical features are also reflected in the delineation of Atmosperic areas. The eastern boundary of the two Atmospheric areas on the West Coast lies for the most part at the 2,000- to 3,000-foot elevation contour interval on the western slope of the first major mountain chain, and it marks in general the inland extent of the major influence of maritime air. The boundary between the Rocky Mountain Area and the Great Plains Area is essentially located at the 3,000- to 4,000-foot elevation contour interval. The effects of the Great Lakes and the Appalachian Mountains are apparent in the location of boundaries between Atmospheric areas in the eastern United States.

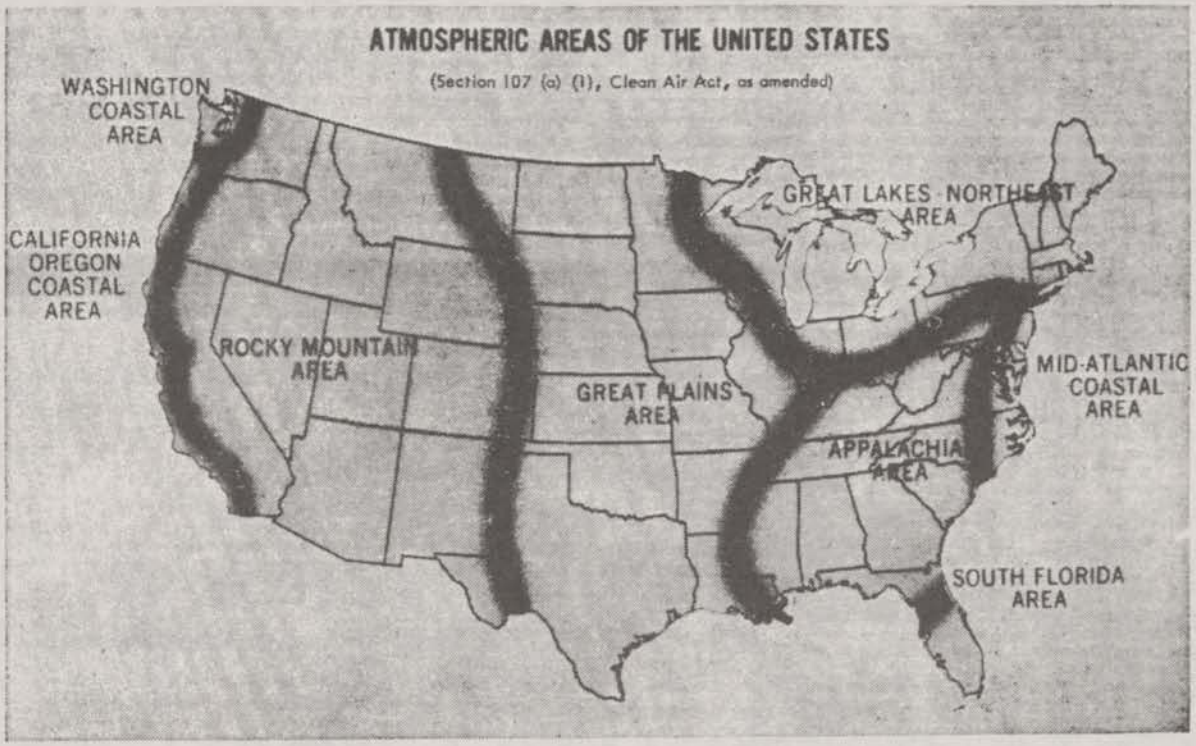
A brief description of each Atmospheric area is given in the attached table, including the geographical extent of each area and the major characteristics of the dilution climate. Definition of Atmospheric areas outside of the contiguous United States has been deferred.

The existence of Atmospheric areas, as defined herein, does not in any way limit the designation of Air Quality Control regions pursuant to section 107(a)(2) of the Clean Air Act, as amended.

Dated: January 9, 1968.

[SEAL]

JOHN W. GARDNER,
Secretary.


ATMOSPHERIC AREAS OF THE UNITED STATES
(Section 107 (a) (1), Clean Air Act, as amended)
WASHINGTON COASTAL AREA
CALIFORNIA OREGON COASTAL AREA
ROCKY MOUNTAIN AREA
GREAT PLAINS AREA
GREAT LAKES - NORTHEAST AREA
MID-ATLANTIC COASTAL AREA
APPALACHIA AREA
SOUTH FLORIDA AREA

DESCRIPTION OF ATMOSPHERIC AREAS AND THEIR CHARACTERISTICS, AIR QUALITY ACT OF 1967, SEC. 107(a)(1)

Atmospheric area	Extent of area	Meteorological and topographical characteristics
California-Oregon coastal area.	Extends about 20 to 50 miles inland from the Pacific Ocean.	Maritime air penetration, prevailing shallow vertical mixing depths; topographic restraints on ventilation in coastal valleys and basins.
Washington coastal area.....	Extends about 20 to 30 miles inland from the Puget Sound region, from which the eastern boundary extends southwestward to the vicinity of Longview on the Columbia River and then westward to the coast.	Precipitation, cloudiness, and relatively high winds are dominant features of the climate, which distinguishes this area from the adjacent areas. Storm activity is frequent, particularly during winter and spring seasons; the frequent storm passages result in a low occurrence of persistent stagnation.
Rocky Mountain area.....	Extends eastward from the California-Oregon and Washington coastal areas, to terminate as a north-south oriented eastern boundary, essentially corresponding to the 3,000- to 4,000-foot mean sea level contour interval which in general defines the easternmost extension of the major mountain ranges. This eastern boundary stretches from the Canadian border in Montana southward through extreme eastern Colorado, eastern New Mexico, to the Mexican border, to include the Big Bend region of Texas.	Topographic restriction, channeling of winds, particularly frequent surface-based inversions at night, and relatively deep mixing depths during the afternoon are prevalent features of the dilution climate of the area.
Great Plains area.....	Extends eastward from the Rocky Mountain area to the Mississippi River south of Missouri; to the north it includes most of Illinois, southwestern Indiana, southwestern Wisconsin, and all but extreme northeast Minnesota.	Relatively flat terrain, which stretches from the Canadian border to the Gulf of Mexico, characterizes the topography. The dilution climate is characterized by negligible persistent atmospheric stagnation and the frequent occurrence of relatively high winds with rapidly changing meteorological conditions.
Great Lakes-Northeast area..	In addition to regions adjacent ot the Great Lakes, this area includes the northern two-thirds of the States of Indiana and Ohio, the Allegheny Plateau area of northwestern Pennsylvania, all of New York State but the extreme southern part of the Hudson River Valley, and the New England States north of the Connecticut-Rhode Island coastal area.	The meteorology is characterized by frequent storm passages with attendant high winds and generally good dilution conditions. During the spring and early summer months, winds blowing from over the cold waters of the Great Lakes and Atlantic Ocean enhance low-level stability in regions adjacent to these bodies of water.
Appalachian area.....	The eastern boundary of this area, which extends from northern New Jersey southward through southeastern Pennsylvania, eastern Virginia to the Atlantic coastline at the South Carolina border, is correlative for the most part with the 300- and 500-feet mean sea level contour interval. This contour interval at the foothills of the Blue Ridge Mountains Range distinguishes the relatively flat coastal plain to the east from the Appalachian Mountains. The area extends southward to the Gulf of Mexico, including northern Florida, and is bounded in the west and north by two other atmospheric areas.	Dominant features of the dilution climate include light wind speeds and the most frequent stagnation conditions of any region east of the Rocky Mountains.
Mid-Atlantic coastal areas....	Encompasses the Atlantic coastal plain from extreme southwestern Connecticut, including the New York City and Long Island region, southward to the South Carolina border at the coastline, and extends inland to the Appalachian area.	Shallow mixing depths, less frequent low-level stability and higher wind speeds are features of the dilution climate that distinguish this coastal area from those adjacent.
South Florida area.....	Extends south from the Daytona Beach-Cedar Key line to include the southern half of Florida.	The climate of this area is predominantly tropical-marine in nature. Atmospheric stagnation is practically nonexistent; there is a small frequency of low-level stability; and relatively good vertical mixing prevails.

Mr. FLOOD. Who established these jurisdictions?

Dr. MIDDLETON. These were established by the Department of Health, Education, and Welfare.

Mr. FLOOD. This was an administrative action?

Dr. MIDDLETON. Yes, sir. Authorized by the Air Quality Act of 1967.

Mr. FLOOD. Have you had any complaints regarding the jurisdictions contained in each area?

Dr. MIDDLETON. We had no complaints of the jurisdictions enunciated. We had questions from the two areas that have not yet been described. Our services were just unable to take care of the States of Hawaii and Alaska. We propose to include them. Initially the eight atmospheric areas deal only with the 48 continguous States.

The designation of these eight atmospheric areas is a required first step toward the designation of air quality control regions which will pave the way for more effective control of air pollution on a regional basis, smaller entities than in the case of atmospheric areas.

Providing a program for supplying the increased manpower needs at all levels of government and industry for trained air pollution personnel. Since 1955, the National Center for Air Pollution Control has provided training to approximately 13,000 registrants. These registrants include State and local personnel, industry personnel, and staff of other organizations concerned with air pollution. Much remains to be done.

AIR QUALITY ACT OF 1967

The Air Quality Act of 1967 provides us with substantial new authority for taking the next series of steps toward the eventual control of the air pollution problem. One of the chief purposes of the act is to insure that State governments, in cooperation with municipal and county governments, will develop and apply air quality standards on a regional basis in all parts of the country where there are pollution problems. In accomplishing this, the individual States will be given more responsibility—as well as more opportunity—than ever before in the development of practical and workable air pollution control programs. But at the same time, the Federal responsibility for providing States with the tools required to build effective control programs and put them into operation likewise is greater than it has ever been.

Objectives for 1969.

STATE AND FEDERAL RESPONSIBILITIES FOR STANDARD-SETTING

Mr. FLOOD. On that point, how was the responsibility for standard-setting divided between the States and the Federal Government?

Dr. MIDDLETON. The sequence of events, Mr. Chairman, is that the Secretary is empowered to designate air quality control regions, the Secretary of the Department of Health, Education, and Welfare.

These air quality control regions consider an air pollution problem area which may consist of several communities within one or more States. Once the air quality control regions have been designated, and we begin to think there may be as many as 200 throughout the United States, then with the publication of criteria which stipulate the effects of air pollution upon people and things, together with information on control technology, how to control that particular pollutant, the States are obliged to indicate their intent to adopt standards consistent with the criteria for those air quality control regions designated. Within 90 days the Governor of the State is to inform the Secretary of his intention. Then the Governor of the State concerned is given 180 days to develop that standard of ambient air qual-

ity. After that, he is given an additional 180 days to provide an implementation plan stating how in that area he will in fact meet the air quality standards that the States have adopted with approval of the Secretary.

Here we see the sequence of events: the designation of the areas of concern; the basis for concern, criteria; air quality standards which are the legal response consistent with the criteria; and a plan of how they, the States, are going to achieve that air quality standard.

RESPONSIBILITIES FOR ENFORCEMENT

Mr. FLOOD. Do you divide the responsibility for enforcement between the States and the Federal Government?

Dr. MIDDLETON. Enforcement of air pollution control is set forth very clearly in the Clean Air Act. The control of air pollution is the responsibility of the State and local governments. In those areas in which they fail to meet the standards that are adopted, the Secretary is empowered to carry out certain abatement actions.

REGIONAL AIR POLLUTION CONTROL AGENCIES

Mr. FLOOD. I can see from what you have said that there would be many regional problems which will involve more than one State when you set them up. What progress have you made in setting up so-called regional control agencies?

Dr. MIDDLETON. The establishment of regional air pollution control within the air quality control region to be designated does not pose an extraordinarily difficult situation because the Governor is responsible for the adoption of the standards. He is also responsible for a plan of action, so that the existing governmental levels there may be used for this particular air pollution control program rather than merely setting up another governmental agency.

If there exist, as an example, Mr. Chairman, air pollution control agencies that now have authority for air pollution control and they are within an air quality control region designated by the Secretary, those same agencies may in fact be the enforcement branch for the Governors in question. If, however, the State fails to respond to the need for establishing standards, then the Secretary on his initiative can establish an interstate commission to deal with the problem.

Mr. FLOOD. I do not want to pick on a particular area, but suppose New Jersey does a first-class job in this area or region and New York does not. What happens?

Dr. MIDDLETON. The law provides that in the event the air quality falls below—is poorer than—the standards adopted, the Secretary can take action. He can go to the Federal court and proceed against the parties that are in violation. There is a second opportunity.

Mr. FLOOD. That still leaves New York State out. In this hypothetical case, New Jersey has done a perfect job. New York is doing nothing.

Dr. MIDDLETON. I think there are a few other elements we need to put into the hypothetical situation that you portray, although it is a very good one; that is, assuming your parameters, New York has flubbed badly and has not done anything about its enforcement program and New Jersey has. As I understand you, the fact is that New York air quality is poorer than the standards they agreed to and

would mean that the Secretary would go to a Federal court, through the Attorney General of the United States and ask for corrective powers. This means that the State of New York would be obliged to move forward.

Mr. FLOOD. How would the Federal court compel the sovereign State of New York to move forward?

Dr. MIDDLETON. By cease-and-desist orders for the pollutants that would be identified as not having complied with the implementation plan. That is part of the——

Mr. FLOOD. Who issues the cease-and-desist orders, the Federal court?

Dr. MIDDLETON. This is the way it is understood now.

Mr. FLOOD. New York still has not done anything. The Federal court has done this. New Jersey is working day and night. What do you do, go to the Federal court for the southern district of New York and say, "Your Honor, you do this." So the Federal court does what?

Dr. MIDDLETON. The Federal court——

Mr. FLOOD. Issues an order and executes it?

Dr. MIDDLETON. The order is issued by the court.

Mr. FLOOD. What do you think New Jersey thinks?

Dr. MIDDLETON. New Jersey would feel about the way the Federal Government would. They wouldn't think it is fair and wouldn't like it.

Mr. FLOOD. Is that the end of that? They don't like it.

Dr. MIDDLETON. They don't like it.

Mr. FLOOD. Of course, they don't.

Dr. MIDDLETON. Mr. Chairman, what would happen at this point is—remember you asked about the sequence of events, and I talked about the intent to adopt standards, adopting standards, and implementation plan. The fact is that New York did not live up to the implementation plan, because surely the standards and their adoption would not have been taken unless the implementation plans were workable. The fact that the implementation plan was not put into proper effect would be the time at which our Center people in the regions would be working with the State of New York to offer them additional technical assistance and what other control efforts were necessary to assist them in implementing their abatement and control program. There is a way through our technical assistance effort to see that the implementation plan New York agreed to is put into motion.

In case New York just says, "We are not going to do anything," the present writing of the law says the Secretary shall invite the Attorney General to go to Federal court to have a cease-and-desist order issued for the control of pollutants that are out of hand.

Mr. FLOOD. And executed. Since a court will not issue a decree which cannot be enforced, the Federal decree will be enforced by the Federal court.

Dr. PRINDLE. May I speak to that, Mr. Chairman? You are quite right. The court would make the cease-and-desist order against the polluters and not against the State, since it could not issue a writ of mandamus of this type. I wonder if I could ask Mr. MacKenzie to address himself to that. He is Deputy Director of the Bureau.

Mr. MACKENZIE. I think the intent here, Mr. Chairman, is to give the States and local communities every opportunity to take appropriate action in maintaining adequate air quality to protect the public health and welfare. In the absence of State action, however, the new Air

Quality Act of 1967 makes provision whereby the Federal Government can take the action if this ultimately should prove to be necessary.

The original jurisdictional opportunity for action lies with the States and with the local communities and it is only after a demonstrated failure on their part to exercise jurisdiction and take the action which is necessary for protection of the public health and welfare that the Federal jurisdiction comes into play.

Mr. FLOOD. I would also suspect any State administration which fails to carry its load would be held accountable by the public?

Dr. PRINDLE. Yes, sir.

Mr. FLOOD. It would be very ill advised politically not to carry your load, wouldn't it?

Proceed, Doctor.

Dr. MIDDLETON. There is another procedure for action; that is, in case of an episode of air pollution in which there is an emergency, the Secretary is given the opportunity and I believe responsibility, as well, to see that the public health is adequately protected.

In the case of an incident of imminent endangerment of the health of persons, the Secretary may move to correct the situation. Again, it is through the court procedure, rather than Federal Government actually moving into the area with an obligation to shut down the pollutionary processes themselves. This is clearly the way the act has been written in this 1967 version.

With all this newness in the act, there are new opportunities to serve not only the State and local governments, but to initiate Federal programs to support them, and, therefore, the 1969 budget must provide the resources to enable the Center to move forward in these areas.

OBJECTIVES FOR 1969

Therefore, the 1969 budget must provide the resources to enable the National Center for Air Pollution Control to—

Designate air quality control regions, each of which will consist of a group of communities, in one or more States, that share a common air pollution problem. The air quality control regions will be designated on the basis of such factors as meteorology and topography, jurisdictional boundaries, and the extent of urban-industrial concentrations.

Publish air quality criteria and information on control techniques for most of the major classes of pollutants. This is a vital effort, the results of which will determine the course of action that States will follow in setting standards.

In addition to a review and modification of the air quality criteria for oxides of sulfur already published, data will be provided for carbon monoxide, nitrogen oxides, particulates, hydrocarbons, and photochemical oxidants. Work will also be directed at investigating the effects of other pollutants such as lead, the fluorides, and hydrogen sulfide. The scientific basis for this work, as required under the act, will come from research on the effects of pollution on humans, animals, vegetation, materials, and visibility.

Provide expanded assistance and technical consultation to States in the development of air quality standards and enforcement programs.

Expand the research and development program for motor vehicle pollution control, including increased efforts directed toward the devel-

opment of low-pollution propulsion systems. More restrictive control requirements are planned for the 1970 model vehicles and are estimated to reduce present allowable emissions by another 20 percent. Work will also be directed toward the application of emission standards for all gasoline-powered trucks and buses, and diesel-powered vehicles.

Further expand research on the solutions to the reduction and control of the sulfur oxides, which is one of the major pollution problems throughout the country. Under the expanded authority of section 104 of the act, we will undertake large-scale contractual studies with industry and others for purposes of developing and testing the most promising control techniques available at this time. Increased efforts will be directed at research on the control of nitrogen oxides which are another growing problem area.

Expand our program of financial assistance to States and communities for support of air pollution control programs. Included in this grant-in-aid activity will be assistance to States in planning their standard setting and control programs.

PROGRESS REPORTS TO CONGRESS

Although these represent most of the major objectives for fiscal year 1969, there are many other important activities that are essential and contribute directly to the total program effort. The act sets forth specific dates for completing this work and also requires that a report on the results be submitted to the Congress. Among these will be a study of the need for and effect of national emission standards for major industrial sources of air pollution; a comprehensive study of the economic costs of controlling air pollution, including costs that will be incurred by both government and industry; an investigation of manpower needs in the air pollution field and needs for training programs; and a study of ways to control air pollution from aircraft and of the feasibility of establishing national emission standards applicable to aircraft.

In conclusion, Mr. Chairman, the Air Quality Act binds all levels of government and industry together and provides for all a comprehensive plan for attacking air pollution; each level needs to assume a proper degree of responsibility or the plan cannot completely fulfill the promise it holds. The National Center for Air Pollution Control will strive to carry out, as promptly and thoroughly as possible, all of its responsibilities under the act, so that States, local governments, and industry will have the tools they need to move the Nation toward an effective means for control of air pollution. I believe that this 1969 budget request for new obligational authority of $106,733,000 will enable us to meet these responsibilities in a timely and effective manner.

PROPOSED LANGUAGE CHANGE

Mr. FLOOD. With regard to this proposed language change that you have, is there any good reason why these funds under section 104 should remain available until expended, rather than until June 30, 1970?

Dr. MIDDLETON. Yes, sir. I believe that the intent is, since there are only 2 years in which funds may be requested, to apply them to the development of control techniques. Most of this work is to be performed

as contract jobs. We need to have the money appropriated during the 2 years in which we may request them so that we can carry out the program over the several years' period required to see that these research projects are completed.

To develop an example, Mr. Chairman, a limestone or dolomite control process for a large powerplant requires, first of all, conceptual design, a pilot plant, and, finally, a full-scale model which has application for the power industry. I think that you can see to achieve this in a 2-year period is nigh impossible. Having the funds started in 1969, we can then see that the job is carried through for whatever contractual time is required to get the job done. Some jobs may be done in 2 years, but many of the principal jobs where we need control techniques, which we don't have now, require a longer time period than the 2 appropriation years. It is for this reason that we ask that there be "no-year" money.

STATUS OF SUPPLEMENTAL APPROPRIATION REQUEST

Mr. FLOOD. Your justifications indicate that a supplemental appropriation for 1968 is to be submitted. What is covered in your portion of the supplemental? And what is the status of the supplemental submission?

Mr. CARDWELL. The President signed it this morning. It has not been delivered because the House is not in session at this hour.

Dr. MIDDLETON. The supplemental is designed to hasten response to the new mandates in the Clean Air Act, and the money requested is largely to be used for the establishment of the air quality control regions, development of the criteria so that standards can be established at the State level, and particularly to initiate, on a contractual basis, work that is required for control techniques to go with the criteria so the States can in fact know how to control these particular pollutants. Each time we publish a criterion, say sulfur oxides, we have to put out a companion document which states how these pollutants may be controlled. We have to then have this information available so that the States may implement their programs for achieving the standards adopted as based on the criteria, and using the tools, control techniques, to abate the sources of sulfur oxides. There is then a time pressure to hasten the development of control techniques so that the States may in fact be responsive to the publication of criteria by the Secretary, which triggers this whole series of events.

This in essence is what the supplemental request is about.

AIR QUALITY ACT OF 1967

Mr. FLOOD. I want the record to show what new authorizations are in the Air Quality Act of 1967.

Dr. MIDDLETON. Very pleased to give you that information.

(The information follows:)

THE AIR QUALITY OF 1967

The Air Quality Act of 1967 is a blueprint for a systematic effort to deal with air pollution problems on a regional basis. It calls for coordinated action at all levels of government and among all segments of industry.

The system which this new legislation sets up hinges on the development and implementation of air-quality standards by State governments.

The Department of Health, Education, and Welfare will define the broad atmospheric areas of the Nation and will designate air quality control regions. Each region will consist of communities that should logically be treated as a air unit for the purposes of preventing and controlling air pollution.

The Department will develop and publish air pollution criteria indicating the extent to which air pollution is harmful to health and damaging to property and detailed information on techniques for preventing and controlling air pollution at its sources.

As soon as air quality criteria and data on control technology are made available for a pollutant or class of pollutants, States will be expected to begin developing air quality standards and plans for implementation of the standards. They will have 90 days to submit a letter indicating that they intend to set standards, 180 days to set the standards, and 180 days to develop plans for implementing them.

Air quality standards will be developed and applied on a regional basis. Wherever an air quality control region includes parts of two or more States, each State will be expected to develop standards for its portion of the region.

If the Secretary of Health, Education, and Welfare finds that the air quality standards and plans for implementation of the standards in an air quality control region are consistent with the provisions of the Air Quality Act, then those standards and plans will take effect.

If a State fails to establish standards, or if the Secretary finds that the standards are not consistent with the act, he can initiate action to insure that appropriate standards are set. States may request a hearing on any standards developed by the Secretary; the hearing board's decision will be binding.

States will be expected to assume the primary responsibility for application of the air quality standards. If a State's efforts prove inadequate, the Secretary is empowered to initiate abatement action.

Other new activities

The Air Quality Act of 1967 provides new authority for—

1. Federal financial support of air quality planning programs for interstate air quality control regions—payment of up to 100 percent of the cost of such programs for 2 years and grants covering up to three-fourths of the cost thereafter.

2. Action by the Secretary to obtain court orders to curtail activities that contribute to air pollution during periods when adverse meteorological conditions would lead to a buildup of pollutants in the air.

3. Awarding of grants to States to assist them in developing programs for inspection of motor vehicle pollution control systems installed in new cars in compliance with Federal standards.

4. Creation of a 15-member Presidential Air Quality Advisory Board and technical advisory committees to assist the Department in implementing the Air Quality Act.

5. Registration of fuel additives to provide a basis for evaluation of hazards to health and welfare arising from use of such additives.

6. A study of the need for, and effect of, national emission standards for stationary sources of air pollution.

7. A study of the feasibility of controlling air pollution from jet-powered and piston-engine aircraft.

8. Comprehensive studies of the cost of controlling air pollution and implementing the Air Quality Act.

9. An investigation of manpower and training needs in the air pollution field.

Continuations

The Air Quality Act of 1967 also provides for continuation and, in some instances, expansion of activities initiated under previous air pollution legislation. It provides for—

1. Expansion of research and development work, with special emphasis on finding practical means of preventing and controlling air pollution arising from fuel combustion.

2. Continued financial support of State and local efforts to develop new air pollution control programs, establish programs already authorized by State or local law, improve existing programs, and maintain effective programs.

3. Federal action to abate interstate air pollution problems and, on request from States, intrastate problems, through the procedures set up by the Clean Air Act of 1963.

4. Continuation of setting and enforcement of national standards for the control of air pollution from new motor vehicles.

5. Continued efforts to prevent and control air pollution at Federal installations.

Culm Banks

Mr. Flood. There is a very important problem, a most serious source of air pollution, and has been for many, many years in the coalfields, both anthracite and bituminous. I am from the anthracite coalfields and we are unfortunately pretty well acquainted with this problem. In some areas a fire has been burning for years, with great danger to health, life, and property. In the anthracite coalfields we call them culm banks. Some places they call them refuse piles.

What do you project in your shop for the extinguishing of these fires in these refuse or culm banks in the coalfields? Believe me, they are air pollutants in capital letters.

Dr. Middleton. Mr. Chairman, the last time I appeared before your Appropriations Committee you impressed upon me your concern. I knew little about culm banks at that time. Since then I assure you I have become as well informed as I can be.

Mr. Flood. That is good. What do you know?

Dr. Middleton. I want you to understand that the survey and demonstration grant funds which are applied for the purpose you have in mind are to develop the techniques to extinguish these fires rather than to provide the funds to, in fact, put them out.

Mr. Flood. Yes. I think that is a fair statement.

Dr. Middleton. We have, since 1966, had a series of projects, about 15, in which petitioners have received funds from the Center, usually on a matching fund basis, to develop techniques to extinguish these fires. In the case of the Huber fire, we have currently——

Mr. Flood. Huber, Pa.?

That happens to be in my district, right in my backyard. This is just a great big pile, 11 million tons.

Dr. Middleton. The most recent grant is to compare two methods of extinguishing this fire. The plan for the next year is to evaluate the cost and effectiveness of the two techniques: one, a dragline, turning over and quenching; the other, by using high-pressure hoses and cooling it off, putting it out, and then layering the cooled material with the hot material, to see if it can be suffocated. So we will have a basis for seeing, on a cost basis, which of these might be most cost effective. A report of the results of the earlier grant, which was done on a shared basis with the State of Pennsylvania, is in preparation, but we have not as yet received it. Based on our informal knowledge of what went into the earlier demonstration system, we were able to award a grant to the Commonwealth Development Association for further refinements in culm fire extinction.

This, in general—rather, specifically, I should say—is what we are doing about culm fires.

USE OF CULM BANK RESIDUE

Mr. Flood. You know, after that part of a culm bank which is combustible is burned out, the residue is known as red dog. That is a very

desirable thing for landfill for airports or industrial sites, for highway departments, in the case of snow and ice, and whatnot. It is a valuable physical asset. Are you concerned about how this is disposed of or who might sell it or what is done with the money obtained from selling this residue? Is that your department?

Dr. MIDDLETON. I think you can see that we are interested in conserving a resource, where possible. We think an outgrowth from our control technology program, which we will be pleased to present to you, may be one technique in which, instead of merely quenching the material in the pile, that some of the technology we expect to develop to control the sulfur oxides in flue gases may, in fact, provide a basis for recovery of sulfur-containing compounds from the piles themselves.

Mr. FLOOD. We are naturally concerned about the proper use of Federal funds in these areas for these problems. As a result of your efforts, even in the experimental stage, there does result a valuable asset. Now, do we create this asset for some third person who owns the culm bank, who owns the land upon which it rests, to sell this for a profit? Or, do we insist upon imposing a lien, or demand that revenue be returned to a revolving fund which would support more research?

Dr. MIDDLETON. Mr. Chairman, in the past we have always awarded these grants to the States.

Mr. FLOOD. And they take care of that, then, do they? Do they impose liens or some restrictions?

Dr. MIDDLETON. These have been matching fund arrangements between the State and Federal Government. In addition to having given funds to just the States, we also are able to give money to nonprofit corporations. So that in either instance the award of funds for demonstration of putting out the fire is done for a nonprofit motive.

Mr. FLOOD. I understand that; but, you see, we would be concerned about a windfall for some third person.

Dr. MIDDLETON. May I say we hope there will be a windfall for the public health.

We are assured when awarding a grant that it is not the purpose of the grant to provide a profit to the grantee.

Mr. FLOOD. I understand that; that is very clear. But regardless of what your purpose it, I am telling you what happens when you use Federal funds to try to find out the best way of putting out that fire. You put out a lot of fire during the course of your experiment; and when you put out the fire there is a burnt-out residue called red dog, which is valuable and salable for profit. Now, is it Federal business to be sure that we are not spending a lot of Federal money to create an asset that gives someone a windfall and no return to the Federal Treasury?

Dr. MIDDLETON. It is our responsibility to see to it that grants are awarded for demonstration purposes and not for profitmaking purposes. We refer all these grants to the General Counsel of the Department of Health, Education, and Welfare to be sure that these assurances are met.

Mr. FLOOD. That is being done now?

Dr. MIDDLETON. That is regularly being done.

REDUCING OF AIR POLLUTION FROM FEDERAL FACILITIES

Mr. FLOOD. All right. What is being done to be reasonably certain that the various Federal agencies are using proper air pollution controls? You can just step outside this hearing room and look down the street here past the Congressional Hotel and see that heating plant down there. When he blows his stack, Mister, you have air pollution, and how.

Dr. MIDDLETON. Mr. Chairman, I rented an apartment just two doors from that building. I have some acquaintance with that, as you do with the Huber pile.

Regarding the Federal facilities in your earlier question you are perhaps aware that there is an activity in the cities of Chicago, Philadelphia, and New York——

Mr. FLOOD. I am talking about Federal agencies.

Dr. MIDDLETON. Yes. Through the Executive order and through the Federal facilities regulations in effect in these three principal cities, there is a program designed to reduce the pollution both from particulate matter and sulfur oxides. That is, in the cities of Chicago, New York, and Philadelphia—the Federal facilities in those three cities are to be in compliance with the issued regulations, this October, October 1968. There is a large-scale program, a phased and orderly plan for 5 years, in which the various agencies of the Federal Government are identifying their facilities, their air pollution problems. Then, through the Bureau of the Budget, with consultation from the National Center, facilities in need of attention are selected so that there can be an orderly and phased approach to the control of air pollution from those Federal facilities.

Mr. FLOOD. The States have a right to expect that the Federal Government will not take the attitude of "Do as I say, not as I do."

Dr. MIDDLETON. I quite agree with you. I think the Federal Government should be exemplary. We have not been and have certainly retreated from that position. I hope we can make up for it in the years ahead.

CONGRESSIONAL POWERPLANT

Mr. LAIRD. I did not understand his answer to your question about the congressional powerplant.

Mr. FLOOD. I didn't, either.

Mr. LAIRD. You can make no recommendations on that? What is your problem on that?

Dr. MIDDLETON. The problems with this particular congressional powerplant, which incidentally is not a Federal facility, are minimal in the sense that pollution is only through operational error, in that there are releases of black palls of smoke. I understand that the Capitol Architect is attempting to purchase low-sulfur fuels, and that these are now being used. Part of the pollution and odor in that area comes from the nearby District incinerator.

Mr. FLOOD. Would that be anthracite, I hope?

Dr. MIDDLETON. If anthracite can be brought to Washington at a price satisfactory to the Congress, I am sure they could use it.

Mr. LAIRD. I am not quite sure what the answer is. There is nothing that can be done about that; is that it? I notice the Public Health Service made a big grant to put out the fires at Kenilworth Dump.

Dr. MIDDLETON. This grant was made by the Public Health Service. Perhaps Dr. Prindle can speak better than I to the point of solid wastes disposal.

Mr. LAIRD. I have problems in my district. I cannot get the Public Health Service to make a grant like that in my area, but they made quite a grant here in the District of Columbia. They are not doing much about this plant right down the street. Now, I can't quite understand your answer to that.

Dr. MIDDLETON. Mr. Laird, what I had intended to say was that by October of 1968, this October, all of the Federal facilities in the three cities I enumerated, Chicago, New York, and Philadelphia, should be in compliance with the particulate and sulfur oxides regulations.

Mr. LAIRD. But not in the District of Columbia.

Dr. MIDDLETON. In the District of Columbia this regulation does not hold. But you may recall, Mr. Chairman, that there was an abatement conference held in the Capital area and at that time the controls required for the area were enunciated. The Secretary will receive shortly the recommendations of that conference so that all the pollution sources, including the Federal ones, may be identified and the findings of this conference enunciated so that an effective abatement program can be evolved. The pollution in the National Capital area from the Federal facilities amounts to about 30 percent of the total pollution. So it is very important that the Federal Government itself, in this Capital City, clean up its own mess.

Dr. PRINDLE. With your permission, I would like to ask Mr. MacKenzie to speak on the congressional problem.

Mr. MACKENZIE. I had some dealings with the problem of the congressional power plant here prior to the time that Dr. Middleton took over as Director of the Center. We would be glad to put a statement in the record, if you wish, to amplify what the problem is at the congressional power plant. As I remember it, it is not a matter of adequacy of the facility for handling and burning the fuel but rather a difficulty of an operational character, primarily in training the employees to correctly operate the facilities which have been provided. This is aside from the problem of low-sulfur fuel and is the aspect that is closely associated with the problem of smoke emissions. Even though one may supply appropriate equipment, if it is not operated efficiently, then smoke will be emitted.

(Statement follows:)

STATEMENT CONCERNING CAPITOL POWER PLANT

Executive Order 11282, issued May 26, 1966, concerning the prevention, control, and abatement of air pollution by Federal activities was addressed to the heads of the departments, agencies, and establishments of the executive branch of the Government (sec. 1. Policy. Executive Order 11282).

The Capitol Power Plant, located between South Capitol Street and New Jersey Avenue SE., is under the jurisdiction of the Architect of the Capitol and, so placed, is part of the legislative branch of the Government. As such, the requirements of Executive Order 11282 are not binding on this facility.

At the hearings in March 1967, concerning air pollution problems in the District of Columbia, before the Subcommittee on Business and Commerce and the Subcommittee on Public Health, Education, Welfare, and Safety of the Committee on the District of Columbia, U.S. Senate, the Architect of the Capitol and the coordinating engineer of the Architect's Office testified at some length on this plant and its relationship to air pollution in the District of Columbia. From these statements it is apparent that the plant has been equipped with modern air pollution control equipment, including mechanical dust collectors, electrostatic

precipitators, smoke alarms, closed television cameras on the stacks and a closed ash disposal system. As far as equipment is concerned, it was the opinion of these witnesses that the smoke prevention record was good and that everything possible had been done to reduce the smoke nuisance. It also was indicated that the District Smoke Inspection Bureau had no complaints from the local citizens in nearby residences for over a year.

It is the present view of the National Center for Air Pollution Control that, insofar as mechanical and electrical control equipment is concerned, this facility is well equipped. Any excessive smoking from this plant may be due to internal operating problems.

SOLID WASTE DISPOSAL

Mr. LAIRD. Now, this is an air pollution problem out here at the dump and you qualified that under the solid waste disposal program as a demonstration grant. Is that correct?

Dr. STEWART. Yes, sir. It was burning waste.

Mr. LAIRD. How much of a grant did you make? Are you financing the major portion of it?

Dr. PRINDLE. $733,000, or approximately two-thirds.

AIR POLLUTION CONTROL IN FOREIGN COUNTRIES

Mr. FLOOD. What is being done in foreign countries, for instance France, Germany, on their air pollution control problems?

Dr. MIDDLETON. A number of things are happening abroad with regard to the motor vehicle pollution problem, as a result of the establishment of standards for exhaust emissions on the part of this Nation. The foreign countries that supply import vehicles have demonstrated their capability for compliance. Having established the fact that they can produce cleaner cars for sale in the United States, there is now a swing in foreign countries to use the same clean cars in their own countries. There are, through the World Meteorological Organization, World Health Organization, OECD, ECE, a variety of air pollution study areas as well as activities which attempt to identify the nature of the pollution problems and what to do about them.

Mr. FLOOD. Do you know anything about their problems with their burning refuse heaps or culm banks from their mines in France, Wales, Germany, the Ruhr, and so on?

Dr. MIDDLETON. I do not personally know about their methods for control in those countries. I would be very pleased to provide the information for you.

Mr. FLOOD. I wish you would.

Mr. LAIRD. Provided you do not travel to get it. Particularly now in view of the position of the administration regarding foreign travel.

Dr. MIDDLETON. I was favored by being a year in Europe as a special consultant to the Public Health Service and with the World Health Organization in 1963–64. I have also studied pollution in Japan. Those periods were long enough to give me a firsthand acquaintance with many of their problems. I am persuaded that there are some things being done about pollution but that the leadership that the United States is offering will have an even greater impact on those countries.

Mr. FLOOD. As far as I am concerned, administration or no administration, if you can go over to Germany, England, or any place where they have burning culm banks and find out what they do about it and if it is good, you go ahead and travel, Mister.

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

(The information follows:)

REFUSE PILE FIRES IN GREAT BRITAIN

In 1932 the British Ministry of Health began receiving complaints from citizens about the fumes from burning mine spoil banks. As a result of a subsequent investigation, the House of Commons enacted a law that required the mineowners to take more energetic steps to abate this nuisance.

Although the inspection of the coal heaps was started in 1932, it was not until 1938 that a comprehensive survey was made to determine the extent of this problem. A register of several hundred burning banks was subsequently compiled and many others were added later, Until this time banks that were burning had been regarded primarily from the standpoint of public health, but with the development of civil defense measures, it became imperative to insure that none of the burning piles should serve as guiding beacons to hostile aircraft. The Civil Defense Act of 1939 made in incumbent on the mineowner to extinguish all burning banks in the event of war. The act also provided that 50 percent of the capital expenditures might be paid out of money provided by Parliament.

As a result of this impetus, practically every mine refuse pile in Britain was the subject of a vigorous extinguishment program. The method most generally used was continuous spraying of the pile with water. Other methods that were used included limestone blankets and injection of lime and water slurrys into the piles. In several extreme cases the burning material was dug out, quenched with water and repiled.

The wartime program seems to have been successful from the standpoint of extinguishing visible fires, but it is doubtful that many of these piles were actually extinguished. A 1956 paper on the subject reports that in 1946 there were 235 spoil banks emitting smoke or fume and by 1955 this number had increased to 261.

The British experience has provided us with some useful information on control techniques which might be applied in the United States. Information on mine refuse fires is not readily available at this time from other European countries.

INCREASES IN BUDGET

Mr. FLOOD. Now, the increase you have requested is spread all over your activities under this appropriation and is pretty well set forth in the justifications. But if you would like to speak to any one point, here is your chance.

Dr. MIDDLETON. In my opening statement I indicated that there are six or seven points that have to be carried out more or less simultaneously. I am, therefore, more or less stopped from adding to the record on any one point, except that I would like to point out that the success of the control of air pollution in this country will depend upon not just the resources of the Federal Government but the resources of the private sector as well. What we must be assured of is that we involve the private sector in this control program. This is what we propose to do, as you have seen from our budget, through our control technology program, largely on a contractual basis; namely, to invite the outstanding people in this country to participate in a national effort, not only to show them how they can clean up their own polluting sources but to provide a system for the applicability of those control systems to that industry on a national basis. It is to that point that I very sincerely believe that the budget before you is a realistic one and invites the participation of the private sector as well.

Mr. FLOOD. Mr. Laird?

NEW POSITIONS

Mr. LAIRD. I noted last year in the 1968 budget we provided for 1,030 employees, or thereabouts. This year you have asked for 1,660 employees, an increase of about 600 employees between 1968 and 1969.

How many of the places did you fill in 1968 of the approximately 1,030 positions that we made available and funded in 1968?

Dr. MIDDLETON. We have been able to fill all the positions that were made available to us.

Mr. LAIRD. And you have no vacancies as of this date?

Mr. PERMAN. Relatively a handful. Out of the 1,000-plus slots available to us there were some reductions made as a result of the resolution on cost reduction. We have slots available to us in the amount of 1,010. Our permanent position employment as of 3 weeks ago is nearly up to that and is probably just about at it right now.

We have been surprisingly and gratifyingly successful in finding what is often scarce talent because of really widespread increasing interest in this field. While the scientific talent is scarce, we have managed to find the ones we need to fill our slots.

Mr. LAIRD. Where are the 600 new positions going to be located?

Mr. PERMAN. Most of those will be in the North Carolina facility. We are occupying leased quarters there now. We are going to expand these quarters. We are in the process of relocating our technical field teams and our research teams from the Cincinnati area to North Carolina and the great bulk of our new hires will be phased right into the area where we will have our permanent facility.

RELOCATION OF PERSONNEL

Mr. LAIRD. How many are you relocating from Cincinnati? We were told, with the new compromise that we worked out, that there wouldn't be a large relocation from Cincinnati to North Carolina. From what you say now, you are shifting personnel from Cincinnati.

Mr. PERMAN. I was speaking only for the air pollution program. The Cincinnati Public Health Service position involves others, and Dr. Prindle might shed some light on that.

Dr. PRINDLE. The total Public Health Service positions located in Cincinnati is the matter you referred to, not solely the air pollution positions. It is anticipated the air pollution positions eventually will be moved from Cincinnati. But with the growth and development of the new National Center for Urban and Industrial Health there, we anticipate at least 750 or more people in the Cincinnati area.

Mr. LAIRD. How many do you have there now?

Dr. PRINDLE. At the present time in Cincinnati we have 1,151 authorized positions. Of these, about 370 are from air pollution, but there are 723, I believe, from the National Center for Urban and Industrial Health and this will expand.

Mr. LAIRD. How many are you shifting from Cincinnati this next year to North Carolina?

Mr. PERMAN. We will move in the coming year about 63 positions from Cincinnati to North Carolina.

Mr. LAIRD. How many did you shift last year?

Mr. PERMAN. Somewhat over 100. We have about 160 people in North Carolina right now. Some 100 of them came from Cincinnati.

Mr. LAIRD. Are they all occupying leased quarters in North Carolina now?

Mr. PERMAN. That is correct.

STATUS OF FACILITY IN NORTH CAROLINA

Mr. LAIRD. There won't be any permanent quarters available for them until what year?

Mr. PERMAN. We hope to have additional quarters in 1969 so we can accommodate the increased positions we will have. The permanent facility that we are talking about and which will be built as a Government structure will probably not be available until 1972 or 1973. Planning money has been appropriated.

Mr. LAIRD. Haven't you let an A and E contract on that?

Mr. PERMAN. It has not been let yet. There is a contract which will develop a master site plan for the several Public Health Service organizations in the Research Triangle. As soon as the master site plan is completed this will provide the basis for an A and E work. The funds have been appropriated but the contract has not been let.

Mr. LAIRD. We allowed the A and E money about 2 years ago.

Mr. PERMAN. That is right.

Mr. LAIRD. It seems to me maybe you are reconsidering this North Carolina situation, as long as you haven't gone ahead. It isn't an urgent sort of thing, evidently. There have been 2 years now that you have been studying which A and E contractor you take.

Mr. PERMAN. The delay has not been related to the A and E contract. It involves, basically, considerations of the master site plan.

Mr. BERSANO. The funds for the A and E contract were appropriated in 1968. It is currently estimated that the contract for the master site plan will be awarded at the end of this month or the beginning of next month, with the completion of that plan some time in November, followed by an A and E design contract in either November or December of 1968.

Mr. LAIRD. This facility is being built in North Carolina because of an amendment that I put on the appropriation bill that provided it would not be built within a 50-mile radius of Washington, D.C. Since I put that amendment on the appropriation bill I was accused of all sorts of things. Even the North Carolina members don't like that amendment any more. Perhaps we should reconsider this situation in view of the fact that the North Carolina members are taking exceptions to the 50-mile rider. I believe we will have to look at this thing very carefully in view of the strong opposition coming from North Carolina to the 50-mile rider.

I thought perhaps we would be in a position where we could discuss that today, but evidently you are not going to ask for any construction money until probably the year 1970 or 1971. Then we will reappraise that.

Mr. BERSANO. There is no request for construction money in 1969.

Dr. MIDDLETON. I can only comment from a program point of view; namely, that we hold regular staff meetings in the Research Triangle area and that we have our abatement conference field section established there for proximity to a number of our problem areas, and that we have been operating on the basis that this is to be our principal research and development area outside of the motor vehicle program which, for other obvious reasons, is proximal to Detroit, the center of the motor vehicle industry.

Mr. LAIRD. I was a little concerned about the report that came from the Government Operations Committee which was rather critical of

the 50-mile radius amendment. I felt that we could reconsider that a long as we had made no money available for construction. I am glad to see we don't have to reconsider it this year because you are not asking for any construction money. Is that correct?

Mr. BERSANO. Yes; that is correct.

Dr. MIDDLETON. If it is reconsidered, I must offer a personal opinion. That is, it has been very difficult with the terrific growth the center has been undertaking to try and keep, one, a high morale, and two, top flight people, and three, to bring about a transitional period that involves a geographic change, and four, while I am quite willing to continue to work very hard to see that we achieve the goals the center seeks, I cannot do it to the state of exhaustion that will no doubt result if plans for the North Carolina location are rejected.

Mr. LAIRD. Thank you.

Mr. FLOOD. Thank you.

JUSTIFICATION MATERIAL

PUBLIC HEALTH SERVICE

Air Pollution

Amounts Available for Obligation

	1968	1969
Appropriation	$64,185,000	$106,733,000
Proposed program supplemental	16,000,000	---
Unobligated balance brought forward	4,040,000	11,000,000
Unobligated balance carried forward	-11,000,000	---
Total	73,225,000	117,733,000

Obligations by Activity

Page Ref.		1968 Estimate Pos.	1968 Estimate Amount	1969 Estimate Pos.	1969 Estimate Amount	Increase or Decrease Pos.	Increase or Decrease Amount
	1. Grants:		$32,849,000		$37,582,000		+$4,733,000
90	a. Research		7,431,000		8,000,000		+569,000
91	b. Fellowships		468,000		468,000		---
92	c. Training		2,691,000		2,859,000		+168,000
92	d. Control programs		20,259,000		24,255,000		+3,996,000
93	e. Survey and demonstration		2,000,000		2,000,000		---
	2. Direct operations:	1,191	38,462,000	1,630	80,151,000	+439	+41,689,000
95	a. Research	594	26,306,000	755	63,500,000	+161	+37,194,000
100	b. Abatement and control	436	9,135,000	656	12,910,000	+220	+3,775,000
103	c. Motor vehicle pollution control	71	1,409,000	88	1,574,000	+17	+165,000
104	d. Training	90	1,612,000	131	2,167,000	+41	+555,000
	Total obligations	1,191	71,311,000	1,630	117,733,000	+439	+46,422,000
	Unobligated balance, reserve	---	1,914,000	---	---	---	-1,914,000
	Total obligations and balance	1,191	73,225,000	1,630	117,733,000	+439	+44,508,000

PUBLIC HEALTH SERVICE

Air Pollution

Amounts Available for Obligation
(New Obligational Authority)

	1968	1969
Appropriation	$64,185,000	$106,733,000
Proposed program supplemental	16,000,000	---
Total	80,185,000	106,733,000

Obligations by Activity

Page Ref.		1968 Estimate Pos.	1968 Estimate Amount	1969 Estimate Pos.	1969 Estimate Amount	Increase or Decrease Pos.	Increase or Decrease Amount
	1. Grants:		$32,849,000		$37,582,000		+$4,733,000
90	a. Research		7,431,000		8,000,000		+569,000
91	b. Fellowships		468,000		468,000		---
92	c. Training		2,691,000		2,859,000		+168,000
92	d. Control programs		20,259,000		24,255,000		+3,996,000
93	e. Survey and demonstration		2,000,000		2,000,000		---
	2. Direct operations:	1,191	45,422,000	1,630	69,151,000	+439	+23,729,000
95	a. Research	594	33,266,000 1/	755	52,500,000	+161	+19,234,000
100	b. Abatement and control	436	9,135,000	656	12,910,000	+220	+3,775,000
103	c. Motor vehicle pollution control	71	1,409,000	88	1,574,000	+17	+165,000
104	d. Training	90	1,612,000	131	2,167,000	+41	+555,000
	Total obligations	1,191	78,271,000	1,630	106,733,000	+439	+28,462,000
	Unobligated balance, reserve	--	1,914,000	---	---	--	-1,914,000
	Total obligations and balance	1,191	80,185,000	1,630	106,733,000	+439	+26,548,000

1/ Excludes an unobligated balance brought forward of $4,040,000.

Obligations by Object

	1968 Estimate	1969 Estimate	Increase or Decrease
Total number of permanent positions..	1,191	1,630	+439
Full-time equivalent of all other positions.....	52	67	+15
Average number of all employees.....	1,029	1,468	+439
Personnel compensation:			
Permanent positions.....	$9,173,000	$13,562,000	+$4,389,000
Positions other than permanent.....	257,000	325,000	+68,000
Other personnel compensation.....	73,000	112,000	+39,000
Total personnel compensation.....	9,503,000	13,999,000	+4,496,000
Personnel benefits.....	982,000	1,447,000	+465,000
Travel and transportation of persons.....	1,347,000	1,578,000	+231,000
Transportation of things.....	540,000	679,000	+139,000
Rent, communications, and utilities...	1,274,000	1,745,000	+471,000
Printing and reproduction.....	496,000	655,000	+159,000
Other services.....	2,871,000	3,385,000	+514,000
Project contracts.....	13,743,000	46,261,000	+32,518,000
Services of other agencies.....	3,560,000	6,000,000	+2,440,000
Payment to:			
Public Health Service management fund.....	582,000	---	-582,000
National Institutes of Health management fund.....	70,000	---	-70,000
Supplies and materials.....	1,058,000	1,353,000	+295,000
Equipment.....	2,185,000	2,699,000	+514,000
Lands and structures.....	251,000	350,000	+99,000
Grants, subsidies, and contributions.....	32,849,000	37,582,000	+4,733,000
Total obligations by object.....	71,311,000	117,733,000	+46,422,000

Summary of Changes

1968 enacted appropriation	$64,185,000
Proposed program supplemental	16,000,000
Unobligated balance, brought forward	4,040,000
Unobligated balance, carried forward	-11,000,000
Unobligated balance, reserve	-1,914,000
1968 total estimated obligations	71,311,000
1969 estimated obligations	117,733,000
Total change	+46,422,000

Increases	Base Positions	Base Amount	Change from Base Positions	Change from Base Amount
A. Built-in				
1. Annualization of 197 new positions authorized in 1968	---	---	---	$572,000
2. Annualization of 106 new positions requested in proposed supplemental	---	---	---	801,000
3. Annualization of civilian and military pay	---	---	---	115,000
4. One extra day of pay in 1969	---	---	---	37,000
B. Program				
1. Research grants	---	$7,431,000	---	569,000
2. Training grants	---	2,691,000	---	168,000
3. Control program grants	---	20,259,000	---	3,996,000

Summary of Changes--continued

Increase	Base Positions	Base Amount	Change from Base Positions	Change from Base Amount
B. Program--continued				
4. Expansion of research.....	594	$26,306,000	161	$37,062,000
(Expansion of Section 104-research on fuels and vehicles).....	(15)	(3,400,000)	(50)	(38,794,000)
5. Expansion of abatement and control activities.....	436	9,135,000	220	3,200,000
6. Expansion of motor vehicle pollution control.....	71	1,409,000	17	128,000
7. Expansion of training.....	90	1,612,000	41	492,000
Total program increases.....	---	---	439	45,615,000
Decreases				
A. Built-in				
1. Nonrecurring contribution to the Public Health Service management fund.....	---	---	---	-582,000
2. Nonrecurring requirements for equipment.....	---	---	---	-136,000
Total decreases.....	---	---	---	-718,000
Total net change requested.....	---	---	+439	+46,422,000

Explanation of Changes

Research grants

An increase of $569,000 is requested to support 116 continuing grants and 79 new awards as compared to 111 continuing grants and 60 new awards in 1968. Emphasis will be given to areas of special research needs, such as the various aspects of the oxides of sulfur problem and the development of clinical and epidemiological data for air quality criteria.

Training grants

An increase of $168,000 is requested to fund 27 grants in 1969, the same number as in 1968. This increase will provide additional financial support for continuing graduate training projects in the engineering, physical sciences, biomedical, socioeconomic, and biometeorological aspects of air pollution and its control.

Control program grants

An increase of $3,996,000 is requested to fund 286 projects in 1969 as compared to 275 in 1968 to assist State, local, and regional control activities in planning, initiating, improving, and maintaining their air pollution control programs. Emphasis will continue to be given to regional program development.

Expansion of research

An increase of $37,062,000 and 161 positions is requested to provide program emphasis for two areas. After adjusting for the 1967 carryover of $4,040,000, an increase of $35,048,000 and 77 positions in control technology will provide for research and development activities in vehicle emissions and stationary source pollution, especially from the oxides of sulfur and nitrogen. The balance of the increase, or $2,014,000 and 84 positions, will provide for criteria and standards activities which include research on health and economic effects of air pollutants, national air sampling activities, and development of air quality criteria for all major air pollutants.

The increase in control technology provides an increase of $38,794,000 and 50 positions for expansion of accelerated research related to fuels and vehicles, as authorized under Section 104 of the Air Quality Act of 1967. Accelerated research and development activities will be carried out in order to develop new and improved processes and plant designs which can be demonstrated on a large and practical scale.

Expansion of abatement and control activities

An increase of $3,200,000 and 220 positions is requested to carry out an accelerated national abatement program under the Air Quality Act of 1967 which includes programs for Federal abatement activity and technical assistance to States and local government organizations. The increase provides for direct support to the establishment of air pollution control programs aimed at continuing improvement in local control measures.

Explanation of Changes--continued

Expansion of motor vehicle pollution control

An increase of $128,000 and 17 positions is requested for acceleration and improvement in the testing of automotive vehicles, and for related phases of this regulatory activity. Special emphasis will be directed towards an interim goal of more comprehensive and restrictive motor vehicle standards.

Expansion of training

An increase of $492,000 and 41 positions is requested to provide training for additional personnel to meet State, local, and regional program needs.

Contribution to the Public Health Service management fund

The $582,000 decrease for the nonrecurring contribution to the management fund is due to a change in the method of funding. In 1969, it is proposed to fund Office of the Bureau Director costs directly in the activity, "Bureau program direction and management services," in the Radiological Health appropriation rather than through contribution to the Public Health Service management fund.

Summary of Changes
(New Obligational Authority)

1968 enacted appropriation	$64,185,000
Proposed program supplemental	16,000,000
Unobligated balance, reserve	-1,914,000
1968 total estimated obligations	78,271,000
1969 estimated obligations	106,733,000
Total change	+28,462,000

Increases	Base Positions	Base Amount	Changes from Base Positions	Changes from Base Amount
A. Built-in				
1. Annualization of 197 new positions authorized in 1968	---	---	---	$572,000
2. Annualization of 106 new positions requested in proposed supplemental	---	---	---	801,000
3. Annualization of civilian and military pay raises	---	---	---	115,000
4. One extra day of pay in 1969	---	---	---	37,000
B. Program				
1. Research grants	---	$7,431,000	---	569,000
2. Training grants	---	2,691,000	---	168,000
3. Control program grants	---	20,259,000	---	3,996,000

Summary of Changes--continued
(New Obligational Authority)

Increases	Base Positions	Base Amount	Changes from Base Positions	Changes from Base Amount
B. Program--continued				
4. Expansion of research.....	594	$33,266,000	161	$19,102,000
(Expansion of Section 104-research on fuels and vehicles).....	(15)	(14,400,000)	(50)	(16,794,000)
5. Expansion of abatement and control activities.....	436	9,135,000	220	3,200,000
6. Expansion of motor vehicle pollution control.....	71	1,409,000	17	128,000
7. Expansion of training.....	90	1,612,000	41	492,000
Total program increases.....	---	---	439	27,655,000
Decreases				
A. Built-in				
1. Nonrecurring contribution to the Public Health Service management fund.....	---	---	---	-582,000
2. Nonrecurring requirements for equipment.....	---	---	---	-136,000
Total decreases.....	---	---	---	-718,000
Total net change requested.....	---	---	+439	+28,462,000

Explanation of Changes
(New Obligational Authority)

Research grants

An increase of $569,000 is requested to support 116 continuing grants and 79 new awards as compared to 111 continuing grants and 60 new awards in 1968. Emphasis will be given to areas of special research needs, such as the various aspects of the oxides of sulfur problem and the development of clinical and epidemiological data for air quality criteria.

Training grants

An increase of $168,000 is requested to fund 27 grants in 1969, the same number as in 1968. This increase will provide additional financial support for continuing graduate training projects in the engineering, physical sciences, biomedical, socioeconomic, and biometeorological aspects of air pollution and its control.

Control program grants

An increase of $3,996,000 is requested to fund 286 projects in 1969 as compared to 275 in 1968 to assist State, local, and regional control activities in planning, initiating, improving, and maintaining their air pollution control programs. Emphasis will continue to be given to regional program development.

Expansion of research

An increase of $19,102,000 and 161 positions is requested to provide program emphasis for two areas. An increase of $17,088,000 and 77 positions in control technology will provide for research and development activities in vehicle emissions and stationary source pollution, especially from the oxides of sulfur and nitrogen. The balance of the increase, or $2,014,000 and 84 positions, will provide for criteria and standards activities which include research on health and economic effects of air pollutants, national air sampling activities, and development of air quality criteria for all major air pollutants.

Of the increase in control technology, $16,794,000 and 50 positions are for expansion of accelerated research related to fuels and vehicles, as authorized under Section 104 of the Air Quality Act of 1967. Work is directed toward improved methods for the prevention and control of air pollution from the combustion of fuels. Accelerated research and development activities will be carried out in order to develop new and improved processes and plant designs which can be demonstrated on a large and practical scale.

Explanation of Changes--continued
(New Obligational Authority)

Expansion of abatement and control activities

An increase of $3,200,000 and 220 positions is requested to carry out an accelerated national abatement program under the Air Quality Act of 1967 which includes programs for Federal abatement activity and technical assistance to States and local government organizations. The increase provides for direct support to the establishment of air pollution control programs aimed at continuing improvement in local control measures.

Expansion of motor vehicle pollution control

An increase of $128,000 and 17 positions is requested for acceleration and improvement in the testing of automotive vehicles, and for related phases of this regulatory activity. Special emphasis will be directed towards an interim goal of more comprehensive and restrictive motor vehicle standards.

Expansion of training

An increase of $492,000 and 41 positions is requested to provide training for additional personnel to meet State, local, and regional program needs.

Contribution to the Public Health Service management fund

The $582,000 decrease for the nonrecurring contribution to the management fund is due to a change in the method of funding. In 1969, it is proposed to fund Office of the Bureau Director costs directly in the activity, "Bureau program direction and management services," in the Radiological Health appropriation rather than through contribution to the Public Health Service management fund.

Authorizing Legislation

Legislation	1969 Authorization
Clean Air Act	
Section 104(c)--Research Related to Fuels and Vehicles.....	$90,000,000
Section 309--Research, Investigations, Training, and Other Activities.....	95,000,000

CLEAN AIR ACT

Part 1--Research Related to Fuels and Vehicles

Appropriation

Section 104. (a) The Secretary shall give special emphasis to research and development into new and improved methods, having industry-wide application, for the prevention and control of air pollution resulting from the combustion of fuels. In furtherance of such research and development he shall-

(1) conduct and accelerate research programs directed toward development of improved, low-cost techniques for control of combustion byproducts of fuels, for removal of potential pollutants from fuels, and for control of emissions from evaporation of fuels;

(2) provide for Federal grants to public or nonprofit agencies, institutions, and organizations and to individuals..... Provided further, that no grant may be made under this paragraph in excess of $1,500,000;

.....

(c) For the purposes of this section there are authorized to be appropriated for the fiscal year ending June 30, 1968, $35,000,000, and for the fiscal year ending June 30, 1969, $90,000,000. Amounts appropriated pursuant to this subsection shall remain available until expended.

Part 2--Research, Investigations, Training, and Other Activities

Appropriation

Section 103. (a) The Secretary shall establish a national research and development program for the prevention and control of air pollution and as part of such program shall-

(1) conduct, and promote the coordination and acceleration of research, investigations, experiments, training, demonstrations, surveys, and studies relating to the causes, effects, extent, prevention, and control of air pollution;

.....

(b) In carrying out the provisions of the preceding subsection the Secretary is authorized to-

.....

(3) make grants to air pollution control agencies, to other public or nonprofit private agencies, institutions, and organizations, and to individuals, for purposes stated in subsection (a) (1) of this section;

.....

Section 105. (a) The Secretary is authorized to make grants to air pollution control agencies in an amount up to two-thirds of the cost of planning, developing, establishing, or improving, and grants to such agencies in an amount up to one-half of the cost of maintaining, programs for the prevention and control of air pollution and programs for the implementation of air quality standards authorized by this Act: Provided, That the Secretary is authorized to make grants to air pollution control agencies....in an amount up to three-fourths of the cost of planning, developing, establishing, or improving and up to three-fifths of the cost of maintaining, regional air quality control programs....

.....

Section 106. (a) For the purpose of expediting the establishment of air quality standards in an interstate air quality control region designated pursuant to Section 107(a) (2), the Secretary is authorized to pay, for two years, up to 100 percentum of the air quality planning program costs of any agency designated by the Governors of the affected States, which agency shall be capable of recommending to the Governors standards of air quality and plans for implementation thereof and shall include representation from the States and appropriate political subdivisions within the air quality control region. After the initial two-year period the Secretary is authorized to make grants to such agency in an amount up to three-fourths of the air quality planning program costs of such agency.

.....

Section 309. There are hereby authorized to be appropriated to carry out this Act, other than Sections 103(d) and 104, $74,000,000 for the fiscal year ending June 30, 1968, $95,000,000 for the fiscal year ending June 30, 1969, and $134,300,000 for the fiscal year ending June 30, 1970.

Introduction

The air pollution program proposed for 1969, the first full year of activity under the authority of the Air Quality Act of 1967, represents an increased effort toward restoring our air resource to an acceptable quality and preventing its future contamination. The Clean Air Act of 1963, and its subsequent amendments which broadened the authorities of the act, provided for an attack on air pollution through two broad areas of activity: (a) the solution of significant technical problems through research, development, and demonstrations; (b) the application of available technology and control techniques, through a variety of coordinated abatement and control measures, toward achieving a desirable air quality.

The Air Quality Act of 1967, which further amends the Clean Air Act, provides additional tools which strengthen the potential for more effective action in both of these two broad areas. With respect to research and demonstration, the act provides, for example, additional stimuli and incentives for accelerated activity, by both industry and government, on the improvement of emission control technology. With respect to abatement and control, under the act, primary responsibility for the regulatory control of air pollution remains with the States; the act provides, however, that in the absence of appropriate State action, Federal standard-setting activity would be authorized. Major emphasis is placed on the regional approach to air pollution control.

In view of the Air Quality Act of 1967, a supplemental budget request for 1968 is being submitted. It is limited to areas in research, abatement and control, and training which require funding in 1968 in order to comply with provisions in the act for accelerated activity or to permit certain deadlines in the act to be met.

The programs proposed for 1969 have been developed (a) to carry out the provisions of the Air Quality Act of 1967; and (b) as integral steps toward the achievement of a series of objectives, which include: (1) reduction of emissions from motor vehicles; (2) reduction of emissions from stationary sources; (3) expansion and improvement of regional, State, and local regulatory control programs; and (4) development of air quality criteria for the major pollutants which serve as the basis for standard setting by the States.

1. Grants

	1968 Estimate		1969 Estimate		Increase or Decrease	
	No.	Amount	No.	Amount	No.	Amount
a. Research.....	171	$7,431,000	195	$8,000,000	+24	+$569,000
b. Fellowships.....	70	468,000	70	468,000	--	---
c. Training.....	27	2,691,000	27	2,859,000	--	+168,000
d. Control programs.	275	20,259,000	286	24,255,000	+11	+3,996,000
e. Survey and demonstration..	24	2,000,000	24	2,000,000	--	---
Total.....	567	32,849,000	602	37,582,000	+35	+4,733,000

a. Research grants

(1) Noncompeting continuations.....	111	4,047,000	116	4,616,000	+5	+569,000
(2) New grants...	60	2,857,000	79	3,184,000	+19	+327,000
(3) Supplementals....	(14)	527,000	(6)	200,000	(-8)	-327,000
Total.....	171	7,431,000	195	8,000,000	+24	+569,000

The research grants program is a valuable tool which capitalizes on the scientific expertise and imagination of investigators in universities and other nonprofit research institutions. The continuing increase in the rate of applications for research grants support reflects the growing national interest in abating air pollution problems and an appreciation of the challenging technical problems in their resolution. Under this program, research proposals submitted by investigators are reviewed by advisory panels of non-Federal experts and grant awards are made on the basis of their recommendation.

It is expected that in 1969 there will be continued emphasis on areas of special research needs, such as the various aspects of the oxides of sulfur problem and the development of clinical and epidemiological data needed for air quality criteria. Projects supported will continue to include nearly all other aspects of air pollution problems ranging from the analysis of pollutants, pollutant behavior in the atmosphere, sources of pollutants, their biological effects, economic impact of pollution, and improvement in means for control.

Several examples of research grant projects now being carried out are the following: (1) Dr. John Happel, New York University, in his study, "Sulfur dioxide oxidation," is utilizing new theoretical approaches to determine the importance of the mechanism involved in the sulfur dioxide oxidation on various catalysts. Knowledge gained from this study may be useful in providing the fundamentals of the reaction whereby sulfur dioxide is oxidized, which would contribute to both an understanding of its reactions in the atmosphere and to a potential improvement in means for removing it at the source. (2) Dr. Peter K. Muellar, California State Department of Public Health, in his study, "The respiratory uptake of gaseous air pollutants," is concerned with determining which fractions of nitrogen oxides inhaled under the ambient conditions and concentrations are deposited in the respiratory airways. Information resulting from this project would be useful to help determine an air quality standard for nitrogen oxide based on health effects. (3) A project by Dr. Kimball T. Harper, University of Utah, deals with "The impact of air pollutants on ecosystems." The study is designed to determine the impact that air pollutants have, now or in the future, on four natural ecosystems important to the Salt Lake Valley for water shed protection and/or recreation. Resulting information may be of direct practical value because of the importance of vegetation for water shed areas as ground cover to prevent soil erosion, for timber, forage, recreation areas, and to preserve urban "green belts."

The $8,000,000 requested for 1969 provides for 79 new grants and 116 noncompeting continuations as compared with 60 new grants and 111 noncompeting continuations in 1968.

	1968 Estimate		1969 Estimate		Increase or Decrease	
	No.	Amount	No.	Amount	No.	Amount
b. Fellowships	70	$468,000	70	$468,000	--	----

The shortage of trained air pollution personnel is especially serious in view of increased activity in research, teaching, and control activity by public agencies and by industry. The fellowship program is one of the important program components aimed at alleviating this shortage and permitting air pollution activity to move ahead as rapidly as possible. Fellowship awards covering tuition and stipends are made to full-time graduate level individuals who must be accepted by a recognized university having a suitable curriculum.

	1968 Estimate		1969 Estimate		Increase or Decrease	
	No.	Amount	No.	Amount	No.	Amount
c. Training grants	27	$2,691,000	27	$2,859,000	--	+$168,000

An intensified national demand for clean air has created an immediate and urgent need to train thousands of technical and supporting personnel to assume employment in air pollution control. Training resources available now are insufficient to accomplish the task. Training grants are one mechanism employed to stimulate the development of new training programs and to encourage the improvement of existing ones in educational institutions. Two types of training grants are awarded: Graduate and Specialist. Graduate Training Grants provide financial support to educational institutions for the development and improvement of full-time graduate training in the engineering, physical sciences, biomedical, socioeconomic, and biometeorological aspects of air pollution and its control. Specialist Training Grants provide support for the development and improvement of training programs other than full-time graduate training programs, aimed at the development of both professional and subprofessional manpower, and the stimulation of persons to follow an air pollution control, or related, career.

Training grants to educational institutions are used to stimulate the development of new training programs and to encourage the improvement of existing ones. The program proposed for 1969 will assist in improving the educational resources for training air pollution personnel. Approximately 278 students are expected to be trained under this program in 1969 compared with 251 trained in 1968.

	1968 Estimate		1969 Estimate		Increase or Decrease	
	No.	Amount	No.	Amount	No.	Amount
d. Control program grants	275	$20,259,000	286	$24,255,000	+11	+$3,996,000

Since 1965, when the first grants-in-aid to States and communities were awarded for air pollution control, there has been promising progress. Budgets for State and local air pollution control programs nationally have increased by approximately 82 % between October 1964 and June 1967. These grants are made to air pollution control agencies for planning, developing, establishing, improving, and maintaining programs for the prevention and control of air pollution and programs for the implementation of air quality standards authorized by the Air Quality Act of 1967. Grants are made to States, counties, cities, and regional agencies on the basis of a workable program which provides for the enactment and enforcement of effective control laws and regulations.

The importance of the regional approach to air pollution problems was recognized in the authorizing legislation through provision for a larger Federal share in projects conducted by regional air pollution control agencies. Grants for stimulating new programs are awarded to State and local agencies in amounts up to two-thirds of the cost of approved projects and to regional agencies in amounts up to three-fourths of the cost of the project. Grants for the purpose of maintaining prevention and control programs are made for up to one-half the cost of State and local programs and to three-fifths of the cost of regional ppograms.

The 1969 request of $24,255,000 represents an increase of $3,996,000 over the 1968 appropriation. Under newly authorized provisions of the Air Quality Act of 1967 grants are available for planning for air quality standards. This planning is directed toward the support of coordinated activities, on a regional basis, for air quality standards. The grants also support the planning of programs for enforcing the air quality standards. The availability of grants will facilitate the resolution of problems States will encounter initially in planning for a common regional plan where several States are involved.

	1968 Estimate		1969 Estimate		Increase or Decrease	
e. Survey and demonstration grants	No.	Amount	No.	Amount	No.	Amount
	24	$2,000,000	24	$2,000,000	--	----

Survey and demonstration grants provide the financial base for innovation in air pollution control methods--both in technical means of control and in organizational arrangements for implementation of control programs. Grants have been made to a variety of agencies and for diverse purposes. For example, in 1968 a grant to the Commonwealth Development Association of Pennsylvania is for demonstration of a method of extinguishing a burning coal refuse pile. A number have been awarded to planning agencies for the purpose of assessing the air pollution problem and devising organizational plans for control programs. Other grants have been used to test and demonstrate new or improved control operations, to demonstrate motor vehicle inspection systems, to define air-shed boundaries, and to develop and promote compatible laws and regulations where direct multijurisdictional operating programs are not immediately feasible.

The survey and demonstration grant program allows for the participation by a wide variety of agencies and institutions in projects directed toward solution of specific air pollution control problems.

It is estimated that the $2,000,000 requested will fund 24 new and continuation projects in 1969.

2. Direct operations

	1968 estimate		1969 estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
Personnel compensation and benefits.....	1,191	$10,485,000	1,630	$15,446,000	+439	+$4,961,000
Other expenses.....	--	27,977,000	--	64,705,000	--	36,728,000
Total.....	1,191	38,462,000	1,630	80,151,000	+439	+41,689,000

Summary of Program

a. Research.....	594	26,306,000	755	63,500,000	+161	+37,194,000
(1) Control technology[a]/..	238	19,025,000	315	54,042,000	+77	+35,017,000
(2) Criteria and standards.....	356	7,281,000	440	9,458,000	+84	+2,177,000
b. Abatement and control.....	436	9,135,000	656	12,910,000	+220	+3,775,000
c. Motor vehicle pollution control.	71	1,409,000	88	1,574,000	+17	+165,000
d. Training.....	90	1,612,000	131	2,167,000	+41	+555,000
Total.....	1,191	38,462,000	1,630	80,151,000	+439	+41,689,000

a/ Includes Section 104-research on fuels and vehicles.....	(15)	(3,400,000)	(65)	(42,300,000)	(+50)	(+38,900,000)

a. Research

The overall air pollution research program includes the program of grant-supported projects in universities, noted previously, and directed research carried out by Public Health Service staff and by contract. This activity includes research into the nature and extent of air pollution; its transport and atmospheric behavior; the effects on humans, other biological systems, property, and the atmosphere itself; and improvement in means for controlling pollution. The 1969 program will continue the on-going research primarily in the three principal areas of automotive vehicle emissions, sulfur oxides pollution, and development of air quality criteria, and will place primary emphasis on research areas designated for special attention by the Air Quality Act of 1967. These include development of air quality criteria and emission control techniques as preliminary to subsequent application and regulatory enforcement measures; a comprehensive economic cost study; scientific assessment of data associated with the program of registration by manufacturers and processors of all additives placed in fuels used for combustion, and accelerated research and development into new and improved methods, having industrywide application, for the prevention and control of air pollution resulting from the combustion of fuels as provided in Section 104 of the act. Under Section 104, work is directed toward development of improved, low-cost techniques for control of combustion byproducts of fuels, removal of potential pollutants from fuels, and control of emissions from evaporation of fuels; determination of results of research in order to develop new or improved processes and plant designs to the point where they can be demonstrated on a large and practical scale; and study of new or improved methods for the recovery and marketing of commercially valuable byproducts resulting from the removal of pollutants. Amounts appropriated for this section shall remain available until expended. The proposed 1968 supplemental provides a total of $14,400,000 for research under Section 104 as applied especially to vehicle emissions and process control. The 1969 request provides a total of $31,300,000 for Section 104 research.

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
(1) Control technology	238	$19,025,000	315	$54,042,000	+77	+$35,017,000

The control technology activity includes the engineering, chemical, meteorological, and related physical science aspects of air pollution research. In addition to work conducted directly by the Public Health Service, the program will continue to use, through contracts, the best available technical resources of universities, industry, Federal agencies, and other organizations.

Complementing the regulatory aspects of motor vehicle pollution control are the vehicle emissions research and development activities included in the 1969 program. There are two main elements in this program for which an increase of 20 positions and $5,946,000 is requested in 1969. The two elements are: (1) Carrying out the research needed for the development of

more comprehensive and stringent standards, including test techniques, now planned for the 1970 model vehicles: this area will be given highest priority in 1969 in view of the timetables of tighter standards for 1970 model vehicles. The program will emphasize the development of more realistic chassis dynamometer test cycles which will simulate road operation of passenger cars, trucks, and buses; the development of improved means for defining and testing evaporative losses; the refinement of analytical techniques for the measurement of pollutant emissions; and the development of standard test methods for diesel engine emissions such as odor and smoke, and (2) Development of new, more effective control techniques for internal combustion engines: emphasis will be on second generation systems for hydrocarbons and carbon monoxide, first generation oxides of nitrogen control, diesel odor and smoke, and control of particulate emissions, including those derived from fuel additives. In addition, because the air pollution potential from motor vehicles is sufficiently hazardous that sole reliance cannot be placed on fundamental improvement in the performance of the internal combustion engine, the 1969 program provides for continued activity toward the end of stimulating development of a "pollution-free" vehicle.

The process control programs proposed for 1969 are directed toward effecting a reduction in emissions from stationary sources. In order to do this, there must be vigorous activity in research and development toward improved control technology. An increase of 53 positions and $29,002,000 is requested in 1969.

Principal emphasis in 1969 will continue to be on accelerating technical solutions to the widespread pollution problems resulting from sulfurous emissions. The concentrations of sulfur oxides in our larger communities are reaching levels which pose serious hazards. Projections indicate a significant buildup of sulfurous emissions if we rely on today's control technology. It is essential that urban sulfur oxide levels be reduced to one-fifth to one-tenth of projected levels. Unfortunately, there is not now available a control technology which is both technically and economically satisfactory to achieve this.

The seriousness of this problem was underscored in the President's memorandum of April 21, 1967, calling for "a greatly accelerated research and development program." The 1967 supplemental appropriation included $4,040,000, to remain available until December 31, 1967, for the initial increment of this program, which is being continued and expanded in 1968. The 1969 research and development program is part of an overall sulfur oxides research and development program which is aiming at the availability of a substantial technology for commercial design applications. The 1969 program includes accelerated activity in the following areas:

1. Design, construction and operation of prototype plants: Work will be done on the limestone or dolomite-injection process, the alkalized alumina process, pyrite-coal fluid bed reactor, molten carbonate scrubbing, and the development of auxiliary equipment.

2. New control processes: These include increased activity in desulfurization of coal and oil, new stack cleaning processes, and investigation of new power cycles.

3. Control processes for noncombustion sulfur emission sources: Emphasis will be given in this area to control processes for smelters, refineries, paper mills, etc.

4. Full-scale demonstration studies: Priority projects for full-scale demonstration studies include (a) the construction and testing of a module of a full-scale plant, e.g., a power plant-size scrubber using effluent from full-scale trials of the alkaline injection process, (b) joint support of systems such as full-scale alkaline injection trials for different fuels and furnace types at existing plants in large urban areas, and the demonstration of a moderate-sized coal cleaning and pyrite-coal processing plant, and;

5. Systems studies of economic relationships, field studies, and analysis of alternative solutions to meet air quality criteria.

The other major area of expansion in research and development aimed at emissions reduction from stationary sources is concerned with control of the oxides of nitrogen. These effluents constitute a significant and widespread pollution problem from all combustion equipment and contribute importantly to the photochemical type of pollution popularly, but erroneously, associated only with Los Angeles. Systems studies initiated in 1968 are aimed at the ultimate provision of recommended guides for nearly all forms of stationary combustion sources emitting oxides of nitrogen. The 1969 program will include the initial large-scale research and development contracts in this area.

The control technology activity also provides for chemical, physical, and meteorological research. The area of chemical and physical research is concerned with atmospheric reactions of pollutants and studies of chemical and physical properties of important aerosol constituents in urban atmospheres. Attention is focused on application of "space age" advances in instrumentation to develop methods for accurate measurement of pollutant concentrations and pollution emissions. In 1969 an increase of 2 positions and $39,000 will provide for emphasis on work supporting the development of air quality criteria.

Meteorological research includes research on the intercity transport and diffusion of air pollutants. It emphasizes the development of atmospheric dispersion models for better understanding of variables affecting a given atmosphere's diluting capacity. Closely related to this is work concerning the development of a comprehensive air pollution potential climatology. The 1969 program will stress application of knowledge to air quality planning; an increase of 2 positions and $30,000 is requested for meteorological research.

The net budget increase for control technology of $35,017,000 results from a program increase of $35,048,000 offset by a built-in decrease of $201,000 due to the change in financing of the management fund and $170,000 for other built-in items of increase and decrease. These items include the additional day of pay in 1969, the annualization of positions new in 1968, annualization of civilian/military pay raises, and nonrecurring decreases.

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
(2) Criteria and standards	356	$7,281,000	440	$9,458,000	+84	+$2,177,000

This activity includes research on health and economic effects of air pollutants, national air sampling activities, and development of air quality criteria for all major air pollutants. The programs for 1969 will emphasize implementing the several new authorizations under the Air Quality Act of 1967 relating to the development of criteria and standards. The Air Quality Act of 1967 places far more emphasis on criteria and standards development than has been the case to date. Air quality criteria describe the effects of a pollutant; air quality standards set the level at which a pollutant may be tolerated. Criteria and standards development are interwoven in a Federal-State pattern designed to broaden greatly the national enforcement effort. Under the act, Federal publication of air quality criteria is a mandatory prerequisite to submission, by the States, of proposed State standards and operating plans.

The health effects research program will place emphasis on studies which will lead to the development of new criteria and to fill in the critical gaps in our knowledge uncovered in the preparation of our criteria reports. Significant steps will be taken toward intensifying the study of the synergistic effects of air contaminants in human and controlled animal studies. Major concern will continue to be focused on chronic effects of long-term exposure to air pollutants.

The Secretary is authorized to obtain information on additives to fuels from the fuels manufacturer or processor. This requirement for registration will provide the Government with a valuable body of technical information of potential significance to the development of criteria and standards. In addition to continued collection and evaluation of data on fuel additives, the 1969 program will emphasize the analytical determinations of the pollutant effluents associated with use of the additives and laboratory tests, principally toxicological, of the effects of such effluents on living organisms. Initial efforts must concentrate on establishing the administrative mechanisms for compliance with the act's registration requirements, and on determinations of the fuels which are to be designated for registration. The research on fuel additives will emphasize, as much as possible, the utility of the findings in the development of air quality criteria and associated supporting documents. An increase of 10 positions and $136,000 is requested in 1969 for these studies.

The economic effects research program will expand its efforts to ascertain the damage to agriculture and materials and the relationship of level of pollutants to extent of damage. While the effects on vegetation and forestry will continue to be studied, there will be some work initiated on livestock investigations. More studies are contemplated dealing with the damage done to materials of all varieties by air pollution. These additional projects are designed to be applied and focused toward the development of the dose-response relationships required for criteria reports. In 1969, an increase of 4 positions and $25,000 is requested for work on the development of costs of pollution abatement and on methodology for improving estimates of economic damage in urban areas.

The 1969 estimate also provides for the preparation and submission to Congress of a detailed estimate of the cost of carrying out the provisions of the Air Quality Act, the cost of the impact on affected units of government, and the cost of the impact on industry.

As a necessary adjunct to a major thrust in the development of criteria and standards, air quality and emissions data collection activities will be expanded and will be reflected in the substantially enlarged pattern of air measurement in the Standard Metropolitan Statistical Areas representing the concentrations of population in the United States. Increasing efforts will be made to determine the severity, extent, and characteristics of the air pollution problem. A concerted effort will be directed toward determining the source of pollutants and a beginning will be made in the direction of determining the effectiveness of control efforts.

There will be an expansion in the program of assembling a nationwide inventory of air pollutant emissions and control practices. A major alteration and expansion of the air quality computer data systems will be continued in 1969. This will allow data from State and local agencies to be added, in a coordinated fashion, to the existing Federal information leading toward the goal of a data bank system capable of handling all measurements of air quality, pollution effects, and emission data being collected on a routine basis.

The sampling and data collection activities of these coordinated networks will have important applications other than those related to criteria and standards development. They provide basic data of value in abatement and control activities. In addition, they are expected to play a significant intelligence role in implementing the important new provisions of the Air Quality Act, which authorize the Secretary, under emergency situations involving an imminent and substantial health danger, to seek court action for enjoinment of a contributor to the pollution. An increase of 34 positions and $310,000 is requested in 1969 for these data collection activities.

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Under the Air Quality Act of 1967, air quality criteria must be accompanied by publication of recommended control technology for each specific pollutant. Initially, data will have to be accumulated and analyzed toward the end of outlining a schedule of needs to insure that recommendations are developed and prepared for all possible significant sources. Cooperative work with industry, other Federal agencies, and other research organizations will be undertaken to develop a master plan to insure complete and timely coverage for all sources, assess the adequacy of existing control technology for such sources, initiate or stimulate research and development for adequate and economically feasible methods not presently available, and develop cost analyses and alternative approach techniques for inclusion in the issuances.

In addition to new air quality criteria, published criteria volumes will be placed under a system of reevaluation for revisions, as the findings of new research become available.

Criteria for the oxides of sulfur have been published. Under preparation are criteria for photochemical oxidants, nitrogen oxides, hydrocarbons, carbon monoxide, and particulates. The 1969 request provides an increase of 36 positions and $1,706,000 for programs to include fluorides, lead, and hydrogen sulfide, as priority candidates for the establishment of criteria. Increased emphasis will be placed in 1969 on selected metals, with special emphasis on fuel additives.

The net budget increase of $2,177,000 for criteria and standards results from a program increase of $2,014,000 offset by a built-in decrease of $157,000 due to the change in financing of the management fund and $320,000 for other built-in items of increase and decrease. These items include the additional day of pay in 1969, the annualization of positions new in 1968, annualization of civilian/military pay raises, and non-recurring decreases.

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
b. Abatement and control	436	$9,135,000	656	$12,910,000	+220	+$3,775,000

This activity includes the programs for Federal abatement activity and technical assistance to States and local government organizations. These are the areas in which direct support is given to the establishing and building of air pollution control programs and, through abatement recommendations, to continuing improvement in local control measures. The Technical Information Center provides for the collection, evaluation, and dissemination of scientific and technical information on air pollution.

The major activity designed to provide more immediate improvement in air quality is that of the Federal abatement program, which includes conducting field investigations and surveillance to determine sources, concentration, and behavior of air pollutants; giving advice, technical

assistance, and consultation to State and local officials regarding formal abatement activities; convening abatement conferences and public hearings; issuing conference reports and recommendations; and determining when reasonable abatement action has not been taken by the appropriate control authority. The abatement program is carried out principally in urban interstate areas, but under the act, the Secretary may initiate abatement activity on his own initiative in any areas of interstate pollution. To date, 10 such actions have taken place. Approximately 72 urban interstate areas have been under surveillance to provide the technical basis for a program of abatement aimed at enforcement in all major problem areas. Recommendations toward improving the air pollution situation result from the abatement activities and these are intended to have a major impact, through insuring improvement in local control measures, on air pollution emissions from stationary sources.

The Federal abatement activity also includes the program for controlling air pollution from Federal facilities. Toward this end, Executive Order 11282 and implementing regulations have been issued. Emission limitations for sulfur oxides from Federal facilities located in New York, Chicago, and Philadelphia were issued effective October 1, 1968. Consultative and liaison services with Federal agencies operating facilities will be expanded. In 1969, development will be accelerated on an automatic data processing method for the large number of inventory reports from Federal agencies.

The 1969 estimate is aimed at providing for the costs of carrying out an accelerated national abatement program under the Air Quality Act of 1967. An increase of 131 positions and $1,721,000 is requested for this purpose.

The establishment and building of effective State, local, and regional air pollution control programs are important objectives of the act. In addition to the financial assistance, technical assistance is provided to such agencies by the National Center for Air Pollution Control. In order to coordinate and maximize the effectiveness of technical and financial assistance activities dealing with a common clientele, these functions have been placed in a closer operating relationship in 1968. This provides for a closer liaison with agencies receiving grant support, and expedites consultation and short-term assistance for the development of the resources, competence, and regulatory mechanisms needed if the States and municipalities are to meet their responsibilities.

A major new activity is now being initiated to develop comprehensive simulation models of air pollution and its control to assist public agencies in the planning and operation of control programs. In 1969, emphasis will be placed on development and verification of increasingly sophisticated systems for analysis of alternative pollution control strategies.

The technical assistance activity provides an important qualitative link to State and local control achievements. The qualitative aspect rests in the improved capability of State and local staffs to solve problems drawing upon advice, consultation, and related guidance provided by the Federal program. It is planned to assign engineers in the field to furnish continuing frequent liaison and assistance on a regional basis to groups of programs. Demands for assistance are increasing as the number of control programs across the country increases.

The Air Quality Act of 1967 contains several new provisions aimed at enhancing the capabilities of States, localities, and, particularly, regional agencies, in planning and enforcing more effective control programs. The Secretary is authorized, under certain conditions, to designate interstate air quality planning commissions, as a means of expediting the establishment of standards for an interstate air quality control region. The act provides for Federal funding of necessary staff for such commissions, and for related commission expenses. The 1969 request will permit the financing of approximately eight such appointed commissions. The Secretary is directed to designate air quality control regions based on jurisdictional, urban industrial concentrations and related factors. These regions, emphasizing physical characteristics, will provide a necessary basis for the designation of the air quality control regions, which take into account political, economic, and jurisdictional factors. The 1969 program will require a significant accumulation of data relating to urban industrial concentrations and will require the development of formulas and techniques to insure compatibility between the atmospheric and the air quality control regions. In addition to the 15-20 regions anticipated for initial designation, several models, based on actual data from selected areas, will be developed as a means of insuring the most effective pattern to be used in determining further regional designations, and possible alterations in designated regions. An increase of 56 positions and $1,961,000 is requested for these control activities.

The development of the Air Pollution Technical Information Center is a phased operation with limited operational status being achieved in 1967. During 1968 it has extended services to a great variety of users to include Government personnel, industrial organizations, educational institutions, scientists, engineers, students, and others. Such services involve indexing, abstracting, translating, and evaluating air pollution technical information. During 1969 we plan to employ the most modern techniques of computer technology, including optical scanning devices, magnetic tape, disc, core or drum storage, photocomposition processes, and the use of remote consoles and dataphones as direct hook-up to data banks. Other activities planned for 1969 are (1) development of an on-going selective dissemination program particularly for State and local control agencies, (2) cooperation with foreign countries in the establishment of an international network of technical information centers on air pollution, and (3) the provision of technical audio-visual aids to the air pollution community. For these information activities an increase of 33 positions and $93,000 is requested.

The net budget increase of $3,775,000 for abatement and control results from a program increase of $3,200,000 offset by a built-in decrease of $166,000 due to the change in financing of the management fund, and $741,000 for other built-in items of increase and decrease. These items include the additional day of pay in 1969, the annualization of positions new in 1968, annualization of civilian/military pay raises, and nonrecurring decreases.

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
c. Motor vehicle pollution control	71	$1,409,000	88	$1,574,000	+17	+$165,000

In view of the evidence that motor vehicles are a major source of air pollution in all sections of the country, a goal of a 20 percent reduction in pollutant emissions from motor vehicles has been established. The program proposed for 1969 is planned not only to help to meet this goal, but, in addition, to stimulate and assist in the development of new, more effective control systems.

At present, the provisions of the Clean Air Act relating to emission controls for new vehicles are being carried out through testing and certification of 1968 model vehicles. Regulations have been published which establish Federal standards for some components of exhaust and crankcase emissions from gasoline-powered automobiles and small trucks. The regulations also establish emission test procedures. Procedures have been established whereby manufacturers of motor vehicles may apply for certification that their products comply with Federal standards. The 1969 programs will continue work directed toward improvement in pre-certification activity, using data and experience now being accumulated. There will be expanded compliance and surveillance testing of newly manufactured vehicles.

The 1969 program will emphasize work directed toward an interim goal of more comprehensive and restrictive motor vehicle standards, to be effective for the 1970 model vehicles. While the existing standards will result in some improvement, more restrictive standards are indicated if a 20 percent reduction in emissions is to be achieved. Accordingly, work in 1969 will be directed toward (a) more restrictive limits for pollutants presently covered by the Federal standards, (b) inclusion of evaporative emissions other than carbon monoxide and hydrocarbons, the only pollutants now covered by the standards - and (c) extension of the scope of the standards to include exhaust emissions from all gasoline-powered trucks and buses and diesel-powered vehicles.

The net budget increase of $165,000 results from a program increase of $128,000 offset by a built-in decrease of $28,000 due to the change in financing of the management fund and $65,000 for other built-in items of increase and decrease. These items include the additional day of pay in 1969, the annualization of positions new in 1968, annualization of civilian/military pay raises, and nonrecurring decreases.

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
d. Training	90	$1,612,000	131	$2,167,000	+41	+$555,000

One of the most serious obstacles to attainment by State and local agencies of effective control programs is the shortage of trained personnel available for air pollution control work. The 1969 training program will emphasize approaches designed to cut down this shortage. It will work toward the end of insuring that the growing State, local, and regional programs have an adequate reservoir of trained personnel for staffing. Adequate staffing for public agencies is critical.

Demand for courses presented directly by the training program has exceeded and continues to exceed the program's capacity each year; approximately 25 percent of the applicants for training remain on a waiting list. In addition, requests for the presentation of training courses in various locations other than program facilities exceed actual scheduled presentations by approximately 20 percent. The Air Quality Act of 1967 will undoubtedly increase existing pressures for a greater number and variety of scheduled courses in 1969. The anticipated number of applications and requests will require the presentation of approximately 83 intensive short courses. Approximately 50 courses will be in training program facilities with the remaining 33 courses presented in various field locations. In addition, approximately 10 to 15 requests for 1- to 2-day orientation courses will be received and honored for an additional enrollment of 1000 to 1500. In 1969 it is estimated that 2600 individuals will be trained through these technical short courses, as compared with 2100 in 1968.

The budget request for an increase of 41 positions and $555,000 will assist in meeting these demands by permitting an accelerated curriculum design and development for effective and rapid mass teaching in formal, programmed, and computer-assisted modes; an expanded curriculum presentation in residence and in the field; an accelerated training aid design and development for use intramurally and for assignment to States and localities; and added emphasis on promotional, training assistance, and grants activity for the development and improvement of extramural training resources.

The 1969 estimate also provides for the conduct of a complete study relating to State and local manpower needs and training programs designed to meet such needs.

The net budget increase of $555,000 results from a program increase of $492,000 offset by a built-in decrease of $30,000 due to the change in financing of the management fund and $93,000 for other built-in items of increase and decrease. These items include the additional day of pay in 1969, the annualization of positions new in 1968, annualization of civilian/military pay raises, and nonrecurring decreases.

TUESDAY, MARCH 12, 1968.

URBAN AND INDUSTRIAL HEALTH

WITNESSES

JEROME H. SVORE, DIRECTOR, NATIONAL CENTER FOR URBAN AND INDUSTRIAL HEALTH
DR. MURRAY C. BROWN, CHIEF, OCCUPATIONAL HEALTH PROGRAM
DR. RICHARD E. MARLAND, CHIEF, INJURY CONTROL PROGRAM
RICHARD D. VAUGHAN, CHIEF, SOLID WASTES PROGRAM
HOWARD L. KUSNETZ, CHIEF, OFFICE OF PROGRAM PLANNING AND EVALUATION
DR. RICHARD A. PRINDLE, DIRECTOR, BUREAU OF DISEASE PREVENTION AND ENVIRONMENTAL CONTROL
VERNON G. MacKENZIE, DEPUTY DIRECTOR, BUREAU OF DISEASE PREVENTION AND ENVIRONMENTAL CONTROL
PETER J. BERSANO, FINANCIAL MANAGEMENT OFFICER, BUREAU OF DISEASE PREVENTION AND ENVIRONMENTAL CONTROL
DR. WILLIAM H. STEWART, SURGEON GENERAL
CHARLES MILLER, CHIEF FINANCE OFFICER
JAMES B. CARDWELL, DEPUTY ASSISTANT SECRETARY, BUDGET

OBJECT CLASSIFICATION (IN THOUSANDS OF DOLLARS)

	1967 actual	1968 estimate	1969 estimate
Personnel compensation:			
Permanent positions	8,134	9,592	12,294
Positions other than permanent	100	170	310
Other personnel compensation	147	200	216
Total personnel compensation	8,381	9,962	12,820
Personnel benefits	1,120	1,318	1,764
Travel and transportation of persons	943	1,230	1,481
Transportation of things	211	323	361
Rent, communications, and utilities	491	804	860
Printing and reproduction	151	200	281
Other services	571	521	708
Project contracts	2,177	2,950	3,442
Services of other agencies	219	275	300
Payment to—			
Public Health Service management fund	309	350	----------
National Institutes of Health management fund	119	136	----------
Supplies and materials	553	599	729
Equipment	1,156	980	1,219
Lands and structures	280	140	175
Grants, subsidies, and contributions	18,568	21,297	21,471
Total obligations	35,249	41,085	45,611

PERSONNEL SUMMARY

Total number of permanent positions	1,136	1,228	1,462
Full-time equivalent of other positions	20	34	56
Average number of all employees	952	1,093	1,364
Average GS grade	8.0	8.2	8.3
Average GS salary	$8,507	$9,261	$9,345

PROGRAM AND FINANCING (IN THOUSANDS OF DOLLARS)

	1967 actual	1968 estimate	1969 estimate
Program by activities:			
1. Grants:			
(a) Research	10,685	11,643	11,271
(b) Training	1,860	2,531	2,531
(c) Fellowships	26	123	123
(d) Survey and demonstration	5,000	5,000	5,546
(e) Planning	997	2,000	2,000
2. Direct operations:			
(a) Solid wastes	3,644	5,418	6,983
(b) Occupational health	3,566	4,434	5,302
(c) Injury control	2,877	3,223	4,151
(d) Water supply and shellfish	2,107	2,671	3,701
(e) Arctic health	1,109	1,460	1,445
(f) Special health protection	2,322	2,582	2,558
Total program costs, funded [1]	34,193	41,085	45,611
Change in selected resources [2]	1,056		
Total obligations	35,249	41,085	45,611
Financing:			
Comparative transfers from other accounts	−13,835		
Unobligated balance lapsing	548	665	
New obligational authority	21,962	41,750	45,611
New obligational authority:			
Appropriation	21,963	41,750	45,611
Transferred to other accounts	−1		
Appropriation (adjusted)	21,962	41,750	45,611
Relation of obligations to expenditures:			
Total obligations	35,249	41,085	45,611
Receipts and other offsets	−13,835		
Obligations affecting expenditures	21,414	41,085	45,611
Obligated balance, start of year	7,505	11,625	22,608
Obligated balance, end of year	−11,625	−22,608	−35,219
Adjustments in expired accounts	−130		
Expenditures	17,163	30,102	33,000
Expenditures are distributed as follows:			
Out of current authorizations	10,289	19,102	12,000
Out of prior authorizations	6,875	11,000	21,000

[1] Includes capital outlay as follows: 1967, $1,436,000; 1968, $1,120,000; 1969, $1,394,000.
[2] Selected resources as of June 30 are as follows: Unpaid undelivered orders, 1966, $930,000 (1967 adjustments, −$130,000); 1967, $1,856,000; 1968, $1,856,000; 1969, $1,856,000.

Mr. FLOOD. The committee will come to order.

We now have the request for Urban and Industrial Health, and Jerome H. Svore, the Director of the National Center for Urban and Industrial Health, will make the presentation.

BIOGRAPHICAL SKETCH OF PRINCIPAL WITNESS

We have a biographical sketch of you, Mr. Svore, which we will place in the record at this point.

(The biographical sketch follows:)

BIOGRAPHICAL SKETCH

Name: Jerome H. Svore.

Position: Director, National Center for Urban and Industrial Health.

Birthplace and date: Norway, Kans., December 29, 1911.

Education: Bachelor of science in mechanical engineering, University of North Dakota, 1934; master's degree in sanitary engineering, Harvard University, 1940; professional engineer degree (honorary), University of North Dakota, 1949.

Experience: 1958–67, directed Federal water pollution control activities in the South-Central United States carried out initially by the Division of Water Supply and Pollution Control of the Public Health Service and subsequently by the Federal Water Pollution Control Administration; 1957–58, executive secre-

tary, Columbia Basin Interagency Committee; 1953–57, director of public health, North Dakota State Department of Health; 1945–53, chief sanitary engineer, North Dakota State Department of Health; 1938–45, sanitary engineer, North Dakota State Department of Health; 1934–38, field engineer, Federal emergency construction program.

Association memberships: American Public Health Association, Water Pollution Control Federation, American Water Works Association, Sigma Xi, National Society of Professional Engineers, National Academy of Sanitary Engineers.

Mr. FLOOD. I see you have a statement, Mr. Svore. How do you wish to proceed?

Mr. SVORE. I would like to read my prepared statement, if I may.

Mr. FLOOD. Very well. Go ahead.

GENERAL STATEMENT

Mr. SVORE. Mr. Chairman and members of the committee, a little over a year ago the Public Health Service established the National Center for Urban and Industrial Health. Its mission is to prevent illness and injuries and control environmental hazards in our cities and protect the health of this Nation's workers at their jobs.

The Center, since August 1, 1967, has had its national headquarters in Cincinnati, Ohio, together with its principal research, technical assistance, and training facilities. A coordinated approach is being undertaken to deal with the following problems: pollution from the insanitary disposal of refuse and other solid waste; health protection for the employed population; prevention and control of accidental injuries in the home and on the highway; the safety of our drinking water and our food; the sanitation of the Nation's housing, particularly in the urban ghettos; the planning of a healthy environment for our future cities; and health problems encountered by special populations, including arctic health.

Mr. FLOOD. What is arctic health?

Mr. SVORE. We have a laboratory in Alaska for the study of environmental and medical problems in the northern climates.

SOLID WASTES

The recently inaugurated Federal program to attack the problem of solid wastes concerns just about every community in the Nation. For each person in the United States an average of 5 pounds of solid waste is thrown away each day. Much of it is threatening health by polluting the air when it is burned or befouling our land and water through dumping. We will expand efforts to find more sanitary and efficient techniques to dispose of the 165 million tons of solid waste discarded each year.

Mr. FLOOD. Have you heard of this Jaapnese machine that they are buying in Chicago that takes these wastes and compresses them into building blocks?

Mr. SVORE. Yes. I have with me, Mr. Chairman, the chief of the solid wastes program who is personally acquainted with that machine. I have not personally seen it, but this is one of the techniques we are investigating, the possibility of compresing solid wastes so they can be handled by different methods such as rail haul and more easily transported.

We are supporting research and demonstration projects throughout the country to develop these techniques, and many of them are highly imaginative. For example, our researcher in Palo Alto, Calif., hopes to create heat from the incineration of solid wastes to drive a jet engine generating electric power. In Chicago, as another illustration, sludge will be transported by pipeline to fertilize farmland in Will County, Ill.

KENILWORTH DUMP

We also are helping to finance a model sanitary landfill to replace Kenilworth dump in Washington, D.C.

Mr. LAIRD. What is so innovative about this project?

Mr. SVORE. The Kenilworth dump, of course, has been——

Mr. LAIRD. I understand about the Kenilworth dump, but I want to know what is so innovative about the project you are financing.

Mr. SVORE. It demonstrates, among other things——

Mr. FLOOD. How do you designate it a demonstration project?

Mr. SVORE. The Kenilworth dump has been burning for years and we want to demonstrate that a sanitary landfill operation can be carried on in this area and ultimately provide a park area, a beautifully landscaped area, and not be looked upon by the people here as nothing but a dump.

Mr. FLOOD. That is not responsive to Mr. Laird's question. You are restating his question.

Mr. SVORE. We are trying to demonstrate that this type of operation is not necessary. However——

Mr. FLOOD. You are trying to demonstrate what?

Mr. SVORE. That this type of an operation, an open burning dump, such as the Kenilworth dump, is not necessary, that it can be operated as a sanitary landfill.

Mr. FLOOD. That is not responsive to Mr. Laird's question. He can take care of himself but let me also ask what is innovative here?

Mr. SVORE. The problem here was that although the District had land outside the District on which to dispose of waste, it was not allowed to use it. The people living in the area where the land is located looked at Kenilworth dump and said, "We want no part of this in our area." What we had to demonstrate to them was that the Kenilworth dump operation was not what we were suggesting. We were recommending a sanitary landfill operation that could improve the area.

Mr. LAIRD. Of course, we have today about 25 or 30 sanitary landfill operations that have been proved already. They have been made into very attractive parts of the city, not only in this country, but in Europe also. What I am getting at is, what is the new idea? This has been proven already. We know we can do that. There are 25 or more projects like this that have proven successful. I want to get rid of the Kenilworth dump, but I wonder if it is proper to call the effort a demonstration project when the sanitary land fill concept has already been demonstrated.

Mr. FLOOD. We have no quarrel with getting rid of the dump, but when you say "demonstration," how many times must you demonstrate something? The idea has been demonstrated in different parts of the world and in this country. Why do you have to demonstrate it again in Washington?

Mr. SVORE. Washington requested $4.9 million, approximately, for this project. We looked at this and felt $733,000 of it, which is the extent of the grants—

Mr. FLOOD. That is two-thirds of the cost?

Mr. SVORE. That is two-thirds of the cost of the part of the $4.9 million that we considered a demonstration project or two-thirds of $1.1 million.

Mr. FLOOD. Mr. Svore, why is it a demonstration? We know what you are doing; it has been done before and has been proven successful. Why do you take money out of your budget to demonstrate it when there is no doubt about the idea? It has been demonstrated in many, many places very well.

Mr. SVORE. We believe this had to be demonstrated in this part of the country.

Mr. FLOOD. What part of the country?

Mr. SVORE. In the East. Most of the time you have incinerators in the eastern part of the United States. Sanitary landfill is not as common here as in other parts of the country.

Mr. FLOOD. It has been done in the East.

Mr. SVORE. This is true, but we felt in this instance it had to be shown here that the Kenilworth dump could be changed into a sanitary landfill operation in order for the long-range plan of the city to be carried out, because they would not accept this concept in the rural areas unless this was proven here.

Mr. FLOOD. In the rural areas?

Mr. SVORE. This is the only place the cities in the East can get rid of their waste if they are going to use sanitary landfill.

Mr. FLOOD. There is no doubt about this, but you are coming here to give birth to ideas. You are not to execute programs with your research and demonstration funds.

Dr. PRINDLE. May I interrupt?

Mr. FLOOD. Yes, if you can explain this.

Dr. PRINDLE. I think the unique thing about the District of Columbia——

Mr. FLOOD. Is the District of Columbia.

Dr. PRINDLE (continuing). Is the District of Columbia, and the problem is that of a city that has no spare land on which to place any fill or refuse. Our demonstration is aimed at developing interjurisdictional relationships to demonstrate that the District can use land outside of its boundaries effectively and efficiently and not have to turn to the incinerator as the sole source.

Mr. FLOOD. You are paying $733,000. That is two-thirds of the cost of this operation.

Dr. PRINDLE. No, sir; it is not two-thirds of the total cost.

Mr. FLOOD. Well, you are spending $733,000 of the funds of this agency for a demonstration project. You and I know this has been done all over the country and in various parts of the world with considerable success. Why don't you take the people of the District of Columbia who have to make the decision and put them in an airplane and show them where this has already been done and save $733,000?

Dr. PRINDLE. I would say, Mr. Chairman, that it is not solely the responsibility of District officials. This involves interjurisdictional relationships.

Mr. FLOOD. Then why don't you take two airplanes?

Dr. PRINDLE. Maybe that is the solution but we wanted to demonstrate this could be done. We have had sanitary landfills that have worked, primarily in small communities.

Mr. FLOOD. It is a matter of degree?

Dr. PRINDLE. Yes. We had to demonstrate it could be done in larger areas.

Mr. FLOOD. I do not think so. Just because it is in the District of Columbia and is right under our noses you think this must be done. Had this happened in Wisconsin I don't think you would have approved a demonstration project.

Dr. PRINDLE. I am not sure we would have, but we have not had a request of that type.

Mr. LAIRD. I was just trying to get to the background of this project, because I have seen the concept demonstrated in the United States where landfill operations are very successful. Even in the statement which we have before us today it is pointed out that work has been done at the University of Wisconsin and at the University of Pennsylvania.

I could not feel this was the kind of thing we appropriated the money for. I think this is something that should be considered in the District budget rather than as a demonstration project under the Public Health Service. It looks like we are just using a subterfuge here to get a job done. I think if you want to eliminate the dump, Congress might look with favor on it, but to come in the back door and use the demonstration grant procedure here, I think is open to question. In the justifications last year it was never pointed out that you had this sort of thing in mind.

Mr. FLOOD. It is no coincidence that the justifications refer to the State of Wisconsin and the State of Pennsylvania in the next paragraph, do you think?

Mr. NATCHER. Mr. Chairman, may I say something off the record.

(Discussion off the record.)

Mr. NATCHER. Thank you very much, Mr. Chairman.

Mr. FLOOD. All right, go ahead.

RAIL HAUL OF SOLID WASTE

Mr. SVORE. We are also helping to finance a study of rail haul of waste from big cities to abandoned mines; a study in Madison, Wis., on reducing the volume of refuse by grinding; and at the University of Pennsylvania a study on the use of pipelines to collect solid wastes.

Mr. FLOOD. "A study of rail haul of waste from big cities to abandoned mines." Everybody seems to be concerned about big cities. You propose a study to see if you can transport refuse cleanly and properly without scattering it over the countryside, dump it into mine strippings in the coalfields of the country.

Mr. SVORE. This is the general plan on rail haul.

Mr. FLOOD. You have no idea that treatment of these mine strippings in such a manner might affect the water tables of the area?

Mr. SVORE. Yes, we are very interested in this.

Mr. FLOOD. So are the people who live in the coalfields.

Mr. SVORE. This is one of the matters we are investigating in some detail on solid waste disposal.

Mr. FLOOD. You also know the coalfields have been suffering for 25 years because of the loss of use of coal to gaseous fuels. They have had bootstrap operations to try to get manufacturing and light industry to come in and diversify the economy and provide employment where the unemployment rate was as high as 19 and 20 percent for many, many years.

They are just beginning to see the light at the end of the so-called tunnel. For two generations these people have been trying to get out in the industrial and banking world and show people that this area is not like Mars, that it is inviting with the new methods of transportation, the new Interstate Highway System. They have done everything they can think of, with the help of the State and Federal Government and their own money, to get these industries to build factories and give employment. Now you want to make it a dumping ground for metropolitan refuse.

Mr. SVORE. We would hope this land can be reclaimed.

Mr. FLOOD. You hope you can reclaim what? This stripping would run from here maybe for a mile and it would be so wide that if you were in good shape you could hop, skip, and jump across it. It is deep and you can put carloads of refuse from metropolitan areas in there and it will cost a lot of money to do it and you will reclaim what? Do you know how much acreage you would recover for industrial and commercial purposes if you were to fill one of these long, deep, narrow mine strippings? You would not reclaim enough real estate to play ping-pong. Do you know that?

Mr. SVORE. We would certainly try to improve the looks of the land.

Mr. FLOOD. Now you are talking about improving the looks of the land and not covering acreage for industrial and commercial purposes. Have you ever seen one of these stripping areas?

Mr. SVORE. I have seen some.

Mr. FLOOD. How many square feet would you cover? Not much. You know, I was born and raised there. I would like to see something done about these scars which are the result of our areas being raped by the mining operators for a hundred years, but should it be made a dump for the megalopolis of the eastern seaboard?

Mr. SVORE. I would hope they would understand this is not what we are trying to do to the land.

Mr. FLOOD. Is this a demonstration project again?

Mr. SVORE. The matter of rail haul, of course, is very much a demonstration project. This can be hauled in a manner that does not cause a problem, because the cars that are coming back empty can be used to haul compressed solid waste.

Mr. FLOOD. When a train of 50 rail cars goes from a part of the coal mining area to New York filled with coal that we hope they will buy, you want them to come back filled with this refuse from the metropolitan area, is that it? There are hundreds and hundreds of these trains and cars coming back empty, and the economy abhors something like that so you will fill them with refuse. Is that it?

Mr. SVORE. Of course, everything that goes into a city must come out. They will be disposed of either as air pollution, water pollution or solid waste which has to be hauled out. This is one of the ways we are trying to solve the problem.

Mr. SMITH. Does this include the waste from smokestacks?

Mr. SVORE. Even the waste from incinerators has to be disposed of.

Mr. SMITH. You are not talking about ashes and cinders?

Mr. SVORE. This could be part of the waste. The end product of burning in an incinerator has to be disposed of.

Mr. SMITH. Do you have projects for that?

Mr. SVORE. Yes; we have projects for these types of waste too. We are proposing, a study on rail haul. It is not operating now.

Mr. FLOOD. I think, in fairness to your position, there are in existence in the coalfields—in fact in my congressional district—two projects that have been conducted successfully for a number of years disposing of these solid wastes in some of these strip mines. This has been going on in two municipalities that I know of for some time.

Mr. SVORE. I am familiar with this in the lignite fields.

Mr. FLOOD. I am not talking about the lignite fields. I am talking about the anthracite coalfields. They have been doing that for years.

Mr. SVORE. I think we know it can be handled properly at that end but the matter of the economics of rail haul as a means of getting the waste out is a major factor to be studied.

Mr. FLOOD. We appropriate money to you people for research and development.

Mr. SVORE. That is right.

Mr. FLOOD. Then we wind up seeing great chunks of the money not going to development at all but doing the same thing that has been done and is in operation in many other places. Whenever a problem develops in one spot, you say you must have a demonstration project to show it can be done. It has been done.

Mr. SVORE. I think the rail haul aspect of this, of course, is an entirely new problem. It has not been solved.

Mr. FLOOD. This is true.

Mr. SVORE. Covering it at the other end is another problem.

Mr. FLOOD. We just do not want to see your development funds squandered in executing programs for somebody someplace.

Mr. SVORE. I hope, sir; we are very careful about that.

Mr. FLOOD. Maybe so, but I think when some smart operator finds out you have x hundred thousand dollars and he needs x hundred thousand dollars for a project, he wouldn't hesitate to apply for a demonstration project. This is another problem. Just so you people know the committee is not unaware of these nuances.

Go ahead.

OCCUPATIONAL HEALTH

Mr. SVORE. A large majority of our working force lacks adequate health protection and services. Many are exposed to excessive amounts of harmful contaminants, some of which are known to cause respiratory diseases and toxic illnesses. For example, about 100 uranium miners have died of lung cancer due to exposure to radon gas and its radioactive decay products, and many more will die unless preventive measures are taken. Increased research emphasis will be undertaken in this area during the coming year. Other workers have been exposed to health hazards from industrial processes associated with asbestos and beryllium.

ANTHRACOSILICOSIS

Mr. FLOOD. Are you doing any research and development for the hard and soft coal mines in the United States as distinguished from beryllium and uranium mines?

What are you doing about anthracosilicosis? There are men who were classmates of mine in high school I see walking on the streets now who look much older than I do because they have anthracosilicosis and they are dying a slow death. There has been a great concern about uranium mines but I rarely hear anybody mention anthracosilicosis or allied conditions from the hard and soft coal mines in the United States.

Mr. SVORE. We do have a facility, a field operation, in Morgantown, W. Va., for the study of pneumoconiosis.

Mr. FLOOD. How long has it been there?

Mr. SVORE. Two and one-half years.

Mr. FLOOD. They have been mining there a long time.

Mr. SVORE. This is dedicated to respiratory diseases and pneumoconiosis in the coal mines and we are doing considerable research there at the present time. Pneumoconiosis affects 10 to 20 percent of the coal miners in this country. That is the work we are doing at Morgantown.

Mr. FLOOD. Go ahead.

Mr. SVORE. We are also concerned with approximately 7 million workers who may be exposed to noise hazardous to hearing.

INJURY CONTROL

One of the most baffling and serious health problems in our country is accidental injuries. Fifty-two million Americans—one-fourth the population—are injured annually in accidents at home, at work, on the highways, and elsewhere.

Mr. FLOOD. Mr. Smith told us yesterday that the pressure emanating from a paint spray used in industry could cut a finger off.

Mr. SMITH. Cut the flesh off.

Mr. SVORE. I have an illustration in the solid waste area showing the effect of hydraulic pressure. In this case the force is being used to remove the lining from boxcars instead of burning it, which causes pollution.

Mr. FLOOD. What are you showing us?

Mr. SVORE. This is the lining of a boxcar and it has been cut off and removed by a high pressure stream of water.

Mr. FLOOD. We now have in our hands a piece of wood about 6 or 8 inches long and 1½ inches thick. Go ahead.

Mr. SVORE. This is one method of removing the lining from boxcars to avoid pollution, but it shows the pressure a stream of water can exert.

Mr. FLOOD. What are you doing about Mr. Smith's finger?

Mr. SVORE. These are the kinds of facilities and mechanisms that we are studying. We have 100,000 injuries by lawnmowers every year. We want to design these with as many built-in protections as possible and educate the public on the proper use to as great an extent as possible, but this does show the dangers attached to some of these.

Mr. FLOOD. Go ahead.

BURNS

Mr. SVORE. More than 100,000 Americans injured annually in accidents die. Injury control activities are directed to elimination of hazards in the environment that lead to accidents. Recent recommendations of the President's Advisory Committee on Consumer Protection and the 1967 amendments to the Flammable Fabrics Act have focused attention on injuries, especially burns. Our studies will emphasize the collection and analysis of data on burns and other injuries as a basis for improvement of standards related to the flammability of fabrics and other consumer products.

Mr. FLOOD. Speaking of burns, do you not know that for many years we were advised that one of the best known institutions for the care and treatment of burns is the Naval Hospital in Bethesda because of their experience with various types of burns during several wars? Can you not tie in with these people where they have this famous burn center? Do you know about their reputation for the treatment of burns?

Mr. SVORE. I do not personally know about the facility at Bethesda. I know it is there. But we are tied in with at least 16 other national burn centers.

Mr. FLOOD. Military people have had great experience with burns in large numbers.

Mr. SVORE. Yes. We want to determine how many of the 3,000 people who die annually, together with those injured by burns, can be saved.

Mr. FLOOD. Do all of you people who are concerned with burns get together and hold hands or do you go off in corners and carry on your research separately?

Mr. SVORE. We work very closely with burn institutions, such as the Shrine Burn Center in Cincinnati where our headquarters are located. We have plans to work with others in Boston and Denver to establish the relationship between flammable fabrics and other consumer products and burns.

Mr. FLOOD. This is very good. In defense we have had great experience with this problem of people running off in a corner, each with his own money and his own research and development project. Mr. Laird and I have been on the Defense Subcommittee for many years and we are familiar with this proliferation. Some of the people engaged in R. & D. projects won't even talk to anybody else doing the same kind of work, sometimes even in the same building.

Mr. SVORE. In our injury control program we have tried to get all the information we can from all sources.

TRACTOR SAFETY PROGRAMS

Mr. SMITH. How many tractor safety programs do you have?

Mr. SVORE. We have a report coming out on tractor safety.

Mr. SMITH. There is only one project?

Mr. SVORE. The work has been done in Iowa.

Mr. SMITH. I am acquainted with that. Are there others?

Mr. SVORE. Dr. Marland is in charge of the injury control program. He is familiar with that.

Dr. MARLAND. There is one underway at North Carolina State University on injuries as affected by the arrangement of equipment in the

back of a tractor; and one at Purdue University. Both were started in the last 20 months or so.

Mr. SMITH. Are these primarily to produce statistics?

Dr. MARLAND. They are designed to come up with recommendations on performance, on how to build safeguards against injury-producing features.

Mr. SMITH. Rather than being engineering projects they are statistical projects?

Dr. MARLAND. They are both. They are being produced in schools of engineering at North Carolina State University and at Purdue. At Iowa it referred to both engineering and medical features.

Mr. SMITH. Are the reports due soon?

Dr. MARLAND. I have a copy I would be happy to submit for the record summing up the work at Iowa. We have not yet received reports from North Carolina or Purdue.

Mr. SMITH. I have seen the one from Iowa.

Mr. FLOOD. Send Mr. Smith a copy of the North Carolina and Purdue reports when you have them.

Dr. MARLAND. Yes, sir.

Mr. FLOOD. Go ahead.

Mr. SVORE. We will also be studying the behavior of people under stress conditions using driving simulators at our Human Behavior Laboratory in Providence, R.I.

WATER SUPPLY

The effects on human health of organic materials and trace elements in drinking water supplies have not yet been fully determined. Of equal concern is the need to determine whether or not the existing treatment techniques which guard against biological contamination of water supplies are being strained to the breaking point. The human health aspects of water pollution and the potential use of reclaimed sewage for drinking water require careful valuation to establish a sound technological basis for the development of meaningful standards for the Nation's drinking water supplies. Our research effort in 1969 will place a high priority on seeking solutions to these problems.

Adequate consideration of public health implications in planning water resources development are important to the Nation's future well-being. Our plans for the next year include increased participation in the river basin planning activities of the Federal Water Resources Council, provided for in the Water Resources Planning Act, to assure adequate consideration of the public health aspects of water resources planning.

SPECIAL HEALTH PROTECTION

In the area of significant health problems associated with housing hygiene, the Center will provide technical assistance to agencies directly concerned with urban housing, with particular attention to the need for home as well as neighborhood standards for slum areas. As an illustration of this kind of work, we have supported a project in the Chicago slums aimed at instructing ghetto residents in sanitation and health techniques.

Changing patterns in transportation, such as superjets carrying hundreds of people, pose new concerns for health protection of passengers and crew. Under the interstate quarantine regulations, review of the sanitary features of common carrier design helps provide this protection. Carriers' food and water sources are also periodically inspected and approved. Our milk and food research seeks ways and means of reducing the incidence of foodborne disease. The voluntary cooperative State-PHS program for the certification of interstate milk shippers, which has proven an effective safeguard for interstate milk shipments, will continue its important work.

ARCTIC HEALTH

This past summer the principal research facility of the Arctic Health Research Laboratory was moved from Anchorage to Fairbanks, Alaska. The scientific investigation conducted there into health problems of extremely cold climate is an example of our approach to the environmental health problems of special areas or population groups. We plan to develop a similar ecological approach to the Appalachian region.

APPALACHIA RESEARCH

Mr. FLOOD. What are you going to do in the Appalachian region, conduct an Arctic research project?

Mr. SVORE. No. The ecological approach we are using in the Arctic research program is the same in principle that we hope to apply to the facility we have authorization for in the Appalachian region.

Mr. FLOOD. Well, I was just wondering. Keeping in mind our geography, the extent of the so-called Appalachian region, keeping in mind the density of the population in that region, and keeping in mind that it goes right through the center of the great eastern seaboard from New York, south through a number of States, why didn't you conduct your ecological research there first instead of in the Arctic where there are very few people?

Mr. SVORE. The Arctic research facility was started about 20 years ago.

Mr. FLOOD. That is very interesting, but why do you, in your statement here, indicate that the Appalachian study is an afterthought that you will get around to sooner or later?

Mr. SVORE. We have just had an authorization for a facility in Appalachia.

Mr. FLOOD. I understand that, but why the long delay?

Mr. SVORE. I think it is overdue, sir.

Mr. FLOOD. That is an understatement, is it not?

Mr. SVORE. Yes, sir.

Mr. FLOOD. These are the things that upset us on this side of the table. All of a sudden you discover Appalachia and the need to conduct this kind of research. Well, well.

Your study in the Arctic has been going on for 20 years?

Mr. SVORE. This facility was started in Anchorage, I believe, 20 years ago.

Mr. FLOOD. And you are still studying it after 20 years?

Mr. SVORE. There are so many problems up there that we are running into new situations every year with problems that have not been solved.

Mr. FLOOD. It looks bad for Appalachia, then. That will take 50 years to do, will it not?

Mr. SVORE. I hope not.

Mr. FLOOD. During World War II we had this problem with aircraft. Every week somebody would come up with a new design for a new aircraft and it would be better than the other one. Then the next week somebody else would come up with another design, and every week we had a new design for aircraft. Everybody was designing aircraft. The only trouble was we needed aircraft in England last night. We had to tell them, "This is great, but knock off designs and studies and put aircraft in England now." Of course we will always be studying something, won't we?

ARCTIC HEALTH

Mr. SVORE. I think we have already attacked several problems in the Arctic.

Mr. FLOOD. Twenty years is a long time.

Mr. SVORE. One of the main problems, with the native children, for example, is the infection of the middle ear. We have as high as 40 percent of the infants in villages that may be infected with this. We have done considerable work there by means of treatment, and apparently it is quite successful. These are the types of problems that we are attacking.

Dr. PRINDLE. May I interrupt to say the Arctic study was begun in the days when Alaska was a territory, before it became a State and before they had their own health programs as a State. As you have rightly pointed out, it is not our role to carry out corrective programs, but we work closely with our own Indian Service and others to get these programs in operation.

Mr. FLOOD. You understand our problem. We are for study and we are for research and development. That is great. But sooner or later we hope to see something produced from the billions we spend on research and development.

Dr. PRINDLE. I think we can point to a number of accomplishments that are being put into effect, and in doing that we have developed a new approach to see what really goes on in the interaction of the environment.

Mr. FLOOD. I am for the Eskimos, but let us get to Appalachia. We hear about the ghettos day and night and I am for eliminating the ghettos, but it gets tiresome. Proceed with your statement.

Mr. SVORE. The work in Alaska already represents a significant contribution to the understanding and solution of health problems in that area. The new facility will provide improved resources for this work.

The problems are varied and complex. They represent a challenge to both scientific and managerial skills to find timely solutions. We must find them. As the Secretary's task force reported:

> Man has discovered that he cannot act toward his surroundings with the abandon of a caveman * * * our health and well-being—and those of future generations—are at stake.

SUMMARY OF 1969 BUDGET REQUEST

To carry out the Center's objectives, we are requesting a total of $45,611,000 for 1969, an increase of $4,526,000 over the estimated program level in 1968.

I shall be pleased to answer any questions you may have.

Mr. NATCHER. The budget for urban and industrial health for fiscal year 1968 is $41,085,000. The request for fiscal year 1969 is $45,611,000, which is an increase of $4,526,000 and 234 positions. This, I believe, is on top of an increase of 92 positions for 1968. Is that correct?

Mr. SVORE. That is correct.

FLAMMABLE FABRICS ACT

Mr. NATCHER. How much of the increase in dollars and positions is directly tied to the Flammable Fabrics Act that Congress passed last year?

Mr. SVORE. In the injury-control program we are requesting a total increase of 49 positions and $910,000. To carry out the provisions of the Flammable Fabrics Act the amount is $514,000. The additional request for funds would allow us to continue some studies on osteoporosis and the effects of smoke inhalation.

Mr. NATCHER. The Food and Drug Administration administers the Hazardous Substances Act. Why does not the Food and Drug Administration handle the Flammable Fabrics Act?

Mr. SVORE. The Flammable Fabrics Act itself placed this responsibility with the Public Health Service and it is our responsibility to carry out the provisions of the act.

Mr. NATCHER. It is fixed by statute?

Mr. SVORE. Yes.

Dr. PRINDLE. If I may, the major concern is with the health and medical aspects of injuries and burns; that is why we were given the responsibility. We serve as an adviser to the Food and Drug Administration and to the Department of Commerce on the medical part.

COOPERATION WITH FOOD AND DRUG ADMINISTRATION CONCERNING CONTAMINATED FOODS

Mr. NATCHER. I think you have some responsibility in contaminated foods. Where is the line drawn between what you do and what the Food and Drug Administration does?

Mr. SVORE. I think an example is the interstate quarantine provision on serving food and water in interstate traffic protecting some 2 million passengers that use our common carriers daily. We have, of course, by tradition, worked for years with the health departments that locally have this responsibility and on the State level, and we work in cooperation with them in providing the training courses needed for food handlers. This is food handlers versus, say, food. The Food and Drug Administration, of course, has an interest in whether canned food is satisfactory, whether it is safe or has impurities in it. We are interested in the handling of food.

SOLID WASTE DISPOSAL

Mr. NATCHER. The biggest increase is an increase of $1,565,000 requested for solid waste disposal. The first big increase was in 1967, then you received a smaller but sizable increase for 1968. What results do you have to report?

You may supply that for the record.

(The information follows:)

SOLID WASTE PROGRAM ACCOMPLISHMENTS (FISCAL YEAR 1965–68)

A total of $32,207,000 has been appropriated for use of the Department of Health, Education, and Welfare to carry out their responsibilities under the Solid Waste Disposal Act of 1965. A summary of accomplishments during the 2-year period (May 1, 1966, through June 30, 1968) is shown below. Additional program highlights are particularly described to illustrate some of the program activities.

A. Administration

The fiscal year 1968 staff positions total 249. Program staffing from less than 10 persons to this number in approximately 2 years was of no little concern. No formal solid waste training had been offered prior to the solid waste program training grants. Professional staff members were recruited, trained, or retrained according to solid waste program needs.

Rules and regulations for application and administration of demonstration, survey and investigation, and planning grants were developed, approved, and published; permitting grant awards as early as the last quarter of fiscal year 1966. The program has obtained the Governor's designation of an agency responsible for solid waste planning activities in 49 of the United States.

B. Grants management

1. Solid waste planning grants have been awarded to 36 State agencies, the District of Columbia, and to one interstate agency. The interstate agency grant is a particularly outstanding development, recognizing the interdependence of governments in obtaining comprehensive solution to solid waste problems; $3,400,000 has been appropriated to date for this purpose. An additional five planning grants may be anticipated before the completion of fiscal year 1968 (four States, one interstate).

2. Solid waste demonstration grants awarded to demonstrate new or improved methods of solid waste handling or management have received $11,989,000 in appropriations. The 57 grants awarded range from $4,333 to a maximum of $733,000 each in annual expenditure. We estimate an additional 10 grants will be awarded before the end of the fiscal year.

Many of the demonstration grants have been supported to illustrate the use of new and exciting solid waste handling techniques. Sanitary landfill machines to excavate, deposite refuse, and apply soil cover in one operation have been designed and will be operable within the next few months.

New incinerator concepts will be demonstrated as part of this program. Some incinerator designs have been tested to ascertain their capabilities in meeting stringent solid waste handling and air pollution control legislation.

3. Since passage of the Solid Waste Disposal Act of 1968 appropriated funds of $5,095,000 will have been used to support approximately 42 research projects in basic concepts and methods of solid waste management. We estimate that before the end of fiscal year 1968 an additional 15 projects will be added to this number.

4. Training grant appropriations totaling $990,000 support graduate training in all aspects of solid wastes management at eight universities. Through fiscal year 1968 the supported schools will have trained 39 students at a master's level and exposed many more to solid waste problems and concepts. Three more universities may be funded in this fiscal year.

C. Research and development

Research projects underway include investigations concerning personnel and public health hazards in solid waste handling, new processes and methods, and recycling and utilization of solid wastes.

Bulky waste incineration, incinerator-pathogen relationships, sanitary landfill cover material and hydrolosis of solid wastes (the reduction of solid waste to basic sugars and starches) are all the subject of present research studies.

The joint PHS–TVA composting plant, Johnson City, Tenn., one of the four operating (municipal) compost plants in the Nation, is an extension of the solid waste research and development program. Tests to determine potential health hazards from composting municipal refuse with raw sewage sludge and an evaluation of finished product marketability are presently underway.

D. Technical services

The solid waste program has staffed a technical assistance activity providing assistance in problems of solid waste management. More than 400 responses to to assistance requests have been made to date. Capabilitie include testing of individual methods, evaluation of systems, advice and consultation on any aspect of solid waste. The National Survey of Solid Waste Practices will provide additional data—information pertinent to solid waste handling nationwide. Statistically dependable data will be available in July (fiscal year 1969).

Systems analysis approaches to solid waste management problems are being developed in the program for local application.

E. Solid waste training

The training program has designed five distinct, 1–week courses. Presentation of these courses has provided 20 weeks of training attended by 750 students. Course materials cover solid waste management, disposal methods, design and operation; or the health and safety aspects of solid waste handling.

F. Publication and information

The solid waste information retrieval system was established during fiscal year 1967 providing for the storage and retrieval of the information concerned with solid waste management and interrelated subjects. All of the data produced through the program, abstracts of research projects and demonstration grants as well as abstracts of information gleaned through other sources, have been keyed to an information retrieval system especially designed to aid program personnel in the rapid selection of pertinent information. Future funds and personnel will allow public access to the vast quantities of vital information contained within this system.

Some examples of publications concerning solid waste handling which have been or will be published before the end of fiscal year 1968 are as follows:

Applying Technology to Unmet Needs.
Summaries of Research and Training Grants in Solid Waste Disposal.
Solid Waste/Disease Relationships; a Literature Survey.
Proceedings' Surgeon General's Conference.
Quad-City Solid Wastes Project: First Annual Report (in press).
Patent Abstracts (in press).
Special Studies, Incinerator No. 5 (in press).
1967 Summaries of Solid Wastes Research and Training Grants (in press).
Solid Waste Reduction/Salvage Plant, City of Madison, Wis., Pilot Plant (in press).
Sanitary Landfill Facts (in press).
Solid Wastes Management in Germany—report of the U.S. Study team visit, June 25-July 8, 1967 (in press).
Solid Waste Processing: A State-of-the-Art Examination of Unit Operations.
Study of Techniques To Eliminate Environmental Pollution in Connection With Dismantling and Salvaging of Railroad Cars.
Study of Packaging Materials and Waste Disposal.
Application of Jet Engine Technology to Heat Generated by Incineration of Refuse.
Demonstration Projects: June 1966-December 1967.

In summary there will be 24 formal publications, 11 technical reports, 28 pamphlets and flyers, and 22 speeches and papers prepared for extramural publications that will be available from the solid wastes program.

SPECIFIC EXAMPLES OF SIGNIFICANT ACCOMPLISHMENTS

The solid waste program has participated in programs emphasizing the need for action in combatting the pollutional efforts of solid waste throughout the

Nation. When requested, we have contributed assistance in State and local activities towards this end.

Probably one of the outstanding programs was the Surgeon General's Conference on Solid Waste Problems in the Washington, D.C., area, which was attended by 450 civic and professional leaders.

The small community has been unable to utilize incineration because of the inability to take advantage of economy of scale. A demonstration grant to the city of Shippensburg, Pa., is supporting the evaluation and demonstration of a small mechanically stoked rotary grate incinerator developed in West Germany which if successful may allow communities in the 25,000 population range to consider incineration as a satisfactory method of disposing of solid waste and effectively meeting air pollution control criteria.

Through the contract mechanism the solid wastes program is in the process of developing a new concept in incineration which may lead to a major breakthrough in incinerator technology. Many incinerators here and abroad have considered utilization of waste heat to lower the net cost of operation by generating steam for purposes of heating or electric power generation. Our new approach takes advantage of jet engine technology to transform waste heat from combustion directly to a gas turbine and generate electric power with far greater efficiency and thus lower net cost. If this method, which includes effective air pollution control devices, proves to be as successful as it now appear likely, the net cost of operation may be substantially lower than present incinerators operating without any air pollution control devices.

The State of Maryland partially supported by a solid waste demonstration grant is showing how solid waste can be used to reclaim strip mines. This could change a blight of America into a precious asset and at the same time effectively deal with a pressing community problem—solid waste disposal. Another demonstration grant to the Chicago Sanitary District will show how sewage sludge after its removal from waste water can be transported to low cost land and converted into a profitable resource for agricultural and recreational purposes. Perhaps the most infamous example of solid waste disposal, the Kenilworth dump in Washington, D.C., is being converted into a model sanitary land-fill operation which will ultimately be transformed into a tree-lined, grass-covered park and recreational area. There is no reason why necessary community functions cannot result in a community asset—technology can respond to the challenge.

The high costof transporting solid waste to available land has limited use of land reclamation techniques especially in the eastern part of the United States where these distances can be substantial. A Public Health Service demonstration grant to the American Public Works Association is partially supporting a study and demonstration of the use of railroad facilities to haul solid waste from crowded urban centers to areas where land is available for disposal and reclamation. This appears to be an exceptionally economical method of joining available land with great volumes of solid waste and is potentially a new innovation in solid waste management of major proportions. This could open new avenues which would allow consideration of alternatives in this field heretofore considered unthinkable. We are working closely with the American Public Works Association to make certain the results of their investigation are made available to solid waste managers as soon as possible.

Innovation technology in the collection field is being investigated by the University of Pennsylvania supported by a Public Health Service solid waste research grant. This project is determining the feasibility of transporting solid wastes in pipes as a liquid slurry. Recently developed in Sweden, a vacuum system is transporting solid waste in highly urbanized areas short distances in pneumatic tubes. This method is being evaluated by the technical staff of our own program and if justified will be applied to an appropriate system in the United States.

Agricultural wastes including domestic animal wastes are included in the Nation's solid waste contribution to an extent not realistically considered by the average citizen. Reliable estimates of the magnitude are not now available but preliminary estimates indicate this contribution exceeds 1 billion tons per year.

Public Health Service solid waste research grants awarded to Purdue and Rutgers Universities are supporting study of new methods to dispose of dairy and poultry manure. A demonstration grant awarded to Washington State University is demonstrating facilities and techniques that will reduce the possibility of water pollution and increase the fertilizer values actually realized from dairy manure.

A Public Health Service research grant to New York University supported the development of a special incinerator to handle demolition material and other

bulky solid wastes economically and effectively and control particulate emission to protect air resources. The incinerator is now being constructed by the city of Stamford, Conn., partially supported by a Public Health Service solid waste demonstration grant.

The contract mechanism is being used to develop effective ways to dismantle old railroad cars to eliminate air pollution caused by burning these vehicles in the open. One approach is a special hood enclosing the entire car, but one of more promising value is a technique which eliminates burning altogether. A jet of high pressure water is used to cut through the wood and separate the metal fittings from the body of the car. The technique is being further investigated to see if it might have value in stripping unwanted material (rubber, upholstery, etc.) from abandoned automobiles prior to their disposal without utilizing incineration techniques. The technique might also be used to reduce the volume of bulky wastes.

A contract was awarded to study feasible methods of disposing of polyethylene plastic waste while another contract was awarded to the Midwest Research Institute to make a thorough study of packaging materials, trends in this industry and possible solutions which would be amenable to solid waste disposal without wrecking the industry. A part of this study includes the consideration of needed legislative programs to cope with this problem. When this study is received it will be evaluated by our technical personnel and our future course of action determined.

Mr. NATCHER. Why do you need further expansion in 1969?

Mr. SVORE. The expansion in 1969 really could be categorized in four separate areas. We have plans to expand our research operations. We also plan to increase the training aspect of this. We have about 3,000 professional people in the United States that work in this area of solid waste. We have 300,000 nonprofessional people in the solid-waste area. So we are requesting a limited increase to be able to train individuals who in turn will train others.

A major part of this request for an increase is in the area of technical assistance. We are receiving, because of the States' increased interest in solid wastes, requests for technical assistance on things like: Where can we get these kinds of equipment? Where can we get somebody to take the waste from my city? The more the States get involved in their statewide planning for solid waste, the more help they need from us, and this is an area where we are requesting some 41 positions.

The fourth area has to do with the subject we discussed this morning in demonstration grants. With more and more of these types of projects being placed in operation, most of which I would say are very important demonstrations of methods of handling waste, the more we need to monitor them and categorize the information that we are receiving from them, and to monitor their operations to see whether or not these new innovative methods really are valuable.

This, very briefly, is what we are concerned with.

LINTON REPORT ON ENVIRONMENTAL HEALTH

Mr. NATCHER. What was the task force on environmental health and related problems, and what did they say about this program in their report last June. Just briefly, can you tell us?

Mr. SVORE. In the Linton report to the Secretary, it indicated that the problem of solid waste disposal was a major effort in which considerable work has yet to be done. I would be glad to insert for the record the specific comments that the report contained.

Mr. NATCHER. Suppose you submit that to Mr. Moyer and he will place in the record the pertinent portions.

(The information follows:)

EXCERPTS FROM—A STRATEGY FOR A LIVABLE ENVIRONMENT

(A report to the Secretary of Health, Education, and Welfare by the task force on Environmental Health and Related Problems, June 1967)

Of the 10 action goals recommended in the report "A Strategy for a Livable Environment," seven relate directly to the mission of the National Center for Urban and Industrial Health.

Goal 2.—A water quality effort by 1970 to test all existing and proposed public drinking water supply system and produce meaningful public drinking water standards which, through an enforcement program, will insure health-approved drinking water for 100 percent of the Nation's public systems (ch. II, p. 13).

Goal 3.—A waste disposal effort to provide, by 1973, a grant-in-aid program for solid waste disposal at the local level; developmental research program to integrate solid and liquid waste disposal and air quality control; and for the disposal of nuclear wastes (ch. II, p. 14).

Goal 5.—An urban improvement effort to develop by 1973, through research, basic data sufficient to establish human levels of tolerance for crowding, congestion, noise, odor, and specific human endurance data for general stress and accident threats, including traffic, home, and recreation accidents (ch. II, p. 18).

Goal 6.—A materials, trace metals ,and chemicals control effort to establish, by 1970, human safety levels for synthetic materials, trace metals, and chemicals currently in use, and prohibit after 1970 general use of any new synthetic material, trace metal, or chemical until approved by the Department of Health, Education, and Welfare (ch. II, p. 20).

Goal 7.—A consumer protection effort which, by 1970, will initiate a comprehensive program for the identification of health and safety hazards associated with the use of appliances, clothing, food, hazardous substances, and other consumer products and for the control of such products which fail to meet consumer protection standards established by the Department (ch. II, p. 21).

Goal 9.—An occupational disease and safety protection effort to extend, by 1970, preventive services to 100 percent of the employed population at its work place (ch. II, p. 23).

Goal 10.—A governmental compliance effort which, by 1969, through effective relations with local, State, and Federal governments, will insure that criteria and standards for physical and mental health for housing, urban development, and transportation will be available and used by the Federal agencies administering these programs (ch. II, p. 25).

WASTE DISPOSAL GOAL NO. 3

The task force saw, again and again, that our Nation's burgeoning population and ever-increasing productivity have generated a rising tide of discarded organic and inorganic materials. This refuse is creating a huge and, as yet, unsolved problem of waste disposal.

Therefore, the task force recommends an effort to provide by 1973 a grant-in-aid program for solid waste disposal at the local level; a developmental research program to integrate solid and liquid waste disposal and air quality control; and for the disposal of nuclear wastes.

The President's Science Advisory Committee in its report "Restoring the Quality of Our Environment" and the National Academy of Sicences in its more recent report, "Waste Management and Control," have called for a new and redoubled effort to find better methods of alleviating the national waste crisis. A steadily mounting burden of waste, handled in ways that endanger the public health and welfare and offend its aesthetic senses through environmental deterioration and excessive economic penalties, can no longer be accepted.

The increase of refuse generated by each person every day is accelerated with the appearance of every new product and process. Every urban rehabilitation effort, every expressway excavation, and every suburban housing development create new mountains of material to be disposed of by ancient and inefficient methods.

Not only is refuse increasing in volume, its characteristics are also changing. The problem yesterday was principally garbage and ashes. Todays' rubbish includes everything from dead animals, industrial waste, demolition refuse, old

appliances, construction refuse, and nonreturnable containers to hazardous and special wastes such as those from hospitals or nuclear powerplants.

In most large metropolitan areas, the refuse disposal problem has reached such proportions that available landfill areas are all but exhausted. The skies over bustling dumps are daily filled with black clouds from the open burning pyres-emissions that irritate the eyes, damage the lungs, and despoil the landscape.

And the problem will unquestionably get worse. The 165 million tons of solid waste spewed into the air and discarded and spread over the Nation's landscape in 1966 will increase to 260 million tons in little more than a decade. Also, wastes which heretofore have largely been of a degradable organic nature are now mainly (65 percent) nondegradable inorganic material. The 6 million automobiles scrapped in 1965 will double and perhaps triple before the turn of the century.

The task force envisions research into new avenues for waste recycling and disposal, and improving existing technology for the prevention and control of pollution associated with waste disposal.

Basic in this respect is the desire of the task force to see Federal stimulation and leadership in the development of a total systems approach to improved methods of reuse or integrated disposal of solid, liquid, and gaseous wastes. Because some technological innovations are already in the pilot stage, and even in limited use in certain segments of industry and Government, the Department's research capability should concentrate on providing the resources necessary to evaluate the health implications of this emerging technology and the potential for improved health.

Increased departmental funding should be used to concentrate on establishing guidelines of good practice and technical criteria for presently acceptable waste disposal methods. Further, the Department should address itself to the development of standards of solid waste disposal to guide decision-making at all governmental levels.

The task force, in recommending this goal, sees the need for—

Basic research into the health effects of waste and waste disposal techniques;

The study of wastes as an element of disruption in the ecology of natural systems;

A stepped-up research effort to secure breakthroughs in the reuse and disposal of solid, liquid, and gaseous wastes;

A greater public awareness of its role and responsibility in curbing wastes;

A grant-in-aid program to assist State and local governments and private industry in establishing and maintaining adequate waste disposal systems;

Achievement of reduced levels of waste through improved packaging methods.

WASTE DISPOSAL EQUIPMENT

Mr. NATCHER. Let me ask you, can you give the committee some idea as to how much has been expended up to this time for research on designing of any particular type of equipment to be used as far as garbage and waste disposal is concerned? What I have in mind is the equipment that has been presented to a number of subcommittees in Congress, where you buy a tract of land, 3 or 4 acres, and you have this equipment that is a jet engine type of equipment. You back these trucks up and you dump waste onto a huge table with some 30 or 40 hours involved for drying. Then it goes down through different machines and it is burned and the air is released but there is no pollution whatsoever.

In a city the size of Washington, it would require two or three or four units of this type which would cost in the neighborhood of $2 or $3 million each.

Do you know what I am talking about? I believe you have invested some money in design; is that correct?

Mr. SVORE. Could I refer that to Mr. Vaughan, who is the chief of the solid waste program?

Mr. NATCHER. You certainly can.

Mr. VAUGHAN. This is the contract we had with Aero Space Corp. that was mentioned earlier about the jet engine. We have invested about $125,000 in the one contract and we are shortly, we think, to let one for about $300,000 more. By the time this is finished—it will take much more of course to get a finished product—it would cost about $4 million.

Mr. NATCHER. About $4 million?

Mr. VAUGHAN. Yes; and it would practically eliminate all air pollution, as you indicated.

Mr. NATCHER. In other words, you would have generators and you would manufacture power?

Mr. VAUGHAN. Yes. Directly from heat, not steam, turning a gas turbine in the way they get power now at electrical standby stations.

Mr. NATCHER. That would be a tie-in in the cities with the local private power firm, depending on local wishes.

Mr. SVORE. I have a diagrammatic sketch if you would care to have it.

Mr. NATCHER. I have seen this.

Mr. Chairman, you might want to look at that. This is a right unusual gadget.

Mr. VAUGHAN. The promise of this is that the net cost of operation would be roughly one-third of present incinerators.

Mr. FLOOD. These trucks used in transport I suppose would be covered; you would not have the open trucks.

Mr. SVORE. Yes.

RADIATION HAZARDS IN URANIUM MINES

Mr. FLOOD. You are requesting an increase of $749,000 and 40 jobs for activity in connection with radiation hazards in uranium mines. This has been studied for years. What now has developed that you need this rather substantial increase?

This is the old story all over again. You have been studying and studying and studying. You know what the condition is. This is no mystery, it is pretty generally known now that uranium miners are affected in the following way or ways as a result of their work at the place where the raw material is being mined. You have been doing this for some time. Now you want a lot more money to study.

When are you going to stop studying and take care of these uranium miners and prevent this? How many people are going to die while you make up your mind?

Mr. SVORE. There are three main areas we are concerned with, the epidemiology and the engineering aspects of providing the mine with a safe condition, and the medical aspect of trying to determine whether or not through sputum or other types of tests you can forecast what is going to happen, whether you can prevent or bring the individual out of the environment that is becoming dangerous to him before it does damage to him in an irreversible way. These kind of answers we do not have.

PREVENTIVE MEASURES AGAINST RADIATION HAZARDS IN URANIUM MINES

Mr. FLOOD. I am talking about the preventive measures. What are you doing or who is doing anything to go into the mines to prevent the

miner at the face of the rock from being damaged? Can you not do something about that at the beginning?

Mr. SVORE. We are doing work here, but this is the type of work that has to be expanded.

I would like, if I may, to call on Dr. Murray Brown, who is the chief of the occupational health program, to answer this question if you would care to have him.

Mr. FLOOD. Yes. I am hearing year after year about the problem of uranium miners. Of course it is a problem; it is a deadly and desperate problem. But is it going to go on being a desperate problem. Nothing happens.

Dr. BROWN. I think the program outlined by the Interagency Committee, Mr. Chairman, at last year's 1967 meetings of the Joint Committee on Atomic Energy, assigned to the Public Health Service four areas of activity:

One, expanded epidemiology to nail down the exposure-response relationships. Second, medical studies to develop early diagnostic tests and procedures for evaluating exposures. This is a study for seeing if there is some way to intervene in men who were already exposed, and the design of methods to prevent the disease.

The directive for control is in the Metallic and Nonmetallic Mine Health and Safety Act, which is not the concern of the group testifying today. And finally, we are seeking the evaluation of the effectiveness of control measures as applied in the uranium mines under the newly stated standards.

The epidemiology bears a little more explanation. The concept was, instead of just the study group which has been under study over 20 years now, we should expand the group to include all of the uranium miners. They are an itinerant group and there may have been as many as 20,000 or 25,000 people who have worked at one time or another in uranium mines.

Secondly, with the issue so clearly demonstrated, that is the issue of the danger of radon, we should go and look at the miners who are working in other kinds of mines because uranium, as you know, is ubiquitous and therefore we are going back into the metal mines and see what happened to the people in the earlier silicosis studies where we know there is some uranium in the mines.

We are also tying this in with our work in the coal mines in Appalachia, where we do not expect to find the radon exposure but where it has never been proven it does not exist. So we are broadening the base.

We are actually going to bring the miners for the medical part of the study to Appalachia for study.

Mr. FLOOD. But most of your study has to do with a set of facts where you close the barn door after the horse has been stolen. I am interested in not having the horse stolen. What about stopping the condition from affecting the miners.

Dr. PRINDLE. May I respond to that?

Following last year's hearings, the Federal Radiation Council has set a standard and the Bureau of Mines has the authority to put this into effect at the present time. This is being done at the present time.

Our role is really twofold; one, assuring that that standard is an adequate standard. It has taken 20 years because it takes 20 years to

develop the disease we are concerned with here, and we still do not have adequate data to be able to say our standard is really the final one. So we need to continue evaluating this and hence the expansion of the study.

Second, our major role is to evaluate the effectiveness of the standard as it is applied. The Bureau of Mines now has the authority and it is putting this into effect; we need to see that health protection is being accomplished.

REGULATORY POWERS AGAINST RADIATION HAZARDS

Mr. FLOOD. What regulatory powers do you or any other Federal agency have to force correction of these conditions? What weapons do you have?

Dr. BROWN. There are two powers within the Federal Establishment. The Bureau of Mines has the Metallic and Nonmetallic Mine Health and Safety Act, which gives it authority to enter mines and to prescribe standards. There are some limitations timewise in that they must have a lag of a year or so in establishing standards.

Mr. FLOOD. Suppose they do not establish them? What do you do?

Dr. BROWN. If I may continue, I will come back to that.

The Walsh-Healey Act, passed some 30 to 35 years ago, gives the Fedral Government the right to insist on safety and health standards for any contractors who have a contract with the Government for $10,000 or more. In the uranium area the sole purchasers of uranium to date has been the Federal Government. It was for this reason that Secretary Wirtz announced his standards last spring and said they were going to do more to enforce them. So the Department of Labor has a rather powerful weapon in this regard.

Mr. FLOOD. Has anything ever been done about it in a case up until this morning?

Dr. BROWN. There is a great deal of activity in the Colorado plateau right now.

Mr. FLOOD. Has anybody been penalized for failing to comply after so ordered?

Dr. BROWN. Not yet.

Mr. FLOOD. You mean they are all complying?

Dr. BROWN. No, sir.

Mr. FLOOD. Then why have they not been penalized?

Dr. BROWN. The compliance has been progressive. There is a definite improvement. The first improvement was obtained around 1961 or 1962 when the Governors in that part of the country were called together by the Public Health Service and attention was called to this problem, and following that a number of States took steps, not enough but definite steps, to improve the situation. And then since Secretary Wirtz has taken a strong position, the State mining agencies in that area have become very active, notably Colorado, and the situation is steadily improving.

But there are serious problems and there are some mines that are going to be extremely difficult to do anything with.

We are concerned and have been interested in and helpful in trying to find ways of controlling the amount of radon in the mine other than by ventilation. Because some of these mines are so windy from ventilation and they are damp, the man could die from pneumonia long

before he gets carcinoma from the radon. The attempts at solving this so far have not been successful. There is consideration of positive pressure systems and things of this kind and work is going on in this area.

Mr. FLOOD. Are the mining companies themselves concerned about this? Are they contributing anything, are they doing anything, are they spending 5 cents? Do they have a set-aside pool of funds to which they all contribute to do research to attack this problem, or are they just making profits, and letting you worry about the miners?

Dr. BROWN. They have made some very large investments in ventilation equipment which is not inexpensive, as you know. I know of no pooling fund for research or anything of that sort.

Mr. FLOOD. Industry is doing nothing about the problem itself?

Dr. BROWN. It is spending money to lower radon levels in the mines. They are definitely active in many instances.

Mr. FLOOD. After they were directed to do it, told what to do. As usual, the mining companies are doing nothing and as far as you know have no intention, as an industry, of themselves examining this problem with their own funds, are they?

Dr. BROWN. We have found many of them have cooperated in technical assistance in meeting the problem in the mines.

Mr. FLOOD. That is no answer to my question. Of course they are cooperative. It is in their best interests to be cooperative.

Dr. BROWN. Even before the Department of Labor acted, we had some quite responsible companies. Others not so. One of the real problems has been the very small mine, mined by three or four or five people.

Mr. FLOOD. Our experience in the hard-coal fields for a hundred years has been to the contrary, and I have nothing to indicate that the uranium producers are a whit different than the anthracite coal companies in the old days. Get out the coal.

Dr. BROWN. My answer to that, sir, is since 1951 we have been talking about what was going to happen, and it was 1967 before a standard was established.

DRIVING SIMULATOR

Mr. FLOOD. You mentioned this in your statement, Mr. Svore. What happened with regard to your driving simulator we have had so much discussion about at past hearings?

Mr. SVORE. Could I call on Dr. Marland to give you a description?

Mr. FLOOD. Yes.

Dr. MARLAND. The research laboratory in Providence, R.I., where the simulator is located, was formally opened last March. For all practical purposes for research competency, it was successfully oriented to research data collection in the late summer and early fall. So that we have had substantially 8 months' experience of research evaluation. The entire project, which was started several years ago as you well recall, was started as a feasibility study to determine whether or not such a piece of equipment was a feasible way to determine the relationship between the behavior of a person and the risk he takes as a driver of an automobile. It suffices to say at this point in time it is feasible.

Mr. FLOOD. The Air Force has been doing this in simulating air flights for pilots for 20-some years.

Dr. MARLAND. You are correct, and that is one of the reasons why we recruited our scientists for that laboratory from the group that had been doing this in the Air Force and in the Federal Aviation Agency.

Mr. FLOOD. The space people are doing a great deal of this with simulators?

Dr. MARLAND. Yes; and we are working very closely with them in their Houston Center, translating much of this information of value to us from their work. The translation of airplane flying to automobile driving is a considerable translation. The tasks are essentially quite different, the reactions and results of reactions are quite different. As a consequence, it required a rather new set of fundamental understanding of the job which we were measuring.

We are now measuring it quite successfully. We have had two research reports published by that laboratory; one in December, another in February of this year. We are continuing studies of the effects of drugs and alcohol on a person's risktaking as well as his skill in meeting challenges that are existing on the highway.

Actually, there were two pieces of equipment in the simulator laboratory. The two pieces are quite different from each other.

Going back again to the concept that these were designed as a feasibility study, they have both proven to be successful.

We are currently conducting studies on warning signs at the request of the Bureau of Public Roads to validate some hypotheses they developed on their own. We have also been requested to assist them in the conduct of additional studies relating to noise—highway noises—from jet aircraft or other sources which have concerned the Bureau of Public Roads.

Their concern is, how do you locate a road within the confines of a predictable noise level coming from outside the road? Is there reason to be cautious in proposing to locate a road with respect to airports? These are the questions they are asking.

Our simulator is ideal to assist in answering such a question because we can measure a great many physiological responses as well as physical responses of the person who is driving a simulated automobile. We can determine pulse rate, respiration rate, and galvanic skin responses, which tell us a great deal about the mental turmoil, even though the subject's physical actions may be better controlled than the physiological reactions.

So we are making measurements that have never heretofore been made, even more sophisticated than used to be made by the Air Force. They are not more sophisticated than now being made by NASA.

Mr. FLOOD. Do you have any target date for these programs? Where are you going to go? Are you going to study for a hundred years? Do you have a schedule?

Dr. MARLAND. We have already issued two reports and two studies are terminated.

Mr. FLOOD. What does that mean?

HIGHWAY TROUBLE SYMBOLS

Dr. MARLAND. There are two studies. One is ability to recognize a truck or automobile breakdown symbol. How do you construct a symbol which you will place beside the highway when your car is immobilized

and you are an obstruction to traffic? What is the ideal characterization of such a symbol?

Here are some of the ways in which we did that. We would put various kinds of breakdown signs alongside the highway and put a broken down vehicle in a simulated highway.

Mr. FLOOD. Is there anything better than a red flare at night?

Dr. MARLAND. A red flare at night has the defect of being temporary. When the flare is out, it is no longer of any use whatever. We have found——

Mr. FLOOD. Who puts up the flare?

Dr. MARLAND. The driver will be the person who would put the flare up. Highway patrolmen also place flares when needed. But we have found the European symbols were preferred to any of the permanent symbols that have been attempted in this country. This has been published. The ICC requested that we work with them on that study and it has been published to them. They have not yet released it to the press that I know of.

Mr. FLOOD. And you are experimenting with symbols other than a mere red flare at night to warn of the problem?

Dr. MARLAND. The results of our studies show that a triangle-shaped flat surface piece 14 inches on a side, an equilateral triangle, in which there was red retroreflective material and orange flourescent material incorporated in alternate stripes, was not only easily recognized but conveys to the driver a message of danger, where other devices failed except the flare, which of course has the defect of being temporary. The flare of couse is effective. This triangular-shaped symbol is as visible at night as it is in the daytime. It is visible 60 degrees from the horizontal as well, which gives an added degree of protection.

SHELLFISH

Mr. FLOOD. Have there been any disease outbreaks traced to shellfish this year?

Mr. SVORE. I do not believe there have been any attributable to shellfish this year. We can check this and will be glad to include it in the record.

(The information follows:)

SHELLFISH ASSOCIATED DISEASE OUTBREAKS, 1960–67

The following is a tabulation of shellfish-associated disease outbreaks for the period 1960 through 1967:

INFECTIOUS HEPATITIS

Year	Total cases	Source	Source location
1961	84	Oysters	Pascagoula, Miss.[1]
	459	Clams	Raritan Bay, N.J.[2]
	15	do	Greenwich, Conn.[3]
1964	183	do	Atlantic County, N.J.[4]
	119	do	Narragansett, R.I.[4]
	3	Oysters	Wrightsville Beach, N.C.[5]
1966	4	Clams	Coastal New England.[6]
1967	(7)		
1968 (to Mar. 31, 1968)	(7)		

GASTROENTERITIS (ETIOLOGICAL AGENT UNKNOWN)

1964	66	Clams	Waterbury, Conn.[8]
1966	33	do	Coastal New England.[8]
1967	(7)		
1968 (to Mar. 31, 1968)	(7)		

[1] Mason, J. O., and McLean, W. R.: Infectious hepatitis traced to the consumption of raw oysters. Amer. J. Hyg. 75: 90–111, 1962.
[2] Dougherty, W. J., and Altman, R.: Viral hepatitis in New Jersey, 1960–61. Amer. J. Med. 32: 704–716, 1962.
[3] Rindge, M. E., Clem, J. D., Linkner, R. E., and Sherman, L. K.: Transmission of infectious hepatitis by raw clams.
[4] National Communicable Disease Center: Hepatitis Surveillance Report No. 18, Mar. 31, 1964, and No. 19, June 30, 1964.
[5] National Communicable Disease Center: Hepatitis Surveillance Report No. 19, June 30, 1964.
[6] National Communicable Disease Center: Morbidity and Mortality Weekly Report 15: 393–394, Nov. 19, 1966.
[7] No reported cases.
[8] National Communicable Disease Center: Morbidity and Mortality Weekly Report vol. 15, No. 39, July 30, 1966.

In all cases the cause of disease outbreaks was attributed to either the illicit harvesting of shellfish from prohibited areas, or major breakdown, hidden failures, bypassing, etc., of sewage treatment plants discharging to shellfish waters without effective communication between sewage treatment operations and State shellfish authorities. This latter cause resulted in accidental contamination and misclassification of growing areas. In no case where program standards have been closely adhered to have we had any evidence of disease outbreaks from shellfish.

Mr. FLOOD. Mr. Michel?

ASBESTOS RESEARCH

Mr. MICHEL. Last year I was asking about whether or not we were doing anything in beryllium and asbestos research. Do you have anything to report on that this year?

Mr. SVORE. Could I call on Dr. Brown?

Mr. MICHEL. Yes.

Dr. BROWN. The environmental studies in asbestos have been underway throughout the year with about 8,000 people being brought under observation, their exposures measured. In the meantime, we are examining some of these people. We have not gotten very far yet with the medical evaluation of the group. This included one rather interesting thing. Because asbestos is the kind of material which requires a number of years to show its effect on a human, we went back in time with the cooperation of one of these companies in North Carolina and reconstructed the exact production system as it existed 20 years ago, and did our environmental measurements of the respirable dust at each point on that production line, using the kind of asbestos they were using at that time.

What is happening here is that the development of base line data is well on the way—the defiinitive portions of the study are still in the future.

There is a great deal more about asbestos that has to be done, and I think probably in view of the complications of this subject, it might be wiser if you wish to pursue it to allow me to introduce into the record the recent testimony of Dr. Irving Selikoff before the House Select Committee on Labor. He is a professor at Mount Sinai Medical School in New York City, professor of environmental health, who has been intensely interested in this subject. He is an authority on it. He makes a rather good roundup statement.

Mr. MICHEL. How long a statement would that be?

Dr. BROWN. I think probably it runs around 14 double-space pages. We can abstract it if you would like.

Mr. MICHEL. I do not want to clutter up the record too much, but maybe it could be abstracted and give us the more pertinent points.

Dr. BROWN. All right.

(The information follows:)

STATEMENT BY DR. IRVING J. SELIKOFF

Mr. Chairman and members of the committee, my name is Irving J. Selikoff. I am professor of community medicine at the Mount Sinai School of Medicine of the City University of New York, and director of its Environmental Sciences Laboratory. I am editor in chief of "Environmental Research," a recipient of the Lasker Award in Medicine of the American Public Health Association, a diplomate of the American Board of Preventive Medicine. I am president-elect of the New York Academy of Sciences, a member of its scientific council, and have served as chairman of its division of environmental sciences.

For the past 6 years, I have been investigating occupational health hazards among insulation workers in our construction industry. These men apply the thermal insulation to pipes, ducts, boilers, and othe structures in buildings, factories, shipyards, and other facilities. They are self-reliant, skilled craftsmen. The first union of insulation workers in the United States was formed in New York City in 1884 under a charter issued by the Knights of Labor (predecessor of the American Federation of Labor) as the Salamander Association of Boiler and Pipe Felters. Partly from these beginnings, the present union of insulation workers in this country was chartered in 1910 by the AFL as the International Association of Heat and Front Insulators and Asbestos Workers. They are an important part of the construction industry. The trade is an important one and it is not too much to say that modern construction and modern industry would halt without their work. The union has some 18,000 men on its rolls and there are probably almost an equal number of insulation workers who are not members of this union, often because of conditions of their work, as being employed in maintenance work, doing insulation work as part of other occupations, being members of other unions or by virtue of doing special insulation applications as, spraying.

During the course of their work, these men use many materials, some of them mineral or of other inorganic nature. While we have had little knowledge concerning possible adverse effects of most of the materials with which they work (in part, because of their rather recent introduction and inadequate opportunity to observe the presence or absence of such effects), one of the materials with which they work has been under suspicion for some time. I refer to asbestos. This mineral fiber, with unique characteristics and of great value in our industry, is found in a number of the products which these men use in their work and have used for more than 70 years.

In 1924, Cooke in England described a case of severe lung scarring—asbestosis—who had spent 20 years weaving asbestos textile products. In the next decade, numerous similar cases were observed, so that by the mid-1930's the hazard of asbestos as a pneumoconiotic dust was universally accepted. Textile factories in this country were also studied and our Public Health Service fully documented the very significant risk of asbestosis involved in asbestos textile factories in the report by Dreessen, W.C.I., and colleagues in 1938. Precautionary measures were urged in this report and elimination of hazardous exposure was strongly recommended.

Unfortunately implementation of the recommendations was haphazard and inadequate and the conditions and dangers, recognized and described 40 years ago, are still with us.

It is an unhappy reflection on all of us—government, public health authorities, the medical profession—that at this time in the United States in the 1960's, 7 percent of all deaths among insulation workers are due to a completely preventable cause, pulmonary asbestosis.

It may be of interest to outline the studies which have demonstrated this continuing, disabling and fatal hazard. With my colleagues, Drs. E. Cuyler Hammond and J. Churg, I have been studying the health experiences of insulation workers in the New York-New Jersey metropolitan area, locals 12 and 32 of the IAHFIAW. On December 31, 1942, these locals had 632 members. We have followed each one of these men from that day to the present. During these years, 27 men have died of asbestosis, of a total of 367 deaths. Since there is no other cause for pulmonary asbestosis but the inhalation of asbestos fibers, these deaths have been unwarranted and unnecessary. Moreover, many of the men who have not been so badly affected as to die of this disease, have been and are disabled to a greater or lesser extent. Thus, more than half of the insulation workers examined by me with more than 20 years from the onset of their work, have the abnormal X-rays of asbestosis and almost one-tLird have shortness of breath of some degree.

It is evident that, somehow, we have failed these men. They had every right to look to their Government and public health authorities, and to the physicians and scientists who guide them, for protection at their work. They were not given this protection.

If the problem were to be limited to this difficulty, it would be bad enough and sufficient spur to remedial action. However, these workmen face an even greater and more worrisome hazard. There is hardly an asbestos insulation worker in this country who is not concerned with the possibility that cancer, induced by the asbestos to which he is exposed, will overwhelm him as he reaches the prime of life. This hazard, too, comes as no surprise to us. In 1935, Dr. Kenneth M. Lynch, then professor of pathology and now chancellor of the University of South Carolina, described the case of lung cancer in a man who also had asbestosis. Because both of these diseases were then rare, Dr. Lynch suggested an etiological relationship. In the next 20 years, numerous similar cases of this association were recorded. Indeed, the chief inspector of factories in Great Britain, reviewing all the cases of asbestosis known to their department, found in the mid-1950's that approximately 20 percent had associated lung cancer. Sticklers for statistical niceties insisted they were unconvinced, however, and wanted even better data.

Our experiences have supplied these requested morbid figures. I refer you again to the 632 men who were members of the Insulation Workers Union in New York-New Jersey in 1942. You may wonder why we went so far back (especially since we have also been following 890 members of these locals who joined in 1943 or after). The reason lies in an important characteristic of disease associated with industrial asbestos exposure. Asbestos disease rarely occurs in less than 20 years from onset of expsoure. Thus, men who work with asbestos do not get asbestosis in 5, 10, or 15 years after starting work—asbestosis will become significant and death may follow 25, 30 or more years following the start of their first job. A similar period of clinical latency is true of asbestos cancer, as well. When this occurs, it strikes 25, 30 or more years after the initial exposure. Incidentally, this is true of many other cancers, as well, both those related to industrial exposure and those not so related. For example, the youngster of 16 or 18 who starts smoking has no immediate fear of lung cancer, and correctly so. Unfortunately, he does not look ahead to his late forties or fifties, when the risk appears. Similarly, the bladder cancer following beta-napthalamine exposure, the lung cancer of certain chromate workers, and even the skin cancers following arsenic ingestion; all have a long period of latency. For this reason, any evaluation of the carcinogenic potential of a substance, such as asbestos, must include a long period of observation in humans.

There were 632 members of these locals on December 31, 1942. We have followed these men, as I have said, to the present. Since we knew the ages of each one of these men in 1942, it was possible for Dr. Hammond, who is director of statistical research and epidemiology for the American Cancer Society, to determine how many cancers we might expect among these 632 men in subsequent years. We then compared the actual number of deaths and causes of death among these men, with what should have occurred among them, had

their experiences been the same as the general population in the United States, age, year, and sex being taken into account.

The following table outlines the data we obtained from January 1, 1943, to December 1, 1962.

OBSERVED AND EXPECTED NUMBER OF DEATHS DUE TO CANCER AMONG 632 ASBESTOS WORKERS EXPOSED TO ASBESTOS DUST 20 YEARS OR LONGER

	Years				Total, 1943–62
	1943–47	1948–52	1953–57	1958–62	
Total, all causes:					
Observed (asbestos workers)	28.0	54.0	85.0	88.0	255.0
Expected (U.S. white males)	39.7	50.8	56.6	54.4	203.5
Total cancer, all sites:					
Observed (asbestos workers)	13.0	17.0	26.0	39.0	95.0
Expected (U.S. white males)	5.7	8.1	13.0	9.7	36.5
Cancer of lung and pleura:					
Observed (asbestos workers)	6.0	8.0	13.0	18.0	45.0
Expected (U S. white males)	.8	1.4	2.0	2.4	6.6
Cancer of stomach, colon, and rectum:					
Observed (asbests workers)	4.0	4.0	7.0	14.0	29.0
Expected (U.S. white males)	2.0	2.5	2.6	2.3	9.4

The table demonstrates that of the 632 men, 203 deaths could have been expected, had their experience been the same as the general population. Instead, 255 men died. As we look for the reason for the extra 50 deaths, it becomes evident that cancers of several types are responsible for the excess deaths.

Thus, while we might have expected six or seven deaths due to lung cancer among these men, there were 45. While we would have expected nine or 10 cancers of the stomach or colon, there were 29.

Incidentally, since 1963, the figures have been, if anything, even worse. While we would have expected approximately 50 of the remainder of the men to have died in the past 5 years, there have been 113 deaths. And, while we would have expected three to have died of cancer of the lung or pleura, 28 have died of this disease. It is surely a tragedy to reflect that 1 in 5 of all insulation workers who now die in the New York-New Jersey metropolitan area die of lung cancer. More than half of the 368 deaths among these men in the past 25 years have been due to cancer of one or another type. If these figures are projected to the country as a whole, and if no improvement in the health hazards these men face is achieved, we may look forward to perhaps 6,000 deaths of lung cancer and to perhaps 15,000 deaths of cancer in general among men in this single asbestos trade alone, in the United States.

I do not relish the role of Cassandra, and for the purpose of demonstrating the necessity for the development of an occupational health program for the insulation trade, the data already presented might suffice. Nevertheless, another dimension exists which may be useful in your considerations and which should be, at least briefly, mentioned. I refer to a hazard not even suspected until several years ago. While lung cancer, as I mentioned, was observed in association with asbestos more than 35 years ago, in the past several years, we have found that another tumor, mesothelioma of the pleura or mesothelioma of the peritoneum, has also begun to attack asbestos workers. This has attracted a great deal of attention, since, until the recent past, this highly malignant tumor was considered to be extraordinarily rare—so rare as not to be separately coded in the International Classification of Causes of Death. Accurate data are hard to come by but in the past, in general, mesothelioma was found in approximately one in 10,000 deaths. It was a very rare tumor.

Now, it is not at all rare among individuals exposed to asbestos. Thus, in the last several years over 250 cases have been collected in one laboratory in South Africa, primarily in the area about one group of asbestos mines. Over 350 cases have been collected by another group of investigators in Great Britain and, again, asbestos exposure has been traced for the majority of these.

We, too, have been struck by the early reports, especially by those of Dr. Christopher Wagner of South Africa, and noted that, in our first 255 deaths, four had been due to mesothelioma. This number was, of course, too few to warrant extensive comment. However, since January 1, 1963, 13 of the next 113

deaths have been due to diffuse mesothelioma of the pleura or peritoneum. It would appear that this invariably fatal tumor has been added to the already heavy risks of the insulation worker and that one in 10 deaths among them will be caused by it.

Mesothelioma is curious in another way—one that has caused us much concern. While the cases seen in my laboratory have been among industrial workmen more or less heavily exposed to asbestos dust, in many other instances the degree of exposure to asbestos has been very light indeed and there has been no clear correlation between degree of exposure and the likelihood of occurrence of the tumor. Newhouse and Thompson in London have presented very disturbing data in this regard. They investigated 76 consecutive mesotheliomas at the London Hospital, most seen within recent years, to study the relationship of asbestos exposure. As expected, in 31 of the 76 cases, the individual had worked with asbestos. Of the 45 cases who did not work with asbestos, in nine instances the only asbestos exposure occurred by virtue of their having lived in the household of an asbestos worker (who often came home with the dust on his clothes). That left 36. Eleven cases occurred in people who merely lived within one-half mile of an asbestos factory in one district of London.

Similar cases were reported by Wagner in South Africa, while in this country Lieben & Pistawka, reviewing 44 cases of mesothelioma in Pennsylvania, found that 20 had potential occupational exposure and 24 did not. Of the latter, eight occurred as the result of neighborhood exposure by virtue of living near a factory using asbestos and in three cases there was potential household exposure. Thus, one death occurred in a minister living across the road from an asbestos plant, one was a child whose father was an asbestos worker and another death occurred in a woman whose sons worked with the material. Borow and his colleagues have recently reported 17 cases of mesothelioma in New Jersey. Again, 15 were in asbestos workers, but two were in individuals who merely lived in a town which had a large asbestos factory.

The very real question has thus been raised: Is asbestos-induced cancer limited to those men who regularly are exposed to significant amounts of the dust, or is it a much wider hazard than this? A moment's reflection may highlight the potential problem. We have little accurate data concerning the number of men employed in the United States who are regularly and directly exposed to asbestos, as in asbestos textile plants, asbestos product factories, insulation work, and so forth. Perhaps 100,000 or more men are regularly so employed. The hazards I have outlined would be serious enough if this were the only group invloved. But are those indirectly occupationally exposed at similar risk? If so, the problem is much wider. For example, insulation workers work side by side with more than 3,500,000 other construction workers, often in the same room, inhaling the same dusts; steamfitters, electricians, carpenters, plumbers, masons, tilesetters, and others. Incidentally, to their indirect exposure must be added occasional direct exposure of their own in some instances, as a carpenter sawing an asbestos-cement board, a plumber using asbestos rovings, or the electrician stripping asbestos-covered wire. Much of the asbestos now used is used in the construction industry and much of the increase in world production (500,000 tons per year in 1930 to over 4 million tons per year at present) has been utilized here.

* * * * * * *

1. I am convinced that the problems I have detailed can be solved and health hazards eliminated.

2. Workmen in the trade expect and await the measures necessary to eliminate or diminish the hazards to which they are exposed.

3. It is idle and largely inaccurate to blame the industry for the present situation. It is sometimes not appreciated that industry is not an all-powerful monolithic single entity; certainly it is not in the insulation trade. In this trade, most employers are small businessmen, with limited resources, employing few men. When I looked into this matter at the end of 1965, there were over 900 employers in the industry, employing an average of 17.6 men per shop.

Such employers have neither the expertise, nor funds, nor knowledge to have detected these health hazards. They are just as much upset by them as are their men. Nor can they mount the necessary engineering and industrial hygiene programs to develop adequate safeguards to remove these hazards. They will be anxious, I am sure, to undertake appropriate occupational health and industrial hygiene programs once these are suggested to them.

4. The problems we have discussed are excellent illustrations of the urgent need for extensive strengthening of the occupational health program of the Public Health Service. Their task has been tremendously extended and complicated in the last 20 years by the widespread introduction of numerous new materials, the biological actions of which are usually untested. Are there other asbestos lying in wait for us? Only the Public Health Service includes the possibility of long-term surveillance necessary for detection of those effects with a long latent period, as occupational cancer. Their continuing responsibility includes the coordination of observations made by scientists in various fields at various times. Moreover, they often have the opportunity of studying large groups of men, often occupational lists. Few employers, except the very largest, have this opportunity.

Moreover, workmen often go from job to job within the same industry, especially in the construction trades. No one employer can expect to follow his employees long enough for long-term effects to be defined. Indeed, since such effects may vary with the same material from industry to industry, only a body which can observe all industries may be able to detect such effects.

What I am saying is that industry is simply unable to police itself in the detection and definition of such hazards as have occurred. The industry needs help.

Standards based upon information collected and evaluated by experts in the Public Health Service, set on practical and realistic levels by the Secretary of Labor with adequate enforcement powers, and required by all employers in the industry seem essential to correct the serious situation I have outlined. The industry itself has neither the academic and scientific nor the administrative resources to prepare the appropriate corrective program and, the economic facts of life are such as to mitigate against the broad application of such a program by voluntary persuasion alone.

The bill looks forward to an important expansion of the research responsibilities and capabilities of the occupational health program of the Public Health Service. This is urgently needed. At this time the program is composed of highly skilled, energetic, and dedicated scientists. But their responsibilities, already heavy and numerous, are increasing almost geometrically. The Surgeon General, Dr. Stewart, stated in his testimony on February 20 that "* * * workers are coming in contact with literally hundreds of new chemicals and formulations in industrial uses every day." He noted that these "* * * chemicals have increased so fast in number that we have recommendations for only 400 out of 6,000 in commercial use." Industry has increased in complexity and potential hazard. The tasks of the occupational health program of the PHS must somehow be accomplished and I would strongly urge that the strengthening of the occupational health program as envisaged by this bill be supported.

POLYURETHANE

Mr. MICHEL. I brought up the subject of polyurethane last year also.

Dr. BROWN. Yes.

Mr. MICHEL. Have you done anything on that?

Dr. BROWN. We are beginning to work with it. The toxicology is pretty well worked out now.

Danger from polyurethane type plastic is pretty well understood at this point. As to control activities, they are dependent again on other agencies and our technical assistance to them.

Mr. MICHEL. Who are these other agencies?

Dr. BROWN. They are dependent, as we were saying earlier, on the Department of Labor authority and on the State authorities. We continue to render the technical assistance to industries who recognize the problem, and show them how to handle it, and we do help State agencies in meeting the problem.

In your own district, which I know is the cause of concern to you because of previous conversation, we still are not in very good shape because there are only three trained people in your State government

in the whole field of industrial hygiene. We still have not mounted an effective program in Illinois.

FARM INJURIES

Mr. MICHEL. How about in the area of farm equipment? Can you show any progress there? I pick up the paper about every day and another farmer has lost his hand in the rollers of a cornpicker, and then you pick up the paper and another tractor has turned over and somebody is crushed underneath it. It is a sad story just repeated over and over again.

I think we were talking last year too about the power takeoff and the fact when I was a kid there was no cover for them whatsoever. They have refined them somewhat I guess, but we still hear about farmers getting their overalls and their gloves caught in power takeoffs and husking rollers. I would think we would wise up, because the death rate and injury rate continues to mount. Or am I wrong?

Mr. SVORE. Dr. Marland discussed this in general terms but may want to add a little on the power takeoffs and other types of machinery, such as cornpickers.

Dr. MARLAND. We have completed a report which I will submit for the record on tractor power takeoff and tractor overturn injuries and the state of the art we have developed up to this point.

Mr. FLOOD. Will you send a copy to Mr. Michel and Mr. Smith, and also put a copy in the record? Is the Iowa report very extensive?

Dr. MARLAND. There are two sections. One is quite brief; the other extensive. The brief one is the report, the extensive one is the attachments and documents.

Mr. FLOOD. Suppose you put a synopsis in the record and then send Mr. Smith, and Mr. Michel a copy of the documents.

Dr. MARLAND. I will be very happy to. This report sums up the state of the art.

They will be synopsisized for the record and a complete report sent to Mr. Smith and Mr. Michel.

(The material follows:)

[Synopsis]

UNIVERITY OF IOWA TRACTOR STUDY

Reduction in the frequency and the severity of injury among a population of over 7 million workers in the agricultural industries presents a serious and complex problem. In 1966 there were an estimated 3,000 deaths and 800,000 injuries to agriculture workers while at work. The hazards associated with tractors were recognized in the early 1950's; by 1958 the number of deaths which had been forecast for that year was exceeded by 20 percent. Tractor-associated deaths represented more than one-third of all farm accident fatalities. Overturn and power takeoff accidents contributed heavily to serious injuries and deaths.

A proposal for the study of the "Epidemiology of Tractor Power Takeoff Accidents" was submitted by the State University of Iowa during the first year that the injury control program had authority and an appropriation for support of research grants. The proposal was approved and work was started in 1962.

As in all of our injury control activities the approach was to gather the facts as a basis for developing control measures. In the period from 1962 to date, the State university has provided the information necessary to undertake two approaches to reduce deaths, injuries, and disabilities from tractor accidents. These are improvements in engineering design and educational campaigns. The findings of the studies have been widely disseminated and a number have already been applied. A national educational program on operational and maintenance injury control measures is being launched.

The tractor studies were accomplished at a cost of approximately $100,000 for the 5-year period (1962–67). More recently the University of Iowa investigators are conducting other injury control studies under PHS–ICP support.

Findings.—In the course of an orderly investigation and definition of the problem, the Iowa researchers compared workers in small industrial plants with farm family workers.

SIGNIFICANT DIFFERENCES BETWEEN AGRICULTURAL WORKERS AND THE INDUSTRIALLY EMPLOYED[1]

Category	Industry (individual plant)	Farm (family)
Place of work	Separate from home	Identical with home.
	Separate labor and management	Combine labor and management.
Work force	Concentrated, easily supervised; easily checked by authorities.	Diffuse, difficult to supervise; usually specifically excluded from check by labor and health departments.
	Limited to adults (mostly 16 and over)	Includes young and old.
Work routine	40-hour week	No limit on work, daily or weekly.
	Instructed in details of work	Self-taught, trial and error.
	High degree of routine	Tempo highly erratic.
	Maintenance work by experts	Jack-of-all-trades.
Health requirements	Medically selected (preplacement)	No minimum physical level.
	Periodic physical examination	No routine medical surveillance.
	Hygienic facilities provided and accessible	Individual variation depending upon personal habits.
	Transfer for medical reason possible	Change difficult.
	Health insurance common	Less common.
	Vacations usual	Vacations erratic.
Emergency medical services	Available	Remote from work.
	Warning devices available	No alarms, showers, eye fountains, in the "south 40."
	Workers near to assist, warn, call for help	Usually works alone.
	Rehabilitation emphasized and available	Not emphasized or readily available.

[1] Knapp, L. W., "Agricultural Injury Prevented," Journal Occupational Medicine, 7: 550 (November 1965).

The differences are important in relation both to causation and in the application of injury control measures. For example, about 12 percent of tractor accidents occurred in the 12- to 15-year-old age group. Another study which was reviewed and reported showed in a series of 157 accidents over 36 percent involved age groups 0 to 5 and 6 to 16 years. There were 42 injuries to children between the ages of 3 and 16, 20 of which were fatal.

The results of the Iowa studies were used in deliberations and development of an amendment to child labor regulations, orders, and statements of interpretation "Hazardous Occupations in Agriculture, Employment of Children Below the Ages of 16." L. W. Knapp principal investigator in the PHS–ICP study, served as a member of Agricultural Child Labor Committee.

Investigation of the activity at the time of fatal tractor accidents showed that approximately 87 percent were related to harvest operation, farm maintenance, and crop production; 13 percent occurred during trips to town (reported to ASAE, i.e., American Society of Agricultural Engineering). The investigations concluded that three-fourths of the fatalities would not have occurred if the operator had overturn protection.

In their analysis of 268 accidents between motor vehicles and agricultural machinery on Iowa highways, it was determined that the percentages of injury accidents at dusk were three and one-half times, and at night over two times, as great as during daylight. Recognition of slow moving vehicles and the inability of tractor drivers to communicate driving intentions to following motor vehicles, particularly when handling loads contributed to accidents that the motorist could not avoid (reported to ASAE).

The findings supported the work done by Kenneth A. Harkness, Department of Agricultural Engineering, Ohio State University, who was developing a slow moving vehicle (SMV) emblem to assist motorists in identifying slow-moving farm equipment on the highway during both daylight and dark. A number of States have, through legislative edict, made the use of this emblem mandatory, and others are following suit.

OVERTURN

Fatalities associated with tractor overturn can be divided into four basic categories:

(1) Severe hemorrhage and displacement of vital parts is often the result of impalement by portions of the steering mechanism operational levers, or protrusions of attached equipment. Punctures of the body, trunk, and upper portions of the lower extremities usually result in early death.

(2) Gross crushing usually is the result of the body being caught under a large or protruding portion of the tractor and having such pressure applied to the body as to deform or mutilate it.

(3) Involvement of the bony structure may be the result of contact with the ground and/or the tractor as it overturns, resulting in fractures of the skull, rupture of the spinal column, and/or splintering of the rib cage.

(4) Suffocation, while not as common, may result from (*a*) entrapment by the tractor in such a manner as to prevent an open air passage through the nose and mouth (underwater, in mud, dirt, etc.), (*b*) the application of tractor weight, bringing crushing pressure on the thorax, causing cardiac arrest, and (*c*) a blow to the trachea, causing interruption of air to the lungs.

Tractor overturn accidents basically fall into two categories. Overturn to the side is usually associated with driving off the side of the road into the ditch, quick turns at too high a speed, or operating on hillsides. Overturn to the rear is generally attributed to hitching the tractor to an improper load, attaching the load to a portion of the tractor other than the drawbar, attemping to climb out of ditches or over embankments, climbing too steep a hill, or freeing a tractor stuck in the mud.

Overturn accidents also occur when a tractor is struck on the highway and is cast into the ditch, or when it is hauling too large a load down a hill, and, unable to control the weight it is pulling, is pushed off the road into the ditch, with the load very often resting against or on top of the tractor.

PTO ACCIDENTS

Essentially, every PTO accident involves the entangling of the victim's clothing by the rapidly revolving shaft. The speed of rotation of the shaft precludes escape and the power transmitted is great. Possible sequels are the following:

(1) The clothing yields, freeing the man without injury.

(2) The clothing yields with minimal trauma, such as friction burns, scrapes, sprains, and bruises.

(3) The clothing yields and removes loose skin in the scrotal region.

(4) The clothing yields following wedging of the victim's body in or against the machine with severe trauma, such as lacerations, broken bones, dismemberment of the extremities, or strangulation.

(5) The clothing does not yield and the body of the victim is rotated around the shaft with extensive mutilation and early death.

There are nearly always serious abrasions involved in such accidents and the amount, type, and strength of clothing that the person is wearing contributes to the severity of the accident. The newer the clothing, the greater the amount and strength of the fiber, synthetic versus natural, the greater the degree of injury.

Analysis of 110 PTO accidents investigated between 1962 and 1964, using epidemiological techniques, resulted in considerable information, and its analysis was reported in Bulletin No. 10, "An Epidemiological Study of Power Take-Off Accidents," Institute of Agricultural Medicine. Data were developed relating to equipment involved in an accident, the segment of the PTO drive line involved, the clothing involved in the entanglement, and the type and location of the injuries. Bolts, cotter pins, pins, nails, and spring-loaded pins were responsible for entanglement in 72 out of 98 injury accidents investigated.

Fig. 28.—Type and location of injuries

LOCATION OF FRACTURES		LOCATION OF LACERATIONS	
Upper extremities	12	Upper extremities	7
Lower extremities	18	Lower extremities	34
Ribs	10	Other	9
Other	5		
Total	45	Total	50

Severe abrasions and bruising	29
Shoulder dislocation	7
Denuding of testes and penis	6
Brain concussion	5
Amputations:	
Lower extremity	3
Upper extremity	2
Other injuries	15

New standards of shielding have been established by the American Society of Agricultural Engineers ASAE S–297, requiring full shielding, integrally mounted, from the attaching point on the tractor to the driven machine. Industry is already testing designs to meet these standards and it is expected that these new PTO drives will remove some of the hazards covered in this report.

Industry is also conducting research in the development of hydraulic devices to replace the mechanical PTO device. This should further reduce the PTO accident picture; however, it may also create a new group of hazards.

It is important that educational efforts be increased to deal with two particular problems. First, we must make farmers more aware that misuse of PTO equipment can still create injuries. Secondly, farm machinery, and in particular tractors, is long-lived. Thus, guards once in existence but now destroyed or worn out must be replaced. "Practical farm use (any use to which the tractor is placed that seems practical and appropriate to the user) calls upon man to make judgments that may not be adequate and correct. This is particularly true when the tractor is used in so many ways different from those envisioned by designers. "Statements by operators, such as 'It was a stupid mistake,' 'I knew better,' 'I didn't see it,' or 'I just don't know what happened' are all indications of such lapses and as such need design protection, rather than education, for reduction."

[Synopsis]

NORTH CAROLINA STATE UNIVERSITY STUDY ON STABILITY OF TRACTORS

The research investigation, undertaken by C. W. Suggs, D. L. Roberts, and B. K. Huang, has been completed and the final report is now in preparation. The work was accomplished between June 1, 1967, and May 31, 1968. It was supported under a PHS–ICP grant at a cost of approximately $22,500. Information developed by this study will be widely distributed among the agricultural communities.

Improvements in engineering design can provide protection against fatal and nonfatal injury and against vibration, noise, heat, and other work stress. These must be accompanied by vigorous education programs to stimulate their acceptance and proper use, and to encourage adherence to safe practice both on the farm and on the highway. The injury control program, educational program in tractor safety, is directed toward accomplishment of these objectives.

The work on the effect of stability is divided into two parts. These are (1) definition and characterization of the problem and (2) synthesis and implementation of solutions.

Discussed in the first part of this report are the magnitude of the problem and the proportion of fatalities that result from vehicle overturns, operator falling from the platform, and various other types of accidents. Particularly noteworthy is the fact that approximately 80 percent of the fatalities result from crushing, which indicates the need for operator containment in a crush-resistant cab.

In the second part of the report the thesis is that such a crush-resistant cab should also provide other features which would add to comfort and reduce stress so that the operator would be in better physiological condition to cope

with problems involving safety. The spring-mounted cab developed by the project has these potentials and, in addition, could substantially reduce various vibration induced injuries.

I. CHARACTERISTICS OF FARM TRACTOR ACCIDENTS IN NORTH CAROLINA

It has been estimated that farm tractor accidents in the United States claim the lives of more than 1,000 persons annually, and have done so for the past 6 years (1). While the number of such fatalities has been increasing, it should also be noted that yearly changes in the rate of nonfatal accidents parallels the trend in fatal accidents. These increases are alarming when one considers the technology and educational training methods available to (1) prevent such accidents, (2) protect against injury in the event of an accident, and (3) minimize the long-term results of injuries sustained in tractor accidents.

Efforts have been made by the farm tractor industry to reduce and/or eliminate the occurrence of farm tractor accidents. This has been accomplished by means of improved machine design and promotion of educational techniques directed to make the tractor operator more aware of the vehicle's limitations and possible hazardous operating conditions. Other nonmanufacturing agencies have made great strides through educational methods to educate the operator more completely in safe tractor operations (2).

It is of utmost importance that continued attempts be made to reduce the occurrence of farm tractor and other off-road vehicle accidents, however, acknowledging this upward trend in the number of accidents and fatalities, one is forced to consider the next best approach—that of protecting the tractor occupant when an accident occurs. If injury is to be prevented or minimized when an accident occurs, it is necessary to recognize and evaluate the characteristics of the most common types of accidents. Thus, when these facts are known and accepted, more definitive measures can be taken to minimize the consequences of the accidents.

In an attempt to analyze farm tractor accidents one can evaluate the information available on two classes of accidents—those occurring on the highway, and those occurring off the highway (principally on the farm). In an attempt to get such information one is confronted with the problem of obtaining reliable data on the nonfatal tractor accidents occuring off the highway, since there is no requirement to report such accidents to an agency of concern. Reliable data is available on all farm tractor fatalities, and on tractor accidents which occur on the highway. However, for most design purposes, this data is generally not quantitative nor specific enough to warrant quantitative design changes, or to be used for most research purposes. There are, however, a number of qualitative characteristics on the available farm tractor accident records that appear to be useful. Thus, the following characteristics of farm tractor accidents will be based upon all farm tractor fatalities and upon accidents occurring on the highway in North Carolina.

Figure 1 reveals the trend in total farm tractor fatalities occurring in the United States since 1957. Since tractors and related vehicles use the highways in moving from job to job some on-highway fatalities occur. The number of on- and off-highway fatalities occurring in North Carolina since 1952 are also shown. While there is considerable year-to-year variability in the number of fatalities occurring in North Carolina, there is a definite upward trend in both the number of off- and on-highway fatalities, as is also shown in the total number of fatalities occurring in the United States.

It is apparent that of the 395 fatalities occurring on the farm from 1952 to 1966 the largest number were overturn accidents (61.5 percent). Overturn accidents also accounted for 29.4 percent of the farm tractor fatalities occurring on the highway; second only to fatalities due to collision (37.4 percent). All overturn accidents accounted for 51.2 percent of the total number of fatalities. It should also be noted that off-highway fatalities account for slightly over two-thirds of the total farm tractor fatalities.

There was a total of 1,589 highway accidents involving farm tractors and related equipment reported by the Highway Department of North Carolina during the 5-year period 1962–66. With 80 fatalities occurring on the highway during this period this would yield an accident-to-death ratio of 19.86. Assuming this ratio to exist for off-highway accidents, this would yield 3,160 farm tractor accidents that occurred on the farm during the 1962–66 period. The point being made here is that for each fatal accident there are approximately 20 accidents which result in injury, suffering, and in many cases permanent maiming of the individual.

While the number of fatalities resulting from farm tractor accidents is signifi-

cant in itself, a measure of expected lifetime lost prematurely as a result of the accident would appear to be more indicative of the problem. The number of expected life years lost is estimated in figure 2 by age group. These figures can be arrived at by multiplying the number of fatalities which have occurred for a specific age group (during a specific time period) by the average life expectancy for that age group as found in the U.S. vital statistics reports (3). Note that the largest percentage of life years lost occurred in the age range of 10 to 19 years. Nearly one-half of the expected life years lost in farm tractor fatalities during this period occurred in ages below 20 years. Thus, in evaluating characteristics of farm tractor accidents, the age factor should not be neglected in view of this high loss of expected life years.

Figure 3 illustrates the distribution of farm tractor fatalities by age. It is immediately evident that the 10 to 19 year age range has the highest frequency of total farm tractor fatalities, while the 15 to 19 year age group has, by far, the highest frequency of fatalities on the highway.

A survey of farm tractor fatalities is currently in progress, with the intent of obtaining more detailed information on recent accidents. The survey began with farm tractor fatalities starting in July 1967. Thirty fatalities occurred with 18 (or 60 percent) of them being overturns. There were six fatalities by falls, and four by collision with other motor vehicles. Nine of the fatally injured were between 10 to 19 years of age. Regardless of the specific type of accident, 29 of the 30 fatalities appeared to have been due to crushing of the victim. The analysis reveals that in general, the crushing type of injury accounts for greater than 80 percent of the farm tractor fatalities, both on and off highway, and may account for as much as 90 percent of the fatalities if more details were known of these fatal accidents. Virtually all of the crushing type injuries occur as a result of overturns, collisions, or falls. In the case of overturns, the occupant is rarely killed by an agent other than the vehicle.

What then do these previous facts suggest as measures to be taken to reduce the number of fatalities and injuries sustained in farm tractor accidents? It appears that the most fruitful measure to be taken first would be to contain the operator within a zone of safety by means of protective frames or crush-resistant cabs. The approach has already proven to be quite valuable in reducing injury (particularly in the case of overturns) by the Swedish. They have demonstrated in a number of cases that these safety devices have changed a normally fatal overturn situation (without protective devices) into a noninjurious accident when protective devices are used. Protective frames or cabs would surely reduce the number of accidents due to falls, again by keeping the operator contained. Redesign of specific controls and displays (with the possible inclusion of design measures for absorbing energy due to human impact) in conjunction with protective frames and cabs should also measurably reduce the severity of collision accidents.

II. TRACTOR CAB SUSPENSION DESIGN

Tractor cabs of various designs have been offered for many years as a means of protecting the operator from cold weather. Cabs of more recent design have incorporated air conditioning to make the operator more comfortable during hot weather as well as cold. However, none of the cabs being manufactured at the present time are fitted with suspension systems which would offer the operator any protection from terrain and mechanically induced vibration present in the seat and controls. In fact, presently available cabs are attached rigidly to the tractor enclosing the seat and controls without disturbing either. In many cases present cabs are unpopular because they often amplify vehicle noise, restrict visibility, reduce operator mobility, and impede dismounting from the vehicle.

Operators of farm tractors and other off-road vehicles are subjected to vibrational levels and frequencies which are known to be injurious to health and deleterious to performance. In many cases some type of vibration absorbing seat suspension is provided in an effort to reduce the vibrational inputs to the vehicle operator. Most of these suspension systems are only partially effective because of the limitations associated with low-sprung weight, restricted space for deflection and the relative motion between the seat and the controls.

In addition to bodily injury, there is also some evidence that a tractor operator's judgment may be significantly impaired by several hours of exposure to high levels of vibration. Even with good seat suspensions, vibration inputs from the terrain are often in the frequency range and are severe enough to cause overventilation of the operator's lungs (4). Overventilation produces alkalosis which in turn may affect judgment as well as visual acuity.

The significant levels of high frequency vibration from the engine and gear train present in the platform, steering wheel, and other controls could be effectively isolated by means of a suspended cab. In addition, a cab could provide for isolation from machine noise, adverse environmental temperatures, rain, dust, and various chemical contaminants.

Because the addition of a cab to a tractor or similar vehicle makes it difficult for an operator to jump clear in case of an overturn, cabs should have sufficient structural strength to resist crushing. In contrast to the relatively indifferent safety attitude existing in the United States is the European attitude which has resulted in safety legislation in some countries. For example, the Swedish Government now requires that all new tractors sold in Sweden be equipped with a safety frame or safety cab meeting certain minimum strength specifications (5, 6). The results of this legislation have demonstrated that cabs and frames meeting these specifications almost eliminate death and serious injury due to tractor overturns.

The seriousness of this problem is obvious in view of the fact that there are approximately 1,000 tractor accidents resulting in death in the United States each year (7). Approximately 58 percent of these result from upsetting the tractor and 11 percent from falling from the tractor (8). Crushing of the victim accounted for 78 percent of the deaths.

The development of a well-suspended cab with sufficient structural strength to resist crushing would make a significant contribution to the health, safety, and comfort of tractor operators.

It was the objective of the work reported in this paper to develop a suspension system for tractor cabs which would be capable of attenuating low-frequency terrain-induced vehicle vibration. The approach to this objective was to be by means of scale model simulation which would be compatible with available vibration test facilities.

Consideration of the types and sources of vibration present on off-road vehicles points to the need for suspension of cabs and controls as a unit, instead of suspension of only the vehicle seat as is now commonly practiced. Vibration isolation of the controls is desirable because of the high-frequency inputs from the vehicle engine. Mounting of the isolated controls to a cab which is in turn mounted on a suspension system designed to absorb terrain inputs, reduces the amount of relative motion between the operator and the controls. In addition to better vibration isolation of operator and controls, well-designed cabs can offer a reduction in noise level, improvement in the thermal environment and reduction in injury due to vehicle upsets or rollovers.

Scale model simulation was used to study the problem and optimize the design. The resulting system consisted of two torsion type springs mounted at the rear of the cab and had a natural frequency of approximately 2¼ Hz.

Some decrease of the natural frequency over that achieved in this study is desirable. However, this may be difficult to realize on some models of tractors because of space limitations. A damping ratio of 0.3 was used in order to reduce the amplitude at resonance.

Damped spring suspension of offroad vehicle cabs is desirable because it represents a realistic approach to the problem of operator comfort and safety. In addition, the problem of controls vibration and relative motion between controls and operator can be reduced in this manner. The approach is feasible in terms of engineering capabilities and the improvement in operator comfort and performance would be significant.

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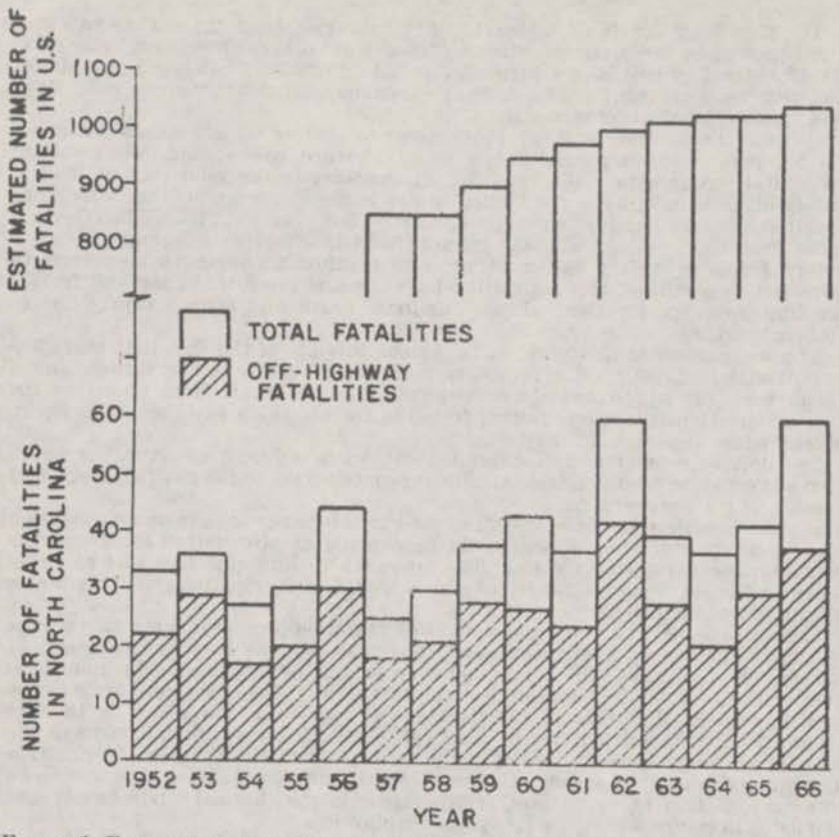


FIGURE 1. Farm tractor fatalities occurring in U.S. and North Carolina, by year.

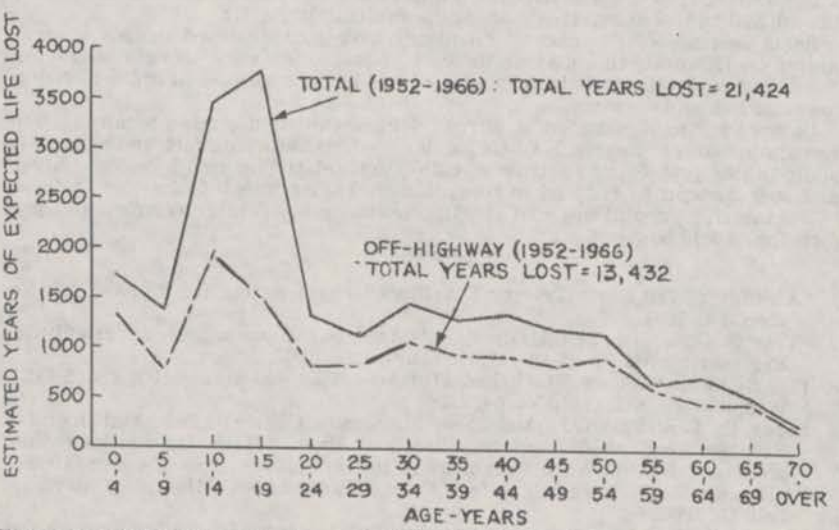


FIGURE 2. Estimated years of expected life lost in North Carolina as a result of farm tractor fatalities.

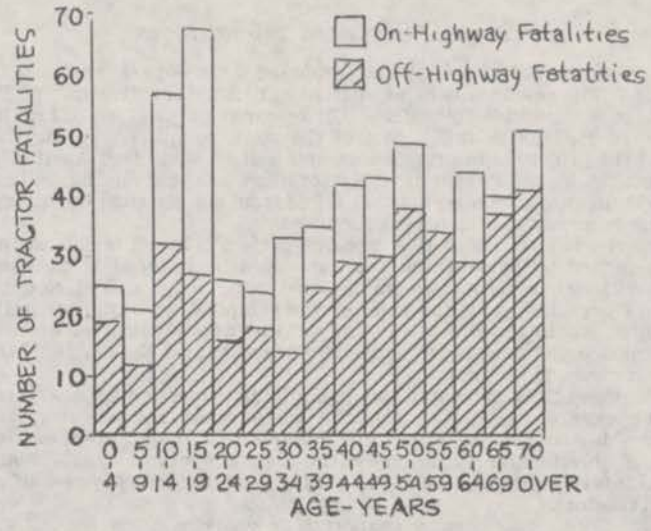


FIGURE 3. Number of farm tractor fatalities in North Carolina from 1952 to 1966, by age of victim.

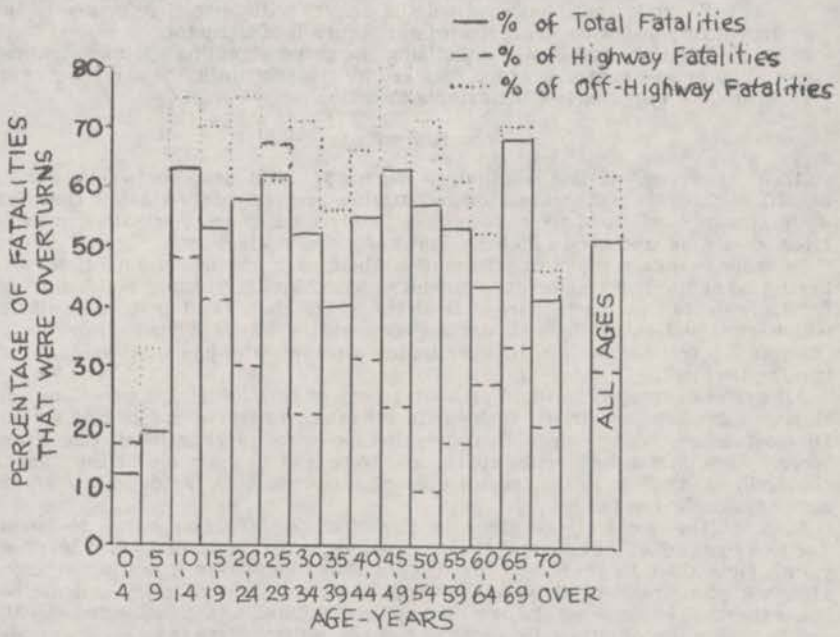


FIGURE 4. Percentage of farm tractor fatalities in North Carolina, from 1952 to 1966, that were "overturns," by age of victim.

[Synopsis]

Purdue University Tractor Study

The Purdue project, planned and proposed as a 3-year study, was started June 1, 1967. The research is being carried out under the direction of Prof. J. B. Liljedahl. It is supported by a PHS–ICP research grant at an approximate cost of $48,000 in 1967–68. A full report of the work completed during the first 10 months of the project is in preparation and will be submitted April 1, 1968. The approach taken by the Purdue investigators involves engineering design developments and human factor concepts that differ from but are complimentary to other safety improvements that have been proposed.

The hypothesis upon which this research project is based is that the number of fatalities caused by overturning tractors could be reduced if the tractor was equipped with primary controls which were more easily and more quickly used during an emergency, or if the tractor was equipped with an automatic control device which would sense that the tractor was approaching an unstable condition and take some corrective action such as disengaging the clutch, if the tractor begins to overturn to the rear.

There is presently some emphasis upon adding protective frames to tractors to protect the operator in the event that the tractor overturns, however, most people knowledgeable about farm tractor safety agree that the addition of a protective frame is of questionable value unless the tractor operator uses a seat belt. No statistical information is presently available as to the effectiveness of protective frames on tractors.

Brief Objective of Project

The overall objective of this research project is to improve the method of controlling tractors as they approach unstable conditions. The specific objectives are:

(1) To classify the conditions existing just prior to overturning from a representative sample of tractor overturning accidents.

(2) To determine the dynamic behavier of tractors as they approach instability and to identify those signals which may be used to warn the driver or which also may be used as input signals for an automatic control device.

(3) To study the reflexes of tractor drivers with special reference to the time of response when using the primary controls of a tractor.

(4) To study and design promising improved signaling systems, manual and automatic controls, which may reduce the probability of a tractor overturning as it approaches an unstable condition.

Progress to Date

Accident survey.—A detailed analysis has not yet been made because the survey is still in progress. Of the tractor-overturning accidents investigated thus far, approximately one-third took place on a public road or on a private driveway. High speed appeared to be a factor in many of these accidents.

In order to obtain the most information about each accident the questionnaire is only being used on tractor drivers who survived an overturning accident. Nonfatal accidents are much more difficult to locate than fatal tractor accidents which can be located through death certificates. However, much more useful information can be obtained by questioning a person who has survived an overturning accident.

All drivers surveyed had had at least 1 year of tractor-driving experience although a few had not driven that particular model of tractor as long as 1 year. In most cases the tractor had a tricycle-type wheel arrangement (the front wheels were only a few inches apart) and were 8 to 10 years old at the time of the accident. Defects in the tractor did not appear to be a factor in any of the accidents studied so far.

More of the accidents occurred in the afternoon. This appeared to be influenced by the fact that most of the overturning accidents studied so far involved young (less than 15 years of age) drivers who likely were operating tractors after school hours. Some drivers were apparently saved from injury or death because they had anticipated the overturning accident, and as a result, acted quickly and in such a preconditioned manner so as to save themselves from being crushed by the overturning tractor. This ability to anticipate an overturning accident suggests that it may be possible, in some cases, to prevent the accident if the tractor was equipped with special manual controls, or perhaps a panic button, which would stop the tractor from overturning.

Dynamic behavior of overturning tractors.—The most economical method of studying the dynamic behavior of a tractor is to write a mathematical model (an equation of motion) of the tractor. The equation is then solved by either an analog computer or a digital computer for all of the conditions of speed, slope, drawbar pull, traction conditions, and so forth, for each tractor. The parameters of each specific tractor, such as weight, location of the center of gravity, mass moment of inertia, drawbar height, spring rate of the tires are then varied in the mathematical model so as to get a picture of which conditions cause the tractor to become unstable. The solved equation not only determines which conditions cause the tractor to overturn, but also determines the time increment to rotate the tractor to a point where it becomes dynamically unstable.

A mathematical model must be realistic, that is, it must include the forces which contribute to the stability and instability of the tractor. If the mathematical model is to be realistic it must not include trivial forces which only cause the equation to be more difficult to solve.

From the solved mathematic models (equations of motion) we anticipate being able to predict:

(1) Unsafe conditions or limits of safe operation for each tractor.

(2) Those factors which are important in causing the tractor to become unstable which in turn will be used as the input to an automatic control device or will be used to warn the driver of an impending unsafe condition.

(3) Increments of time available for making corrections either manually or automatically.

Simplified mathematical models have been written and solved for realistic conditions. One tractor studied had the following parameters:

Tractor weight, 9,840 pounds.

Tractor drawbar height, 20 inches.

Center of gravity located 43.9 inches forward and up from the point of contact of the rear wheels with the ground.

$I_{(o)}$, the mass moment of inertia, equals 5,580 pound-foot-seconds^2 with respect to the center of gravity.

For the above conditions the following table was constructed for the above tractor tipping backwards, when pulling a load up a hill.

TIME IN SECONDS FOR TRACTOR TO BECOME DYNAMICALLY UNSTABLE

	Hill slope		
	20°	25°	30°
Drawbar pull:			
3,000 lbs	Stable	Stable	0.41 second.
4,000 lbs	do	0.84 second	0.30 second.
5,000 lbs	do	0.50 second	0.21 second.
6,000 lbs	0.88 second	0.36 second	0.16 second.

It is apparent from the above table that there are some conditions when the driver would not likely have sufficient reaction time available as can be seen from the section on the study of manual controls.

Study of manual controls.—Analyses of tractor dynamics presumably would make it possible to estimate the approximate time between: (1) the possible detection of the combination of conditions (angle, speed, acceleration, and so forth) that , if continued, would result in overturning; and (2) the time of actual instability. Given such an estimate, the question then arises as to whether human beings, if given some sort of signal of condition (1) above, could react rapidly enough to take some type of corrective action, such as throwing a switch to stop the tractor. One phase of the project is concerned with the study of human reaction time. This phase includes two parts. In the first of these, various possible control devices (levers, toggle switches, horn rims, pushbuttons, and so forth) and locations of certain such devices are now being used on a tractor to determine, by use of numerous subjects, the type of device and location which can be activated most rapidly by the subjects.

Preliminary results show a range of average reaction time values (for various devices) from about 0.4 to 0.65 second, with most single measurements falling in the 0.3- to 0.75-second range. It was determined that lever type switches led to faster reaction times near 0.4 second, than toggle switches or pushbuttons

which were found to be around 0.6 second. Use of lever switches also led to relatively smaller variability in reaction time due to the decreased need for precise hand-eye coordination required by switches of this type. The type of device (and location) ultimately found to be best will then be used in the second part in a field study with the tractors being used by farmers in actual farm operations. It is planned to install such devices on a few tractors, programed to be signaled by a bell or buzzer at very infrequent times (perhaps three or four times a week). It will then be possible to determine the range of reaction time to signals under such unexpected conditions.

Ride simulator.—It is planned to devote some effort to a study of the reaction time of drivers on a simulator of the tractor work space. The simulator will be made to vibrate with 1° of freedom and will simulate a tractor driving over rough ground on a steep hill. The simulator is in the process of being designed and constructed.

Dr. MARLAND. The conclusion we can draw from this report is that there is now known enough information, particularly on power takeoff, the construction of guards, and prevention of injuries due to overturn, so that the problem lies now not in what we need to know but what we should do. We are therefore developing an educational program which we will attempt to get underway before the end of the summer, hopefully before the beginning of the summer.

We are developing materials. We have to translate this into languages other than an educated Ph. D. level approach. We will convert this into suitable publications for the farmer, we will work in farming communities with extension agencies, and plans are already being made to do this very thing. This relates to tractor overturn and its prevention and injuries from takeoffs.

Other farm equipment, and the list is too long obviously for us to itemize, are still in the study stage. We have varying levels of expertise on recommendations as to what we can do to prevent injury. In some areas I think it is safe to say we do not know enough yet. In other areas we probably know enough. We certainly know enough now on power takeoffs and tractor overturns so there will be an education program.

INDUSTRIES WITH HIGH INJURY RATE

Mr. MICHEL. In what industry would injuries be most prevalent?

Mr. SVORE. One of the industries that is very high is the lumbering industry.

Dr. BROWN. I think construction actually.

Dr. MARLAND. Construction leads the pack. Lumber is very high. Solid waste is very high and increasing.

Dr. BROWN. But mining, of course, has also a large health hazard. In many instances there are problems like silicosis, and soft coal miners pneumoconiosis. The compensation for the latter disease is $50 million a year in Mr. Flood's State. I did not mention the fact that on April 22 we are starting in the city of Chicago an occupational health survey to evaluate the number of people who have risks in various occupational hazards with a view of getting some corrections, and this is the first step in a much broader examination of the total impact of the environment on health in that city, which we think is probably the only major city, able at this point in time, to do this sort of thing for itself.

The Institute of Medicine in Chicago has taken the leadership and we are supporting them. We have great hopes that in another year or two we are going to be able to tell you a great deal more about environmental problems in the urban community in terms of mor-

bidity; that is illness, who is sick from what, and in terms of death. It is badly needed if we are going to be hardheaded and hardnosed in determining what we must do to change the urban environment.

Mr. MICHEL. On page 2 of your testimony you talk about some of these things that you are doing. You cite this financing a sanitary land fill to replace Kenilworth dump. Has that been explored?

Mr. FLOOD. At some length.

Mr. MICHEL. I too have to share some of the concern of the chairman that we find a repetition of the problem areas that we are studying. When we finally get to the stage of getting some concrete results it seems to me there is little application of that data in getting some meaningful results.

RESULTS OF ENVIRONMENTAL RESEARCH

You keep asking for more money to study and collect information, but where do we start getting some results in some of these areas?

Mr. SVORE. I think one of the reasons for this is that with the advancing technology that we are experiencing in this country, problems are being created faster than we can solve them. This is true in many areas of the environment, whether it is in water supply or in matters of sanitation. These of course are some of the reasons why this type of work has to be done, why the epidemiology has to be carried through. We do not have these answers. We do not have today the kind of numbers that we should have in order to determine what is a hazard in the environment and what is a safe level of exposure, whether it is in our water supplies or food or in the air.

As I mentioned, we are creating new chemicals to put into our environments at a very rapid rate and we do not know what their toxicology is. So I think we are going to see continued study and continued investigation on these types of materials from now on if we are really going to create a safe environment.

Mr. MICHEL. It is purely an academic question, I guess, but is it possible that we can get things so cleaned up that future generations will be in such a clean environment that when exposed to something a little bit dirty here and there they just do not have the built-in immunities? Is there any substance to that?

Mr. SVORE. I would imagine in certain disease areas you might have this.

Mr. MICHEL. I am thinking of some of the rats and mice that have been nurtured and propagated in a completely germ-free environment and then of course the minute they are exposed to the regular atmosphere they take sick and die within a short span of time.

Mr. SVORE. I think if we would plot the contamination of the environment today that this line is still going up, and I do not see the curve dropping off rather rapidly in the very near future.

Mr. MICHEL. You do not have to worry about that?

Mr. SVORE. I do not think we are going to have to worry about it for quite a while.

Dr. PRINDLE. May I expand on this for a moment to say the question is not whether this is a matter of concern. That has already been shown, particularly with the infectious diseases as we saw in poliomyelitis. In that case and similar kinds of problems in which the infection rate was sufficiently low and the environment was sufficiently

clean, we found that people were exposed to these diseases later in life with the consequent problems.

The same is true with German measles. If a girl got it as a small child it would not be a problem. When she has it as a pregnant woman, it becomes a problem.

I think in the general environmental field, as Mr. Svore pointed out, we have had some tremendous accomplishments, for example, in the contrast from 20 and 30 years ago in water supply and milk supply. I think no one questions that these have been very effective in the reduction in disease. Milk is as safe a product as you can get. The reduction in morbidity and mortality that occurred as a consequence of the kind of activity we have carried on in this center has been phenomenal. Now we are faced with a new series of problems. We have not even yet really learned the ways of getting at some of these or even defining them. This is what we are facing and struggling with very hard.

Our Division of Environmental Health Sciences at NIH is concerned with a lot of basic work on these new problems. We are trying to see how we can use their research to delineate the problems more exactly and put new preventive measures into effect.

We are further in the situation in many of these areas, that we and no other Federal agency has any real regulatory authority or means of putting corrective measures into effect other than, as Dr. Marland described, education and persuasion. We are faced with a series of new concerns from advancing technology that have given us another set of problems, and it is going to take a while to get at them.

Mr. SVORE. I might add one other point, if I may. There is the matter of authority which in many of these areas the Public Health Service does not have. That is the enforcement for controlling situations in the overall environment.

In some specific areas, yes, but not in the overall management of the quality of the environment. It is not an authority that the Public Health Service has.

Dr. MARLAND. May I bring out the point there is a natural tendency for us when we come to a committee to dwell more on those things we hope to do than to point to those things which have been completed. This does not mean in fact we do not complete them.

ELECTRICAL SAFETY LIST

Just off the top of my head, and concerned only with the injury problem of our country at the moment, we have just completed and are putting into use through schools and health departments a very professional and very well evaluated safety educational program on electrical appliances around the house. This program is designed for junior high school and high school students, but is of interest also to the electricians. It can even be presented by the electricians. This is being presented to PTA groups, classes in schools and other community groups.

Mr. FLOOD. This is all very good, and I am sure it is a problem, but there is also this part of the problem: You know the electricians get very, very annoyed when they see the causes of fire reported as defective electrical work in the house. They have the impression in many

cases the fire marshal or the inspector, whoever is supposed to decide what caused the fire, does not know and cannot find out. So he says, "It is defective wiring," and there it is again. This bothers them because every time they cannot find a reason, "It is defective wiring," the fire marshal says. Have you heard of that?

Dr. MARLAND. Very much.

Mr. FLOOD. If you do not have a reason you can put your finger on, the easiest thing to do is file a report—"defective wiring."

FIRE RESEARCH AND SAFETY ACT

Dr. MARLAND. The Congress, during this session, passed the Fire Research and Safety Act of 1968, which, for the first time, will permit the Department of Commerce and our program in the Public Health Service an opportunity to conduct research and investigations into the actual rather than perhaps the reported causes of fire. This will be obviously sometime in the future because the Congress has just passed the act. It was signed 2 weeks ago by the President. So, this brandnew piece of legislation will give us some new information.

We already are determining additional causes of burn injury under our epidemiological and surveillance activity, which we will be able, hopefully, to extend, with this budget request, to an additional group of communities around the country. These investigations have identified the courses of burn injury or other injuries which come to the attention of the medical profession—either at the hospital or at his clinic or office.

These are the sources of information which we are using and our investigations then go on to establish the identity of the actual agent causing the burn and describe the conditions surrounding it. We are doing something in this respect, as we have for 2 years, in Denver and Boston. This is where we hope to expand under this budget.

DEFECTIVE GAS HEATERS

Another quick thought comes to me which has been successfully accomplished. It lies in some very dramatic steps that are being taken by the Sears, Roebuck & Co. at this moment in recalling some 8,000 defective gas heaters. We have already had a fatality from one of these. We investigated the fatality, determined that the heater was defective, described the defect to the manufacturer; it was Sears who distributed it.

Mr. FLOOD. They were the gas baseboard heaters?

Dr. MARLAND. Yes, sir.

Mr. FLOOD. We had some trouble over in Arlington County.

Dr. MARLAND. Last night's paper announced the discovery of three of these heaters in Arlington.

Mr. FLOOD. I have before me an article from the Washington Evening Star, Monday, March 11:

"The three gas heaters suspected of leak sought in Arlington County"—dealing with this subject along the same lines you are talking now.

Dr. MARLAND. That is the identical recall program I am referring to.

Mr. FLOOD. If there is no objection, we will insert this in the record. It bears directly on what you are talking about.

(The article follows:)

THREE GAS HEATERS SUSPECTED OF LEAK SOUGHT IN COUNTY

Arlington County's plumbing inspectors recently discovered in county records three gas baseboard heaters of the type being recalled by the Sears, Roebuck & Co., the county department of building inspections has announced.

The suspect Homart heaters turned up in a check of county records on baseboard heaters sold and installed in Arlington. The survey was made in response to a warning from the U.S. Public Health Service.

Some models of the Homart heaters are being recalled by the Sears firm because they are suspected of emitting carbon monoxide fumes, officials said. Sears has advertised that it will replace them at no cost to the owner.

Arlington officials asked county residents to check the model number on the plate of their Homart gas baseboard heaters in an effort to locate any that may not have been recorded with the plumbing office.

The suspect model numbers are: 133.72561, 133.72562, 133.72565, 133.72566, 133.725611, 133.725621, 133,725651 and 133.725661. Residents who find these numbers are asked to call the plumbing office.

County officials also said gas baseboard heaters with the brand name "Suburban" on the heater grill should be reported to the plumbing office for an inspection as well.

Dr. MARLAND. At this point in time we believe some 1,200 to 1,400 of these heaters have been recalled and destroyed. They have been replaced if they were Sears heaters. It was not only Saers, there were others involved. So that we have been able to identify the defect and convince the manufacturer they must be recalled, and the Sears Company is doing a marvelous job, very helpful and cooperative, in bringing these back off the market and replacing them at no charge.

Mr. MICHEL. Does the Federal Trade Commission get involved in somethng like this?

Dr. MARLAND. The Federal Trade Commission was not involved in this particular episode. The Federal Trade Commission has figured in many of the other recommendations we have made to the Department of Commerce, including the standards for products that we know are associated with injuries.

Mr. MICHEL. The leverage would come through them?

Dr. MARLAND. In this particular case we felt we did not need that leverage. We have persons well acquainted with Sears management.

Mr. MICHEL. Really, all your power is, is to expose and enlighten rather than any enforcements?

Dr. MARLAND. Yes. And in this particular case they voluntarily agreed to withdraw the heaters.

Dr. STEWART. You are quite right that we have very few enforcement powers in the Public Health Service—interstate quarantine, the air pollution program are the principal ones—and that most of the actions by our exposing it are voluntary action by whoever it is or through another agency, both Federal and State.

In the occupational health area there is before the Congress an administration bill, the Occupational Safety and Health Act, which directs the Public Health Service to do the research and studies and develop a criterion on which one would base standards and then direct the Department of Labor to set the standards and enforce. We have a lot of this dual relationship with Federal agencies.

Mr. MICHEL. Thank you, Mr. Chairman.

Mr. FLOOD. Mr. Natcher?

Mr. NATCHER. No additional questions, Mr. Chairman.

Mr. FLOOD. Thank you very much.

JUSTIFICATION MATERIAL

PUBLIC HEALTH SERVICE

Urban and Industrial Health

Amounts Available for Obligation

	1968	1969
Appropriation	$41,750,000	$45,611,000

Obligations by Activity

Page Ref.		1968 Estimate Pos.	1968 Estimate Amount	1969 Estimate Pos.	1969 Estimate Amount	Increase or Decrease Pos.	Increase or Decrease Amount
	1. Grants		$21,297,000		$21,471,000		+$174,000
119	a. Research		11,643,000		11,271,000		-372,000
121	b. Training		2,531,000		2,531,000		---
122	c. Fellowships		123,000		123,000		---
122	d. Survey and demonstration		5,000,000		5,546,000		+546,000
124	e. Planning		2,000,000		2,000,000		---
	2. Direct operations	1,228	19,788,000	1,462	24,140,000	+234	+4,352,000
126	a. Solid wastes	239	5,418,000	316	6,983,000	+77	+1,565,000
131	b. Occupational health	327	4,434,000	367	5,302,000	+40	+868,000
135	c. Injury control	164	3,223,000	213	4,151,000	+49	+928,000
138	d. Water supply and shellfish	222	2,671,000	290	3,701,000	+68	+1,030,000
141	e. Arctic health	80	1,460,000	80	1,445,000	--	-15,000
142	f. Special health protection	196	2,582,000	196	2,558,000	--	-24,000
	Total obligations	1,228	41,085,000	1,462	45,611,000	+234	+4,526,000
	Unobligated balance, reserve	---	665,000	---	---	--	-665,000
	Total, obligations and reserve	1,228	41,750,000	1,462	45,611,000	+234	+3,861,000

Obligations by Object

	1968 Estimate	1969 Estimate	Increase or Decrease
Total number of permanent positions ..	1,228	1,462	+234
Full-time equivalent of all other positions	34	56	+22
Average number of all employees	1,093	1,364	+271
Personnel compensation:			
Permanent positions	$9,592,000	$12,294,000	+$2,702,000
Positions other than permanent	170,000	310,000	+140,000
Other personnel compensation	200,000	216,000	+16,000
Total personnel compensation	9,962,000	12,820,000	+2,858,000
Personnel benefits	1,318,000	1,764,000	+446,000
Travel and transportation of persons .	1,230,000	1,481,000	+251,000
Transportation of things	323,000	361,000	+38,000
Rent, communications, and utilities ..	804,000	860,000	+56,000
Printing and reproduction	200,000	281,000	+81,000
Other services	521,000	708,000	+187,000
Project contracts	2,950,000	3,442,000	+492,000
Services of other agencies	275,000	300,000	+25,000
Payments to:			
Public Health Service management fund	350,000	---	-350,000
National Institutes of Health management fund	136,000	---	-136,000
Supplies and materials	599,000	729,000	+130,000
Equipment	980,000	1,219,000	+239,000
Lands and structures	140,000	175,000	+35,000
Grants, subsidies, and contributions .	21,297,000	21,471,000	+174,000
Total obligations by object	41,085,000	45,611,000	+4,526,000

Summary of Changes

1968 enacted appropriation	$41,750,000
Unobligated balance, reserve	-665,000
1968 total estimated obligations	41,085,000
1969 estimated obligations	45,611,000
Total change	+4,526,000

Increases	Base Positions	Base Amount	Change from Base Positions	Change from Base Amount
A. Built-in				
1. Annualization of 92 new positions authorized in 1968	---	---	---	$469,000
2. Annualization of civilian and military pay raises	---	---	---	135,000
3. One extra day of pay in 1969	---	---	---	38,000
B. Program				
1. Survey and demonstration grants	---	$5,000,000	---	546,000
2. Expansion of solid wastes program	239	5,418,000	77	1,497,000
3. Expansion of occupational health program	327	4,434,000	40	739,000
4. Expansion of injury control program	164	3,223,000	49	910,000
5. Expansion of water supply and shellfish program	222	2,671,000	68	1,055,000
Total program increases	---	---	234	4,747,000

Summary of Changes -- continued

	Base		Change from Base	
	Positions	Amount	Positions	Amount
Decreases				
A. Built-in				
1. Nonrecurring items of equipment.....	---	---	---	-141,000
2. Nonrecurring contribution to the Public Health Service management fund.....	---	350,000	---	-350,000
B. Program				
1. Research grants.....	---	11,643,000	---	-372,000
Total decreases.....	---	---	---	-863,000
Total net changes requested....	---	---	+234	+4,526,000

Explanation of Changes

Survey and demonstration grants

The requested increase of $546,000 will raise the total available for survey and demonstration grants for solid waste to $5,546,000 in 1969. Of the $5,546,000 total, $4,300,000 will provide for 15 new and 19 continuing demonstration projects as compared to 11 new and 9 continuing grants in 1968; the balance of $1,246,000 will allow for 12 new and 10 continuing survey projects as compared to 10 new and 16 continuing in 1968. Increased emphasis will be placed on planned future productive utilization of marginal land initially used for sanitary land fill operation.

Solid wastes program

The increase of 77 positions and $1,497,000 will be primarily for the application of systems analysis to solid wastes management problems and expansion of research on the reuse and disposal of wastes. Additional resources will also be devoted to development of computer programs for solution of solid wastes problems and the development of reports on State surveys. Training, demonstration and technical assistance activities will be expanded to aid and assist public and private agencies in reducing unacceptable solid waste disposal practices.

Explanation of Changes -- continued

Occupational health program

The increase of 40 positions and $739,000 will be directed to the critical problem of controlling radon exposure of uranium miners. Epidemiological studies, medical studies and evaluation of control measures are to be developed to reduce the incidence of lung cancer resulting from exposure to ionizing radiation.

Injury control program

The increase of 49 positions and $910,000 will be used to implement the Flammable Fabrics Act by investigating and collecting data on burn injuries for the future establishment of effective standards; to strengthen the program to reduce fractures, particularly among the elderly; and to study deaths from asphyxia, particularly from "smoke inhalation" in fires.

Water supply and shellfish program

The increase of 68 positions and $1,055,000 will be used to support research and development on the effects of water quality on health, and DHEW participation in the nationwide inter-departmental water resources planning activities.

Contribution to the Public Health Service management fund

The $350,000 decrease for the nonrecurring contribution to the management fund is due to a change in the method of funding. In 1969, it is proposed to fund Office of the Director, Bureau of Disease Prevention and Environmental Control costs directly in the activity, "Bureau program direction and management services", in the Radiological Health appropriation rather than through contributions to the Public Health Service management fund.

Research grants

The decrease of $372,000 is a result of a reduction in the support of projects in the field of traffic safety. In total, thirteen less grants will be supported in 1969 than the 380 supported in 1968.

Authorizing Legislation

Public Health Service Act, Title III, Part A

Legislative authority for the award of grants for research, research training, and fellowships is contained in Section 301 of the Public Health Service Act.

Solid Waste Disposal Act, Title II, Sec. 204(b), (3)

"Make grants-in-aid to public or private agencies and institutions and to individuals for research, training projects, surveys, and demonstrations...."

Solid Waste Disposal Act, Title II, Sec. 206(a)

"The Secretary may from time to time, upon such terms and conditions consistent with this section as he finds appropriate to carry out the purposes of this Act, make grants to State and interstate agencies of not to exceed 50 per centum of the cost of making surveys of solid waste disposal practices and problems within the jurisdictional areas of such States or agencies, and of developing solid waste disposal plans for such areas."

Solid Waste Disposal Act, Title II, Sec. 210(a)

"There is hereby authorized to be appropriated to the Secretary of Health, Education, and Welfare, to carry out this Act, not to exceed $7,000,000 for the fiscal year ending June 30, 1966, not to exceed $14,000,000 for the fiscal year ending June 30, 1967, not to exceed $19,200,000 for the fiscal year ending June 30, 1968, and not to exceed $20,000,000 for the fiscal year ending June 30, 1969."

Introduction

The National Center for Urban and Industrial Health provides a focus for a national program for the prevention and control of health hazards and injuries associated with the urban environment, including those resulting from occupational exposure. The pattern of living created by the combination of our urbanized and industrialized society presents environmental hazards and health problems of growing severity. Some of these hazards and problems have existed for a long time but have become critical as cities grow larger and industrial activities become more complex. Some are new and are the result of our expanding technology. Some are acute, such as the immediate effects of foodborne disease. Others are more subtle and take their toll from prolonged exposure, such as some of the industrial diseases.

The Center, established a little over a year ago, is undertaking a coordinated approach to effectively cope with these growing urban and industrial health problems. The range of programs cover solid wastes management; occupational health hazards; prevention and control of accidental injuries; health aspects of drinking water supplies and shellfish sanitation; food protection; transportation; housing hygiene; sanitation; environmental health aspects of urban planning; and cold weather research.

In 1969, the requested increase will be directed to application of systems analysis to solid wastes management problems and expansion of research on the reuse and disposal of wastes; the critical problem of controlling radon exposure of uranium miners; injury control studies related to flammability of fabrics, osteoporosis, and asphyxiation; and research and development on the health aspects of water quality. Through survey and demonstration grants, increased emphasis will be given to planned future productive utilization of marginal land initially used for sanitary land fill operation.

1. Grants

	1968 Estimate		1969 Estimate		Increase or Decrease	
	No.	Amount	No.	Amount	No.	Amount
a. Research.....	380	$11,643,000	367	$11,271,000	-13	-$372,000
b. Training.....	51	2,531,000	51	2,531,000	---	---
c. Fellowships.....	16	123,000	16	123,000	---	---
d. Survey and demonstration....	46	5,000,000	56	5,546,000	+10	+546,000
e. Planning.....	41	2,000,000	41	2,000,000	---	---
Total.....	534	21,297,000	531	21,471,000	-3	+174,000

a. Research grants

	1968 Estimate		1969 Estimate		Increase or Decrease	
	No.	Amount	No.	Amount	No.	Amount
(1) Non-competing continuations...	246	$7,537,000	261	$7,480,000	+15	-$ 57,000
(2) New grants.....	134	3,923,000	106	3,491,000	-28	-432,000
(3) Supplements.....	(31)	183,000	(21)	300,000	(-10)	+117,000
Total.....	380	11,643,000	367	11,271,000	-13	-372,000

Investigators at universities and other non-profit institutions define, assess, and provide solutions for health problems of the urban and industrial environments through research grants support.

During 1969, grants in the water supply and sea resources area will continue to support research in the health implications of aquatic ecology, possible hazards to marine food resources and the aquatic food chain, taste and odor control in water supplies, organic residues in drinking waters and their significance and removal, and other related projects. New problem areas will be explored such as improvements in the storage and distribution of potable water supplies; the effects of trace contaminants in water on man's health; engineering and hydrographic studies on shellfish growing areas and health hazards to this food source.

Occupational health problems identified for continuing research attention include studies of the hazards of metal toxicoses, occupationally-employed chemicals, pneumoconioses, toxic gases, dermatitises, and nonspecific stressors such as the effects of heat in the working environment on man's efficiency and well-being. Other industrial health problems of on-going concern are the hazards of industrial exposure to beryllium and asbestos; the effects of exposure to lasers and uranium; and the determination of safe exposure limits.

The grant program in injury control will continue its studies of non-traffic related injuries. These will include recreational hazards such as skiing and scuba diving, athletic injuries to children, and special problems in age associated injuries in the home and in the whole environment.

During 1969, the environmental sanitation program will continue to support research grants in areas of concern including ultra-high temperature heating of milk, abnormal milk supplies, salmonella in dairy products, and viral contamination. Other foods, as well as milk, will continue to be studied in relation to health hazards such as pathogenic bacteria, microbial toxins, pesticides, and the methodology of ascertaining these and other contaminants. Studies will include noise control, community facilities, evaluation of neighborhood stresses, housing hygiene, overcrowding, and facets of these problems related to development of criteria which will lead to establishment of minimal conditions necessary for a healthful living environment in urban areas.

Grants for solid wastes research are for developing and supporting projects aimed at many sectors of the national solid wastes problems. Project support planned for the coming year will emphasize conservation of resources through solid wastes processing techniques aimed at potential reuse of presently wasted materials. Research to conserve and reuse waste materials is a natural follow-up to past and current research which is providing basic information about solid wastes. This emphasis is in line with the Solid Wastes Disposal Act, which identifies development of solid wastes recovery and utilization techniques as a primary objective. Some examples of solid wastes research projects related to this objective are: utilization of bark wastes; solid fibrous wastes usage as nutrient sources; useful disposal of auto bodies; poultry offal silage as feed ingredient; and conversion of food industry solid wastes to new food products.

The decrease of $372,000 in 1969 will provide for 13 less than the 380 estimated grants in 1968.

b. Training grants

	1968 Estimate		1969 Estimate		Increase or Decrease	
	No.	Amount	No.	Amount	No.	Amount
(1) Continuations:						
Solid wastes.....	9	$ 394,400	11	$ 453,900	+2	+$ 59,500
Other.....	27	1,605,600	35	1,896,600	+8	+291,000
(2) New grants:						
Solid wastes.....	3	95,600	1	36,100	-2	-59,500
Other.....	12	435,400	4	144,400	-8	-291,000
Total.....	51	2,531,000	51	2,531,000	---	---
Solid wastes...	12	490,000	12	490,000	---	---
Other	39	2,041,000	39	2,041,000	---	---

The research training grants activity is conducted to meet the need for more qualified research specialists to undertake research in urban and industrial health problems. Grants provide support for faculty, visiting lecturers, research seminars, equipment, stipends and tuition for graduate students selected by the university recipients of these grants.

Numerous scientific committees have pointed out that trained manpower now available is insufficient for the task of dealing with the hazards to public health from environmental contamination. The President's Science Advisory Committee, in its recent report on Restoring the Quality of Our Environment, stated, "In the long run, improving both numbers and quality of highly trained manpower engaged in key actions, from research to enforcement, will do most for us, and merits highest priority." The aim of the program is to produce personnel with the capability to pursue the complexities of characterization, measurement, evaluation, and elimination of urban and industrial health hazards.

During 1969, grant funds will continue at the same level of funding as 1968 for graduate programs of research training in professional schools which by curriculum design and direction are oriented to attract and train scientists for the public health fields with which the Center is concerned. In these programs, students will receive training in a particular discipline, research experience in a problem area significant to urban and industrial health, and a synthesis of research methodology of related fields of science. In addition to the support of pre- and post-doctoral students, these funds strengthen the scientific base of the national effort to solve urban and industrial problems by augmenting faculties, stimulating the organization and conduct of seminars, and improving training laboratories by providing modern research instrumentation.

The research training grant activity will eventually permit a stepped-up attack on pressing problems in research. It will help in overcoming the specialized manpower shortage, a serious deterrent to our national capability for developing sound programs in urban and industrial health, including urban health planning and development.

Public Law 89-272 authorized the training of persons in the field of solid wastes. The need for such training is evidenced by the estimate that the minimal national need for professionally trained personnel is 3,000 persons. Recognizing this urgent need, the NCUIH training grant program provides curricula development, training aids, and support of graduate students as authorized. The program develops students capable of researching and applying new concepts and systems for solid wastes management.

During 1968 an estimated total of 274 students received training in urban and industrial health problems through 51 training grants. Of this total number, an estimated 40 students pursued studies in solid wastes management at 12 universities.

Approximately 51 grants will be awarded with the requested $2,531,000, the same level as 1968.

	1968 Estimate		1969 Estimate		Increase or Decrease	
	No.	Amount	No.	Amount	No.	Amount
c. Fellowships	16	$123,000	16	$123,000	---	---

In addition to training grants, fellowships are used to meet the need for trained and experienced investigators interested in undertaking research. They provide support to students for graduate or postgraduate training in order to increase research manpower in the program areas of responsibility of the Center.

There are now programs for training of students in specialities related to the functional areas of the NCUIH programs at a few universities such as UCLA, Cornell, and the Ohio State University.

The 1969 grants will continue at the same level as 1968.

d. Survey and demonstration grants - solid wastes

	1968 Estimate		1969 Estimate		Increase or Decrease	
	No.	Amount	No.	Amount	No.	Amount
(1) Survey.....	26	$2,142,000	22	$1,246,000	-4	-$896,000
(2) Demonstration.....	20	2,858,000	34	4,300,000	+14	+1,442,000
Total.....	46	5,000,000	56	5,546,000	+10	+546,000

The survey and demonstration grants program is designed to encourage the application of new methods, techniques and equipment for solid waste management; provide sound and reliable performance data on full scale applications of new

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and innovative techniques developed through research; and demonstrate, study and investigate the practicability and effectiveness of new techniques, equipment and methods for solid waste management. The stimulation of public interest in, and acceptance of, proven solid waste management practices is an additional benefit resulting from the projects supported through this program. Grant projects may receive up to two-thirds Federal support and may include the construction of disposal and waste reduction facilities. The funds made available through this program make a direct impact on the speed with which new and improved solid waste management systems are adopted by local, State and regional communities.

Several innovative concepts are being tested and demonstrated in the program. One project, for example, has been initiated to evaluate the costs and benefits associated with the collection and disposal of solid wastes by rail haul from an urban area to strip mines at some distance from the city.

Another grant is supporting the demonstration of improved incinerator technology for a small community. In this project it is being shown that a small mechanically stoked rotary grate incinerator can provide a small municipal area with a feasible means for the disposal of solid wastes which will meet air pollution standards, eliminate environmental health hazards, and be the most economical method of disposal in an area where sanitary landfill methods cannot be adopted.

In another demonstration the feasibility of disposing of demolition wastes by shredding and compacting into a sanitary landfill is being undertaken. This operation will help to eliminate the current air pollution problem in Tacoma, Washington caused by open burning of demolition waste. By reducing the bulk of the material to a more practical size, the disposal of this material in a sanitary landfill becomes more practical.

Grant funds are also being used to demonstrate the feasibility of consolidating and centralizing the solid waste disposal facilities of Niagara County, New York (population 250,000) into one regional solid waste management under an established county agency. In addition this project will demonstrate the capabilities of a newly developed landfill compaction machine and will rehabilitate 13 existing disposal sites which are to be abandoned, therefore eliminating numerous existing nuisance conditions.

The requested increase of $546,000 in 1969 will provide a total of $5,546,000 for this grants activity, of which $4,300,000 will provide for 15 new and 19 continuing demonstration projects. The balance, $1,246,000 will allow for 12 new and 10 continuing survey projects. In 1968 there were 11 new and 9 continuing demonstration projects and 10 new and 16 continuing survey projects.

	1968 Estimate		1969 Estimate		Increase or Decrease	
	No.	Amount	No.	Amount	No.	Amount
e. Planning grants - solid wastes	41	$2,000,000	41	$2,000,000	---	---

Planning grants are designed to encourage sound State solid waste management planning programs, create interstate and regional planning programs, generate basic data, and develop the expertise necessary for effective national programs. They are made to State and interstate agencies and provide up to one half of the total project costs. The initial phase of the grant projects requires that the agencies gather basic data on the extent of the solid wastes problem and on the effectiveness of on-going programs within their geographic areas. The agencies then develop comprehensive long-range plans for meeting their solid waste problems. The plans will include not only appropriate consideration of the existing and projected solid wastes disposal needs but also take into consideration such related factors as the control of air and water pollution resulting from improper disposal operations, meaningful land-use planning, protection of the public health, and trends in population and industrial growth. To the fullest extent possible, these plans encourage inter-governmental cooperation.

The $2,000,000 requested in 1969 will permit the continuation of grants funded in 1968.

2. Direct operations

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
Personnel compensation and benefits	1,228	$11,280,000	1,462	$14,584,000	+234	+$3,304,000
Other expenses	---	8,508,000	---	9,556,000	---	+1,048,000
Total	1,228	19,788,000	1,462	24,140,000	+234	+4,352,000

Summary of Program

a. Solid wastes	239	5,418,000	316	6,983,000	+77	+1,565,000
b. Occupational health	327	4,434,000	367	5,302,000	+40	+868,000
c. Injury control	164	3,223,000	213	4,151,000	+49	+928,000
d. Water supply and shellfish	222	2,671,000	290	3,701,000	+68	+1,030,000
e. Arctic health	80	1,460,000	80	1,445,000	---	-15,000
f. Special health protection	196	2,582,000	196	2,558,000	---	-24,000
Total	1,228	19,788,000	1,462	24,140,000	+234	+4,352,000

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
a. Solid wastes	239	$5,418,000	316	$6,983,000	+77	+$1,565,000

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
(1) Research	100	$2,614,000	117	$2,868,000	+17	+$254,000

The Task Force on Environmental Health and Related Problems in its June 1967 report to the Secretary of Health, Education and Welfare stressed the need for: (1) basic research into the health effects of waste and waste disposal techniques; and (2) a stepped-up research effort to secure breakthroughs in the reuse and disposal of solid, liquid and gaseous wastes. The Presidents Science Advisory Committee in its report "Restoring the Quality of Our Environment" and the National Academy of Sciences in its report "Waste Management and Control" have called for a new and redoubled effort to find better methods of alleviating the national solid waste burden, not merely by employing improved disposal techniques but also by developing techniques for the reduction of wastes.

In its efforts to be responsive to this national burden the Solid Wastes Program's research effort is directed towards the investigation of the impact of existing disposal practices on public health, and the development of new and improved techniques for the collection, utilization and disposal of solid wastes.

A recently completed project is particularly worthy of identification because it not only offers solutions to the intricate problems and health relationships of the railroad cars dismantling industry, but also offers new and improved techniques of structural demolition and resources recycling in other industries. In the railroad car industry open air burning, with attendant pollution problems, is the classical method used to separate wood and other combustibles from salvageable metals. Burning is a fast and inexpensive system. Other systems, regardless of health relationships, must be economically competitive if the railroad car industry, like many others using open burning, is to survive. Two potential solutions to the problem of salvage have been developed without open air-burning. One, a new concept, slices wood from railroad cars using high-pressure manually operated water jets. This method has many advantages besides the obvious ones concerned with health. The up-grading of steel and increasing the number and quality of salvage parts are of additional benefits to recycling concepts. The second method, applicable primarily to railroad cars,

makes each car serve as its own incinerator. It involves the careful placement of openings in the car to develop a proper draft under a large steel hood. The railroad car is rolled under a hood, which is equipped with necessary smoke control devices, and the wood is then ignited. Ninety per cent of the railroad cars now in existence may be salvaged through this process which removes the combustible materials without producing odor and smoke problems.

Another new concept developed is a solid waste power generation system. This project anticipates the utilization of heat, generated through incineration of solid waste, as a direct producer of electric power. The heart of the project is a jet engine such as used on commercial airlines. The heat generated in the controlled burning process turns the jet engine blades, generating low cost electric energy. It is possible that such a method of refuse reduction-power generation could produce a revolution in incinerator construction producing electricity at lower cost and greater efficiency.

Investigation of specific health hazards associated with solid waste will receive additional emphasis in 1969. This project is oriented towards determination of pathogen survival rates under varying conditions of solid waste handling processes such as incineration and composting. Work to date indicates that incinerator residues and compost may serve as a reservoir of pathogenic organisms indigenous to a geographical area. Utilization and disposal of such materials could introduce health hazards in new sections of the country.

Another area in which increased effort will be made is the identification of waste materials having intrinsic value through reprocessing into useful materials. Millions of tons of nutritious organic liquid and solid waste is presently being disposed of by the processing and packaging industry. Most studies have centered on the large, readily identified groups of such materials resulting in projects such as citric acid from citrus wastes, animal feed from poultry litter, and the reclamation of basic starches and sugars from vegetable wastes. An estimated $96,000 and eight positions will be used to systematically identify the materials presently being disposed of, group them by related physical and chemical characteristics, and assess their potential for further reclamation studies.

The requested increase of $254,000 and 17 positions will provide for continuing ongoing research and expanding research in the areas indicated above.

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
(2) Training	26	$424,000	33	$580,000	+7	+$156,000

Objectives of the training activity are to provide specialized training for professional personnel (enforcement officers, sanitarians, civil, chemical and mechanical engineers) representing agencies who have solid waste engineering and management responsibilities. Training health and health-oriented organizations to plan, conduct and assess their own solid wastes activities, and to provide operator and technician training are an integral part of this program. It is estimated that 3,000 professional and 300,000 non-professional personnel need basic information in the different aspects of solid waste storage, collection, disposal, planning and management. The requested increase of $156,000 and seven positions for 1969 will be used to expand the current activities designed to help meet this need. These resources will be used to increase the course offerings to approximately 12 courses covering 20 weeks of training from the 1968 level of 8 courses and 13 weeks of training. With this increase, it will be possible to train an estimated 850 persons as compared to 475 for 1968.

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
(3) Technical assistance	80	$1,582,000	121	$2,535,000	+41	+$953,000

The demand for increased technical assistance from State, local, and industrial officials is growing as a result of the rising national awareness of past and present shortcomings in the field of solid waste management. During the first half of 1968, technical assistance teams have responded to over 125 requests for assistance and it is projected that for 1969 there will be approximately 500 requests from governmental and industrial agencies for information and assistance on solid waste problems. Questions range from straightforward requests, such as, "Who manufactures grinding equipment?", to rather complex ones, such as, "Who will accept the solid waste from my city?". The State Planning grant program has also intensified the need for extensive technical advice on such topics as methods of conducting surveys, application of survey information to the planning process, and guidelines for handling solid wastes.

The general objective of the technical assistance activity is to provide technical services and resources to State, regional and local agencies, private organizations, industrial and agricultural groups to help eliminate unacceptable solid waste management systems that are a threat to public health and welfare and are operated at a cost of approximately three billion dollars per year.

To progress towards this general objective the Center has developed a two pronged attack to be conducted over a minimum five year period by the Systems and Operations Planning Group and the Direct Technical Assistance Group.

The Systems and Operations Planning Group will expand its program, which provides the basic information necessary for the solution of State and local problems in the areas of State planning grant activities, develops model State and local legislation, and operates an acquisition and retrieval system of technical information. It will also develop and provide basic data relating to solid wastes generation, storage, collection and disposal and will develop computer-oriented mathematical models of solid wastes management systems applicable for study of community problems.

The Direct Technical Assistance Group will undertake to improve one fifth of the currently estimated 6,600 solid wastes collection and disposal systems in urban areas by direct consultation, studies, or surveys of specific problems. In addition it will develop manuals, standards, and guides for use by industrial and agricultural groups concerned with specialized solid waste management problems.

An increase of $953,000 and 41 positions is requested for the support of these activities in 1969.

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
(4) Demonstration development	33	$798,000	45	$1,000,000	+12	+$202,000

A systematic study of the solid waste problem influenced the decision to exploit research and technical breakthroughs by means of full-scale demonstration projects, developed through the mechanisms of demonstration grants and demonstration projects conducted by program personnel. The ultimate goal of the demonstration activity is to reduce and eventually eliminate open dumps and similar unhealthy, insanitary, and unsightly disposal methods now used by approximately 4,600 urban communities in the United States by substituting acceptable methods as demonstrated by the demonstration projects, particularly with respect to encouraging regional approaches to the solid waste disposal problem. In approaching this goal, program personnel: (1) administer demonstration projects which encourage the application for new methods, techniques, and equipment for solid waste disposal; (2) stimulate wide-spread public and private agency participation in those types of demonstration grant projects which meet carefully defined needs of the solid waste field; and (3) prepare careful analyses and evaluations of the knowledge gained from such projects and make this information available nationally for use by those agencies and organizations who can profitably use it.

The requested increase of 12 positions and $202,000 in 1969 will be used to augment the professional staff assigned to the 56 survey and demonstration grants and the direct operations demonstration projects projected

for 1969. The increase of 10 grants over the estimated 1968 level of 46 grants require a professional staff to conduct systematic technical and engineering reviews of proposed survey and demonstration grants; to make feasibility studies, preliminary site visits and evaluations before such grants are initiated; to review construction, and provide the necessary liaison with grantees or contractors after they are under way.

The Joint PHS-TVA Composting project, Johnson City, Tennessee, a direct operations project, is completing its first full year of operation during 1968. This operation will continue in 1969 through research on the public health implications of using compost made from municipal refuse and raw sewage sludge. A new project, designed to develop techniques for improved thermal reduction of solid wastes, will be initiated during 1969 at the University of West Virginia. Little improvement has been made in incinerator technology over the past several decades and full understanding of the many principles involved is essential to needed improvement.

The net budget increase of $1,565,000 results from a program increase of $1,497,000 offset by a built-in decrease of $62,000 due to the changes in financing of the management fund, and an increase of $130,000 for other built-in items of increase and decrease. These items include the additional day of pay in 1969, the annualization of positions new in 1968 and of military and civilian pay raises, and nonrecurring decreases.

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
b. Occupational health	327	$4,434,000	367	$5,302,000	+40	+$868,000

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
(1) Research	224	$3,254,000	264	$4,077,000	+40	+$823,000

During 1969 research activity will continue at the same level as 1968 in the fields of occupational respiratory diseases, asbestos, beryllium, and the general research area. The only increase in 1969 will be in the uranium research activity.

The study of the working environment of underground uranium mines has revealed potentially hazardous exposures from internal radiation due to the inhalation of radon and its daughter products. While biological effects on other body tissues are possible, most of the deleterious health effects which have been observed are found in the lungs. Excess lung cancer rates have been demonstrated among uranium miners. The time lag between the start of mining and diagnosis of lung cancer ranges from seven to forty years, with a median of approximately twenty years. Until 1963 there was little indication of excessive mortality rate from lung cancer. At that time the rate of incidence began to climb markedly. Currently there have been approximately 100 reported deaths due to respiratory cancer among the uranium mining population. At present there are 2,200 miners actively engaged in underground mining. The number of miners who have already been exposed is approximately 10,000. Program projections now indicate, however, that the problem is in its early stages and that between 600 and 1,100 uranium miners will die as a result of exposure to radon.

The 1969 estimate for uranium research is $856,000 and 49 positions compared to $116,000 and nine positions in 1968. The 1969 budget will enable the program to pursue studies in three major areas assigned to the Public Health Service by "The Inter-Departmental Committee on Research and Development on Uranium Miners." The August 24, 1967 report of this Committee charged the Public Health Service with directing its efforts toward:

> Epidemiological studies of health hazards associated with uranium mining. The current epidemiologic study has clearly demonstrated an association between excess mortality from lung cancer and exposure to radon daughters, and has suggested the existence of an exposure-response relationship with radon daughters. Currently unanswered questions include the precise definition of exposure-response relationship, relationship of exposure to actual dose

relationship of exposure level and duration to development of lung cancer, and other questions such as duration of latent period, relationship of other carcinogenic agents such as smoking, age, race, and associated morbidity and mortality. To answer these questions, study groups will be expanded or developed from a current study group on 5,370 uranium workers, low exposure groups (hard-rock metal miners), underground miners with known exposures (potash miners), miners just entering the uranium industry with low exposures, and analysis of already available data on mining groups.

Medical studies to develop early diagnostic tests and bioassay procedures for evaluating exposures. Intensive studies will be made of known and suspected cases of lung cancer among uranium miners and other individuals within study groups. The main efforts in this area will be devoted to increasing the frequency and evaluating the use of sputum cytology as a diagnostic aid, determining the effects of removal from exposure of miners with suspicious cytology, studies to determine if exposure has resulted in biological effects other than lung cancer, and in hospital evaluation, treatment, and medical follow-up of patients with respiratory cancer or suggestive sputum cytology.

Evaluation of control measures in terms of significance to disease prevention. A continuing responsibility of the Public Health Service will be this evaluation of the effectiveness of control measures. Data so obtained, much of which will be obtained from other agencies involved, is essential for the epidemiologic and research studies of all Federal and State agencies. Evaluations will include improvement made in mine atmospheres, personal protective devices, personal dosimeters, air monitoring methods and the characteristics of mine air. All evaluations will be made with respect to reduction of exposures to miners and related health effects.

Basic investigations into the cause and prevention of occupational respiratory diseases of soft coal miners will be continued during 1969 at the same level as during 1968 with $1,227,000 and 77 positions. Cardiopulmonary studies and biochemical studies will be conducted on approximately 200 miners. Full-time field studies designed to uncover environmental factors contributing to coal worker's pneumoconiosis will also be continued. These studies will assess the role of infectious disease organisms and will evaluate air contaminants in mines and communities with different prevalences of pneumoconiosis.

Research in beryllium is designed to establish safe levels of exposure for the estimated 500,000 workers directly exposed. During 1969 surveys will be conducted to determine the environmental exposure of 2,000 beryllium workers and will include a medical examination of each worker. A records study of 8,000 former beryllium workers will be continued in order to establish mortality patterns in relation to exposure.

Asbestos research is designed to establish safe levels of exposure for the estimated 3.5 million workers exposed to asbestos fibers and dusts. During 1969 air sampling surveys will be conducted in factories employing 8,000 people. Physical examinations will be administered to 1,000 of these people. The social security records of 20,000 asbestos workers will be analyzed to determine excess mortality rates.

Research activities during 1969 will continue in toxicology, pathology, physiology, occupational medicine, and engineering and chemical analysis. Studies of the physical environment will emphasize noise, radiant energy, and thermal stress. Studies in noise will be aimed toward the identification and evaluation of noise effects on hearing, total health, productivity and well-being, as well as the promotion of effective control methods. Laboratory research will be conducted to determine the effects of impact-type noise on hearing, safety and physiological functions.

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
(2) Training	20	$221,000	20	$232,000	---	+$11,000

The primary objectives of the training activity are to strengthen the competency and increase the trained manpower pool of State and local governmental agencies which represent a focal point for controlling occupational hazards in today's industry. These objectives include the following activities: (1) upgrading training courses and (2) consultation and assistance, including the development of training manuals and aids for State, local and industrial training programs.

Short-term training will be provided to 450 occupational health personnel in 1968. It is anticipated that approximately the same number of professional personnel will receive training during 1969. Of this number, 140 will receive broad-based training which will enable them to undertake professional responsibilities and 310 will receive refresher training or courses in new and specialized techniques.

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
(3) Technical assistance	83	$959,000	83	$993,000	---	+$34,000

Technical assistance during 1969 will be directed toward improving the working environments for 160,000 workers involved in such processes at lasers, polyurethane, and zinc smelting industries. Assistance will be provided to State and local regulatory agencies, labor unions, management, and private citizens. The working environment of 350,000 workers

will be evaluated and used to supplement existing information to form the nucleus of a national surveillance network. This information will provide base line data for measuring the impact of occupational health programs, pinpointing occupational health problems, and defining areas of greatest need. Various services will be provided to workers and industry through the Employee Health Service function, the Clinical Service function, and the Scientific Reference Service. The assistance given to States through direct and liaison activities will benefit an estimated four million workers. Results of recommendations and suggestions made through technical assistance activities will be obtained by means of follow-up surveys.

The net budget increase for the occupational health program of $868,000 results from a program increase of $739,000 offset by a built-in decrease of $93,000 due to the change in financing of the management fund and an increase of $222,000 for other built-in items of increase and decrease. These items include the additional day of pay in 1969, the annualization of positions new in 1968 and of military and civilian pay raises, and nonrecurring decreases.

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
c. Injury control	164	$3,223,000	213	$4,151,000	+49	+$928,000

The research activities of the Injury Control program are directed toward finding more definitive and practical information on the causes and ways of preventing fatal and disabling injuries. They focus on the physical, physiological, and psychological characteristics of man in relation to the things he does, the tasks he must perform, and the factors in his environment which cause injury either to himself or to others. This program of directed research is conducted by surveillance teams in the field, personnel at program headquarters and an associated field laboratory, and by contracts and cooperative agreements with universities, hospitals and private organizations expert in this field. The technical information obtained provides working knowledge for other Federal, State, and local governmental agencies which are encouraged to adopt the prevention and control techniques developed.

In 1969, work will be initiated toward implementing the 1967 amendments to the Flammable Fabrics Act (PL 90-189). The Act directs the Secretary of Health, Education, and Welfare to conduct a continuing study and investigation of deaths, injuries, and economic losses resulting from accidental burning of products, fabrics, or related materials leading to the establishment of standards for the prevention of such injuries. Since the formulation of the standards, their evaluation, and to some extent, their enforcement is dependent upon the findings and recommendations of this program, this work will receive emphasis in 1969.

To implement this Act, 40 field investigators will operate in small surveillance teams of 3 to 5 members each to personally investigate and report on burns associated with flammable fabrics and materials in representative areas of the Nation. They will collect data to (1) permit the identification, analysis, and tracing of actual materials involved in the burn; (2) obtain factual data on the economic, social, and psychological impact of such injuries on the person and his family; (3) determine the controllable element which could lead to effective standards; (4) identify associated conditions in the environment which contribute to the problem. A staff of 9 professional personnel will be required to plan and direct operation and process information from these teams. In addition to on-the-scene studies and investigation of burns, a major study will be made of the economic drain on the Nation's health and welfare resources as a result of burn injuries. An increase of $514,000 is requested to conduct these burn studies of which $364,000 will be for the direct investigation of burns and $150,000 will be for study of the cost of burns and the benefits achieved from a control program.

In 1969 a significant effort will be made to improve findings as to the influence of osteoporosis in causing fall accidents, especially in elderly people, and to determine ways of maintaining bone strength and improving bone mending. From this contractual study, it is anticipated that either preventive or control measures to lower the accident rate from falls can be attained. An increase of $207,000 is requested for this research.

Asphyxiation is the cause of many deaths, especially in association with fires where fatalities are listed as being due to "smoke inhalation". In 1969 the elements produced by the combustion of a variety of common materials will be studied to determine what toxic substances are involved, and how to develop warning systems for use in homes, apartments, and hotels to alert residents. An increase of $207,000 is requested.

Burns, fractures, poisoning, suffocation, shock, and piercing injuries - particularly in and around the home - will continue to be examined. Examples of preventive or control measures that have been developed or evolved from similar investigations are the recommendations to industry to improve the quality of glass used in glass doors, to improve the design and operation of lawnmowers, and the movements toward public enlightenment concerning the hazards of refrigerator entrapment, plastic bag suffocation, and improper use of regular household appliances and equipment.

Two surveillance teams, in Denver and Boston, have demonstrated the effectiveness of collection and analysis of data regarding accidental injuries and deaths in major metropolitan areas. They will continue gathering information on accidents from fire, explosions, drownings, and traffic. In 1969 these teams will devote increasing attention to the relationship of consumer product design to injury potential, in order to identify present and emerging hazards of this type.

Other continuing research includes the study of normal and abnormal behavior of people driving automobiles. Laboratory studies in a controlled situation will single out factors of stresses and human behavioral elements which might involve the danger of driving accidents. Under simulation conditions, the effects of drugs and medical disabilities on driving will also be studied.

Training in injury control is provided to State and local public health personnel. Health workers have the capability and opportunity to make important contributions toward reducing accident mortality and morbidity, but if they are to be most effective, they must understand injury control and be aware of available information. This program provides training necessary to achieve these objectives.

Methods for improving and expanding community training resources are developed, including visual aids in the form of exhibits, brochures, films, and radio and television materials. Regional seminars and intensive short courses will continue to be provided. Special courses are being developed in the investigation of deaths and injuries associated with flammable fabrics.

The general objective of technical assistance is to provide agencies, organizations, and individuals working in States and communities with the information, technical aids, and professional consultative services necessary to establish and carry out activities that will actually bring about individual protection from accidental deaths and injuries. Principal emphasis, at this time, is on prevention of the accident or a minimization of its consequences. Burns, fractures, drowning, asphyxiation, poisoning, and injuries or deaths from electrical sources will be the major areas of attention in 1969, with special attention being devoted to injuries associated with household products.

Over half of the States now are conducting formal injury control programs with at least one staff member devoting full time to directing and coordinating the activities. The Public Health Service assigns personnel, as necessary, on a full time basis to State and local health offices to assist in these program activities. At present, there are 23 Public Health Service professional injury control field personnel rendering technical services to State and local health departments. Eleven work directly in State or local offices and 12 in regional offices.

The net budget increase of $928,000 results from a program increase of $910,000, offset by a built-in decrease of $13,000 due to the change in financing of the management fund and an increase of $31,000 for other built-in items of increase and decrease. These items include the additional day of pay in 1969 and the annualization of positions new in 1968 and of military and civilian pay raises.

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
d. Water supply and shellfish	222	$2,671,000	290	$3,701,000	+68	+$1,030,000

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
(1) Water supply	70	$924,000	138	$1,971,000	+68	+$1,047,000

The objective of the Water Supply program is to assure the citizens of this Nation a safe potable drinking water supply and water of healthful and beneficial quality for all other water uses. Human health aspects associated with pollution of water in relation to the various uses are numerous, complex, and certainly to date have not been adequately pursued. Technological progress continually creates new contaiminants that must be evaluated. Restrictive limits for many of the new materials or for low-level chemical contaminants found in drinking water supplies are, however, difficult to establish because of the gap in our knowledge regarding acute and chronic physiological effects on humans. In some cases the analytical procedures and treatment technology need improvement to make the standard practical and enforceable.

Of equal concern is the need to determine whether or not the barriers guarding against biological contamination of drinking water supplies are being strained to the breaking point. To what degree time-tested supply safeguards and safety factors have been reduced to dangerous levels poses a vital question. Little is actually known of quantitative procedures for isolating pathogens from water, and of the infectious dose of many pathogens that reach our water intakes. Current extensive experimentation with, and the eventual need for, waste water re-use with resultant increase of biological hazards as well as buildup of chemical contaminants, imposes on the Public Health Service the responsibility for determining the health hazard potential. The Service is equally responsible for assuring that meaningful indicator indices are developed and used in assessing the impact of water renovation on human health.

Of the requested increase, $738,000 and 48 positions will provide additional research and development resources pertaining to water quality, including refinement of meaningful potable water standards. Investigations will include the development of improved methods for the identification and measurement of organic matters and trace elements occurring in drinking water supplies, epidemiological and toxicological studies to determine the

significance of organic material and trace elements in relation to human health, development of suitable methods for the removal of harmful trace contaminants, determination of human health effects of water that has been renovated from polluted sources, and initiation of development of rapid determinable tests to assure public drinking water supplies of good quality.

In recognition of the rapidly expanding demands for water throughout the Nation, Congress established, through the 1965 Water Resources Planning Act, a national policy of conservation, development, and utilization of water and related land resources of the Nation. Eighteen comprehensive framework studies, coordinated by the Water Resources Council, have been proposed or are now in progress. These framework studies are to provide basic information for implementation of the national policy in the development of our water resources for the next fifty years.

In accordance with the interdepartmental agreement concerning health aspects of water resources control approved by the President on September 1, 1966, DHEW is required to have representation on the Water Resources Council and its various framework study commissions and other planning groups. Federal agencies planning and/or constructing water resource projects expect review and comment by DHEW on the health aspects of such developments. An increase of $300,000 and 20 positions will permit programming to meet immediate priority responsibilities under the Water Resources Planning Act. The increase will permit strengthening the Regional technical staff for project reviews and other program functions to insure adequate consideration of the public health aspects of water resources planning. Increased funding will permit the development of public health guidelines for the use of water pollution control and water resources development agencies, development of public health inputs in the form of comprehensive health aspects appendices for inclusion in the national planning effort being made in framework and other studies, and development of technical assistance capabilities utilizing research and surveillance data on water pollution and diseases.

Under the provisions of the Interstate Quarantine Regulations, the Public Health Service is responsible for inspecting and certifying water supplies used by interstate and foreign public conveyances in the United States. Responsibility for certification of interstate water supplies involves regular sanitary engineering inspections and evaluation of approximately 780 public water supply systems serving some 92,000,000 local populace and 2,000,000 interstate travelers daily. Surveys are made by Public Health Service personnel of the source, treatment processes, storage, distribution system, and supporting laboratory services of State health departments and local water suppliers. Certification and regulatory activities will be continued at the same level in 1969.

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
(2) Shellfish	152	$1,747,000	152	$1,730,000	---	-$17,000

Technical audit of State shellfish control programs by the Public Health Service is the keystone of the National Cooperative Federal-State Industry shellfish program, a program designed to insure that shellfish shipped in interstate commerce are a safe food item. In making these audits the PHS inspects 860 of the 1,300 shippers or packers; evaluates complex sanitary engineering and oceanographic surveys of 447 growing areas covering 8.2 million acres in 21 States; evaluates marine patrol of 445 polluted areas covering 2.0 million acres of the Nation's estuarine waters; and evaluates laboratory procedures used in these States in support of State control programs. Surveillance and monitoring activities provide for sanitary control of shellfish resources on the Federally-controlled continental shelf (35% of the total U.S. production). Certification and regulatory activities will be continued at the same level as in 1968.

In 1969, the shellfish sanitation research program will continue providing scientific data required for maintenance of effective controls to prevent transmission of disease agents through marine foods, notably shellfish. Emphasis will parallel problems associated with natural and man-made contaminants, both chemical and microbiological, of estuaries. Attention will continue to be given to controlled laboratory studies on the uptake, retention, and elimination of potentially toxic agents in order to establish or validate safe limits for estuarial water and shellfish. Laboratory, pilot plant, and field studies will be directed toward survival of human disease-causing viruses in estuaries and their uptake, retention, and depuration by shellfish; development of accurate laboratory methods for assay of industrial wastes, naturally occurring marine toxins, pesticides, viruses, bacteria, and other similar disease-causing microorganisms in shellfish; ecology, biogenesis and detoxification of marine toxins; refinement of methods for the depuration and/or detoxification of shellfish; and evaluation of new or modified production, harvesting, processing, and distribution practices on the final sanitary quality of shellfish.

The net budget increase for the water supply and shellfish program of $1,030,000 results from a program increase of $1,055,000 offset by a built-in decrease of $85,000 due to the change in financing the management fund and an increase of $60,000 for other built-in items of increase and decrease. These items include the additional day of pay in 1969, the annualization of positions new in 1968 and of military and civilian pay raises, and nonrecurring diseases.

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
e. Arctic health	80	$1,460,000	80	$1,445,000	---	-$15,000

The Arctic Health Research Laboratory conducts scientific investigations of problems affecting human health in arctic and cold weather climates. Field and laboratory research is gradually providing scientific data needed to delineate the health hazards of living in such climates and to control or provide protection against these hazards. Such an ecologic approach carries out, in one area, the urban-industrial environmental concepts embodied in the National Center for Urban and Industrial Health.

In 1968 the Laboratory started work in its new research facility at College, Alaska. An increase of $156,000 in 1968 permitted expansion of investigations in certain areas. These include disease transmission from animals to man, mechanisms of physiological adaptation to cold, metabolic diseases and neurological disorders associated with extremely cold climates, and environmental problems such as solid wastes and water supply affecting healthful living in such climates.

This work will continue in 1969. Other studies conducted by the laboratory relate to nutritional disease, the health hazards of insects in a cold climate, epidemiological studies of problems peculiar to arctic conditions, such as otitis media and its relation to hearing loss, and the ecology of respiratory viruses.

The net decrease of $15,000 results from a built-in decrease of $23,000, due to the change in financing of the management fund and an increase of $8,000 for other built-in items of increase and decrease. These items include the additional day of pay in 1969, the annualization of positions new in 1968 and of military and civilian pay raises, and nonrecurring diseases.

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
f. Special health protection	196	$2,582,000	196	$2,558,000	---	-$24,000

In the area of housing hygiene, emphasis will be placed on providing assistance to ten of the sixty-three model cities for solving unhealthful housing hygiene problems. Only a small portion of our population is protected by adequate housing codes. Health Educator Aides will be selected from ghetto areas and will be trained in four of the fourteen Neighborhood Services Programs to work within their neighborhood. This represents a direct way of bridging the community gap with the slum neighborhood.

The continuing population growth on the U.S.-Mexico border requires appropriate sanitation measures to correct and prevent public health hazards. Since the beginning of comprehensive environmental health sanitation along the border in 1966, considerable progress has been made through demonstrations and training activities. In 1969 demonstrations will continue to be directed at food protection, housing hygiene, and general urban sanitation. Monthly training sessions will include personnel from both sides of the border.

Research on the causes and means or prevention of food-borne illnesses will include studies on the occurrence and control of food contamination by pathogenic microorganisms, natural poisons, chemical residues, and indicators of insanitary conditions to develop measures for controlling these substances in food. New microbiological, serological, and chemical assay techniques for examining foods will continue to be developed and recommended for use by food protection agencies.

Technical assistance in food protection is given via standards development and direct consultations. Examples are the standards development for fluid milk and the machine vending of food and beverages, from which associated illnesses have been virtually eliminated. Epidemiologic investigations continue to identify or associate the transmission of certain diseases with specific foods and food processes such as salmonellosis with egg products, dry milk and smoked fish; and botulism with smoked fish. During 1969 public health standards and criteria will continue to be refined to reduce and eliminate health hazards associated with certain foods and food processes.

Activities in interstate quarantine protect the health of 2,000,000 people who travel daily in this country on airplanes, buses, trains, and ships. These are carried out by surveillance, inspection, and certification of food sources and service, watering points, and waste disposl activities of the carriers, and by engineering review and approval of construction

plans. The advent of the high speed trains and jet planes will result in an increase in travelers who must be protected from the health hazards of transportation. Surveillance is also exercised over safe packaging and shipment of etiologic agents by manufacturers and laboratories. Technical assistance is provided to the Department of Defense in evaluating and approving the design of their shipment containers for etiologic agents.

The net budget decrease of $24,000 results from a built-in decrease of $74,000 due to the change in financing of the management fund, and an increase of $50,000 for other built-in items of increase and decrease. These items include the additional day of pay in 1969 and the annualization of military and civilian pay raises.

RADIOLOGICAL HEALTH

WITNESSES

JAMES G. TERRILL, JR., DIRECTOR, NATIONAL CENTER FOR RADIOLOGICAL HEALTH
DR. RAYMOND T. MOORE, DEPUTY DIRECTOR
ROBERT R. HARWICK, EXECUTIVE OFFICER
DR. RICHARD A. PRINDLE, DIRECTOR, BUREAU OF DISEASE PREVENTION AND ENVIRONMENTAL CONTROL
PETER J. BERSANO, FINANCIAL MANAGEMENT OFFICER, BUREAU OF DISEASE PREVENTION AND ENVIRONMENTAL CONTROL
DR. WILLIAM H. STEWART, SURGEON GENERAL
CHARLES MILLER, CHIEF FINANCE OFFICER
JAMES B. CARDWELL, DEPUTY ASSISTANT SECRETARY, BUDGET

OBJECT CLASSIFICATION (IN THOUSANDS OF DOLLARS)

	1967 actual	1968 estimate	1969 estimate
Personnel compensation:			
Permanent positions	6,097	6,403	8,467
Positions other than permanent	168	181	251
Other personnel compensation	53	57	74
Total personnel compensation	6,318	6,641	8,792
Personnel benefits	972	1,011	1,220
Travel and transportation of persons	472	472	644
Transportation of things	130	135	160
Rent, communications, and utilities	605	722	815
Printing and reproduction	174	110	137
Other services	420	430	496
Project contracts	2,373	2,042	2,072
Services of other agencies	280	268	280
Payment to:			
"Public Health Service management fund"	381	381	.....
"National Institutes of Health management fund"	25	28	.....
Supplies and materials	661	567	628
Equipment	462	468	504
Grants, subsidies, and contributions	2,329	2,296	2,328
Insurance claims and indemnities	1	1	1
Total obligations	15,603	15,572	18,077

PERSONNEL SUMMARY

Total number of permanent positions	814	799	994
Full-time equivalent of other positions	21	19	27
Average number of all employees	786	781	961
Average GS grade	8.0	8.2	8.3
Average GS salary	$8,507	$9,261	$9,345

PROGRAM AND FINANCING (IN THOUSANDS OF DOLLARS)

	1967 actual	1968 estimate	1969 estimate
Program by activities:			
1. Research grants	2,329	2,296	2,328
2. Direct operations	13,985	13,276	13,187
3. Bureau program direction and managrement services			2,562
Total program costs, funded [1]	16,314	15,572	18,077
Change in selected resources [2]	−711		
Total obligations	15,603	15,572	18,077
Financing:			
Comparative transfers to other accounts	4,928		
Unobligated balance lapsing	364	115	
New obligational authority (appropriation)	20,895	15,687	18,077
Relation of obligatios to expenditures:			
Total obligations	15,603	15,572	18,077
Receipts and other offsets (items 11-17)	4,928		
Obligations affecting expenditures	20,531	15,572	18,077
Obligated balance, start of year	8,606	7,869	6,206
Obligated balance, end of year	−7,869	−6,206	−7,283
Adjustments in expired accounts	−278		
Expenditures	20,990	17,235	17,000
Expenditures are distributed as follows:			
Out of current authorizations	13,935	10,550	10,800
Out of prior authorizations	7,055	6,685	6,200

[1] Includes capital outlay as follows: 1967, $434,000; 1968, $468,000; 1969, $504,000.
[2] Selected resources as of June 30 are as follows: Unpaid undelivered orders, 1966, $3,592,000; 1967, $2,881,000; 1968, $2,881,000; 1969, $2,881,000.

Mr. FLOOD. We now have for the radiological health program a presentation to be made by Mr. James G. Terrill, Jr., Director of the National Center for Radiological Health.

I see you have a rather extensive biographical sketch here which we will place in the record at this point.

(The document follows:)

BIOGRAPHICAL SKETCH

Name: James G. Terrill, Jr.

Position: Director, National Center for Radiological Health.

Birthplace and date: Cincinnati, Ohio, October 25, 1914.

Education: University of California, Berkeley, Calif., master of bioradiology, 1949–51; Massachusetts Institute of Technology, Cambridge, Mass., 1938–41; University of Cincinnati, Cincinnati, Ohio, civil engineering, 1932–37.

Experience: Director, National Center for Radiological Health, Rockville, Md., January 1, 1967 to present; Deputy Chief, Division of Radiological Health, Public Health Service, 1961–66; Assistant Chief, Division of Radiological Health, Public Health Service, 1958–61; Chief, Radiological Health Branch, Division of Engineering Services, Public Health Service, 1951–58; Division of Commissioned Officers, Washington, D.C., 1947–49; Communicable Disease Center, Public Health Service, Atlanta, Ga., 1944–47; Public Health Service District No. 5, San Francisco, Calif., 1943–44; Public Health Service, 1940–43; assistant county engineer, States Relations Division, Clermont County, Ohio, 1937–38; engineering aid, Bureau of Public Roads, Roanoke, Va., 1935–36.

Association memberships: American Board of Health Physics; American Board of Industrial Hygiene; American Conference of Governmental Industrial Hygienists; Environmental Engineering Intersociety Board; American Public Health Association; Board of Directors, Health Physics Society, Conference on Radiological Health; American Society of Civil Engineers; American Public Works Association; Conference of Federal Sanitary Engineers; American Hospital Association; National Committee on Radiation Protection; American Standards Association; Expert Advisory Panel on Radiation, World Health Organization; Savannah River Advisory Board; U.S. Delegate, United Nations

Scientific Committee on the Effects of Atomic Radiation (UNSCEAR); DHEW Member of Federal Radiation Council Working Group.

Special awards, citations, or publications: Public Health Service Meritorious Service Award (Oct. 26, 1962). "Public Health Radiation Surveillance," Health Physics, 11, 917–33, September 1965; "Collaboration Between Public Health and Other Agencies in the United States," in Agricultural and Public Health Aspects of Radioactive Contamination in Normal and Emergency Situations, Rome Food and Agriculture Organization of the United Nations, 379–82, 1964; "The Public Health Service Role in Radiological Health," Industrial Medicine and Surgery, 33, 497, July 1964; "Ingestion of Radioactive Materials," American Journal of Public Health, 50, 989–994, July 1960; "Future Estimates and Economics of Waste Disposal Summary and Evaluation of Environmental Factors," in hearings before the Subcommittee on Radiation of the Joint Committee on Atomic Energy, 86th Congress, first session on Industrial Radioactive Waste Disposal, 3, 2395–2410, 1959; "Public Health Implications of Short Term Hazards," in the Shorter Term Biological Hazards of a Fallout Field: Gordon M. Dunning, U.S. Atomic Energy Commission, and John A. Hilcken, U.S. Department of Defense, eds., Washington, D.C., GPO, 219–221, 1958; "Radioactive Waste Discharges From Nuclear Reactors," Sewage and Industrial Wastes, 30, 270–282, March 1958; "Some Public Health Aspects of Radioactive Wastes," Bulletin of the Atomic Scientists, 14, 44–45, January 1958; "Power Reactor Accidents—Role of the Public Health Service," AMA Archives of Industrial Health, 13, 446–447, May 1956.

Mr. FLOOD. I see you also have a statement. How do you wish to proceed.

Mr. TERRILL. If it is satisfactory to you, I will read my statement, Mr. Chairman. Feel free to interrupt me at any time.

GENERAL STATEMENT

Mr. Chairman and members of the committee, all of the advantages of this electronics and nuclear age are not without risk. Many of the health hazards resulting from exposure to ionizing radiation have long existed while others are directly attributable to the increased use of nuclear energy and increased applications of X-rays and radioisotopes in medicine and industry. It is now recognized that certain electronic products coming into common use by large segments of the public represent radiation sources of potential health significance. Much has to be learned about the effects of exposure of man to long-term low-level radiation of all types. Adequate surveillance of radiation sources to detect possible contamination or exposure is critically essential. Thus, it becomes apparent that programs, geared to protection of the public from radiation hazards, be continued and increased where necessary.

Many of the efforts of the National Center for Radiological Health are directed toward the objective of maintaining the genetically significant exposure of the Nation's population from all sources of ionizing radiation at a level equal to or less than the natural radiation background level. It is the intent to maintain this goal without retarding necessary medical and industrial developments. Increased usage of radiation producing devices in our homes, institutions, and industries, makes it important that programs be initiated and maintained to control unproductive exposure from these sources so that the risk does not become greater than the benefit.

NUCLEAR POWER

Increasing attention is being given to the health problems introduced by usage of nuclear power. Construction plans and starts indicate that new electrical generating capacity using nuclear fuel has increased to a level approximately equal to that generating capacity being added using fossil fuel. Since the demand for electricity in the United States is nearly doubling every 10 years, the magnitude of the potential health problem associated with the use of nuclear reactors is clearly indicated. At this time, from the viewpoint of contamination from these facilities which may affect people, we must give major attention to radioactive iodine in milk as well as to tritium and krypton in a variety of environmental media, such as air, food, and water.

CONSUMER ELECTRONIC PRODUCTS

Discovery that certain color television sets have been emitting hazardous X-radiation has underlined a public health problem requiring establishment of programs covering an additional aspect of radiological health control. Recommendations have been made to industry with respect to specific exposures, and actions have been taken by the industry and the Center to reduce these exposures. The recent Washington area survey of color television sets owned by Public Health Service employees reveals, however, a broad spectrum of possible exposure sources within color television sets. The Center is now working jointly with the industry to develop corrective procedures. Our survey, which was conducted in an extremely short time-span, was facilitated by use of a unique measuring device developed by the National Center for Radiological Health.

EMISSIONS FROM TV SETS

Mr. FLOOD. Would not the simplest thing be to conduct an educational campaign and/or have the television industry and stations do it themselves, and say "Do not sit so close to the TV sets."

Mr. TERRILL. This is one of the things the PHS has done because the National Council on Radiation Protection recommendations are based upon a 0.5 mR/hr radiation emission and the expectation that viewers will stay 6 to 10 feet from the face of the picture tube. Both factors must be met to achieve the NCRP objective of maintaining radiation exposure from a TV set at 5 percent of natural background.

If the sets are manufactured to meet the 0.5 mR/hr recommendations, and the people also must stay from 6 to 10 feet away, to meet the objective of the NCRP. The problem is, one, that children do not necessarily stay at that distance, and two, the industry probably does not like to have a constant reminder that people should stay back.

Mr. FLOOD. Isn't that too bad.

Mr. TERRILL. But the main thing is that I and my younger colleagues do not think we can keep our kids back. And when my kids were small I am not sure I kept them back from our set.

But one of the things that was necessary to evaluate this was proper instrumentation, and this is an instrument we developed in the Center. This instrument enables you to measure X-radiation from the set either

in the home or on the production line. And I am sure with proper measurement techniques——

Mr. FLOOD. Do you not think the onus would be upon the vendor or manufacturer if there is any question about the set? Why should that be the responsibility of the taxpayer?

Mr. TERRILL. Under the legislation that has been proposed by the Interstate and Foreign Commerce Committee and the administration, this would become the principal responsibility of the manufacturer.

Mr. FLOOD. I would hope so.

Mr. TERRILL. But at the present time we have to rely on investigations and presentations of data and the development of instruments to measure the X-ray emissions in order to get the manufacturers to comply.

I might add though, at least in one case, or I should say two cases, we have data indicative of active compliance. One of them, a very large manufacturer, corrected about 99 percent of its sets. Another small manufacturer has instituted a system to measure the radiation from each tube placed in its sets in the production line. So hopefully, by the time the new models of television sets come out, many of these things will be corrected.

I think it should be noted, however, that there are interchanges of parts between companies, between distributors and parts coming in from foreign countries that make it reasonably difficult to keep track of the original source of radiation, unless you have some requirement to make the manufacturers test these things and also to report early.

Mr. FLOOD. We are on top of this one, fortunately, early in the game. We should land on this with both feet. This can be practically eliminated easily and rapidly.

Here is one thing we have by the short hairs at the very beginning. Let's not have a study for 20 years to figure out what to do with this one.

Mr. TERRILL. After we learned about this last spring, the distribution of the offending color TV sets was frozen the same day. They did not have to, but as reported in testimony to the Interstate and Foreign Commerce Subcommittee on Commerce and Finance, July 31, 1967, they did. So we are fortunate in this case.

It is known that other electronic products, particularly those having high-voltage circuits, emit radiations recognized as having potentially detrimental health effects. These include microwaves from radars and microwave ovens, high-intensity light emissions from lasers and masers, and ultrasonic vibrations from a variety of electronic devices as yet not fully determined.

Mr. FLOOD. What is a maser?

Mr. TERRILL. The maser is a beam of electromagnetic radiation that has been directed in a uniform way so it does not spread out the way light ordinarily does. It is in the frequency range in the microwave range.

Mr. FLOOD. Laser is light, and maser is radiation?

Mr. TERRILL. Both of them are radiation. Lasers and masers operate on the same principle, they function at different sectors of the electromagnetic frequency spectrum. Masers operate in the microwave region and the laser, on the other hand, operates in the light region of the spectrum.

It is now apparent that these several types of sources must be evaluated and steps be taken on a priority basis as resources become available to seek control methods for those radiations that can affect the public health.

AUTOMATIC COLLIMATOR

An increase of five positions and $210,000 is requested to speed the adaptation of our automatic collimator to additional medical X-ray machines now in general use. The collimator, which was developed by Center personnel, automatically reduces the X-ray beam to film size, thus eliminating much of the unnecessary exposure currently experienced in medical diagnosis. This type of collimator is now being adapted by industry for commercial production. Two hospitals are currently testing under clinical conditions the Center-built collimator. The effectiveness of these collimators in practice and the readiness of industry to manufacture them for general use will be investigated at a conference now being arranged.

It is imperative that the scope and magnitude of our effort be modified as demanded by changing technology so that appropriate emphasis will be placed on those sources having the major potential health impact. Programs have been developed to find solutions to the problems associated with medical and dental use of X-rays and nuclear medicine. Through improved methodology, surveillance activities now provide at a reduced cost more specific information that can be directly related to the exposure of people and provide a basis for decisions with regard to protective actions which have been developed by the Federal Radiation Council and approved by the President. On the basis of our past experience, we can learn how to measure exposures for complex sources and contaminations and develop specific procedures for their reduction.

BUREAU PROGRAM DIRECTION AND MANAGEMENT SERVICES

This year this appropriation includes a new activity—Bureau program direction and management services. This finances expenses of the Office of the Director, Bureau of Disease Prevention and Environmental Control, which in 1968 were provided through the Public Health Service Management Fund. An increase of six positions and $221,000 over the comparable amount available for 1968 is requested. Dr. Prindle is here to answer any questions you may have on this activity.

I shall be pleased to answer any questions you may have on radiological health activities.

Mr. HULL. Thank you, sir.

FUNDING OF BUREAU CHIEF'S OFFICE

In our report last year, Mr. Terrill, we suggested that the Bureau Chief's Office be funded directly instead of through a management fund. You have complied with this; but why have you lumped this in with radiological health activities to which it has no more relation than to the previous four appropriations we have discussed? Why not set it out separately?

Dr. PRINDLE. May I respond?

Mr. HULL. Yes.

Dr. PRINDLE. We felt constrained about adding another line item in the budget. As you say, this could have been placed in any of the appropriations of these five centers. The Radiological Center, coming last, seemed like an appropriate place to show it. The NCRH budget structure is a fairly simple one and therefore it did not appear to present as much of a problem as some others.

Mr. CARDWELL. Could I make a further comment on the question?

Mr. HULL. Yes, sir.

Mr. CARDWELL. We discussed not just this item but other similar items in the Public Health Service with the Bureau of the Budget at the time the budget was put together. Our purpose was to comply as quickly as we could with the directive of the committee.

This is an interim step that we are proposing at this time. We want to make further changes and would have made further changes but felt that in the light of the then pending reorganization of the Public Health Service it would be better if we held over for one more round in the next budget cycle and propose to the Congress management funding arrangements for the whole Public Health Service and/or its successor agencies.

Mr. HULL. Any other comments?

Mr. TERRILL. No, sir.

PERSONNEL FOR OFFICE OF BUREAU CHIEF

Mr. HULL. While we are on this subject, tell us why you need six additional positions for the Bureau Chief's Office.

Dr. PRINDLE. As I had indicated, Mr. Chairman, in my opening statement, the purpose of our Bureau is to try to pull together these rather diverse and, at least, superficially different activities. We feel the need to provide a central focus on disease prevention and protection of the environment and to formulate a single strategy for the problems.

For this reason we wish to develop a group of people who can provide for this purpose technical information to develop truly bureauwide systems that provide us with an overview on such problems as toxicology, radiation, and so forth. Part of the emphasis these additional people will provide is for the development of a bureauwide environmental hazard intelligence system so that we can integrate and evaluate health information. For example, we now develop knowledge on lead and lead poisoning as it relates to water supply. We also get information on lead and lead poisoning as it relates to air; we are also concerned with lead and lead poisoning in food. These are in different areas of the Bureau because of the specific concerns and competence, but we still need a mechanism in my office to pull these together and compare notes. That is the intent in the development of the Bureau program, and expansion is necessary.

ADDITIONAL POSITIONS FOR RADIOLOGICAL HEALTH

Mr. HULL. In radiological health activities you are asking for a rather small increase of five positions. Just because it amounts to less than 5-percent increase in personnel, the suggestion is likely to be made that this could easily be taken care of by small shifts from other

parts of your program. Why don't you think it can reasonably be done?

Mr. TERRILL. Sir, we do not think this reasonably can be done because we have already reprogramed much of the money we have had over the years. As we solved one problem we had to take on another. For example, the electronic products activity this year already resulted in a reprograming of several hundred thousand dollars, and you reach a point when you can no longer reprogram.

RESEARCH GRANTS

Mr. HULL. You have a research grant program that has been running at a level of over $2 million for the last few years. What worthwhile results have been achieved under that part of your program since you were here last year?

Mr. TERRILL. I will give you two examples. One is in connection with the effort we have been making to reduce the amount of strontium-90 deposited in the body, particularly in bones, from milk. Under the research grants, aluminum phosphate gel has been found to significantly reduce the absorption rate of strontium-90 from the digestive tract. This could be given through ordinary physician-patient relationships to reduce strontium-90 deposition in the body.

Another example is the activity sponsored by the Society of Nuclear Medicine through which we can evaluate the dosage being given by nuclear medicine to not only the organ of interest but to all other organs of significance, through a combination of calculations and measurements. These will be applied not only to the elemental form of the radionuclide but also to radionuclides in the compounds in which they are administered and evolved in the body.

STRONTIUM-90 TOLERANCES

Mr. LAIRD. Mr. Chairman, could I ask a question in regard to this?

Mr. HULL. Yes.

Mr. LAIRD. I understand that you have arrived at some new tolerances for strontium-90 in milk that have not yet been announced; is that correct?

Mr. TERRILL. I know of no change in the basic guidance for strontium.

Mr. LAIRD. There is no change?

Mr. TERRILL. No, sir.

Mr. LAIRD. Would you put those tolerances in the record?

Mr. TERRILL. Yes, sir. This has been very formally arrived at through the Federal Radiation Council. It is not the type of thing that you would easily miss. There are discussions from time to time about possibly changing these, but——

Mr. LAIRD. I understood that you were having discussions about that and there was a possibility that there would be a change. I was interested in finding out whether it was a tightening up, loosening, or just what direction you were going. Maybe this is just in the discussion stage and I may have heard a rumor, but I heard there was a change being contemplated.

Mr. TERRILL. Not either in the Public Health Service or in the Federal Radiation Council, which are the two organizations I am familiar with. We know of no reason why it should necessarily be changed.

Mr. LAIRD. Dr. Stewart, do you have any knowledge of any change along that line?

Dr. STEWART. No, sir; I do not know of any effort to change that.

(The information follows:)

STRONTIUM-90 TOLERANCES

Evaluation of the significance of estimated intake levels of iodine-131, strontium-89, and strontium-90 can be obtained by comparison with the guidance provided in the reports of the Federal Radiation Council.

RADIATION PROTECTION GUIDES

The radiation protection guides provide a basis for the control and regulation of normal peacetime nuclear industry operations where control of release of radioactivity to the environment is possible. A radiation protection guide has been defined by the Council as a radiation dose which should not be exceeded without careful consideration for the reason for doing so. The following daily intakes, averaged over a year, would result in an organ dose of radiation that is considered an acceptable health risk for large population groups for a lifetime, compatible with the orderly development of the nuclear industry of the United States. In fact, Federal Radiation Council Report No. 2 suggests that the strontium-90 and strontium-89 values in the table below could be three times these levels, but the need to set such higher levels is not anticipated.

Iodine-131—100 picocuries* per day, or 12-month total of 36,500 picocuries.
Strontium-90—200 picocuries per day, or 12-month total of 73,000 picocuries.
Strontium-89—2,000 picocuries per day, or 12 month total of 730,000 picocuries.

The Federal Radiation Council has emphasized that these numerical values do not establish a line which is safe on one side and unsafe on the other.

PROTECTIVE ACTION GUIDES

The protective action guides apply to situations involving an acute localized contaminating event in which prompt action may be necessary to avoid the exposure that would otherwise result from a transient environmental contamination condition.

The protective action guide has been defined by the Federal Radiation Council as the projected absorbed dose to individuals in the general population that warrants protective action following a contaminating event. The projected dose is the dose that would be received by individuals in the population group from the contaminating event if no protective action were taken.

In the event of acute localized radionuclide contamination, under conditions considered most likely to occur, the protective action guides would be applicable if, at the time of maximum contamination, any of the following concentrations in milk would be reached:

Iodine-131—70,000 picocuries per liter.
Strontium-90—51,000 picocuries per liter.
Stronium-89—1,100,000 picocuries per liter.

The Federal Radiation Council stated that if no protective action were taken, such concentrations of radionuclides in milk at times of maximum contamination would lead to projected intakes resulting in a total organ dose to the critical segment of the population (infants and young children) equivalent to that set forth in the protective action guides.

The Council did not recommend a protective action guide against widespread environmental contamination from stratospheric fallout. In Report No. 7 (May 1965) the Council stated that, on the basis of current information on stratospheric fallout from past atmospheric testing of nuclear weapons, "the risk from radioactivity in food over the next several years would be too small to justify protective actions to limit the intake of radionuclides either by diet modifica-

*A picocurie is one-millionth of millionth of a curie. A curie is approximately equal to the radioactivity of 1 gram of radium.

tions or by altering the normal distribution and use of food, particularly milk and dairy products." The report also stated that annual doses from fallout equal to or greater than the numerical values of the radiation protection guides can be used as an indication of when there is need for a careful evaluation of fallout exposure.

STANDARDS FOR NONFAT MILK POWDER

Mr. LAIRD. Dr. Stewart, while we are on this subject of milk, I do not mean to show my provincialism but I am interested in milk and dairy products because I happen to represent the district that produces more milk and cheese than any other congressional district.

Recently the Secretary finally signed the standards for nonfat milk powder.

Dr. STEWART. That is correct.

Mr. LAIRD. Why did it take so long to get those off the Secretary's desk?

Mr. Chairman, I know this should have been asked when the last witness was before the committee, but I was asked to speak to the White House fellows, and was doing that instead of being here. I guess they wanted to give the minority point of view to the White House fellows, and I am hardly in a position to argue against that. So I had to leave the committee room for a few moments and I did not have an opportunity to get into this subject with Dr. Stewart at the time.

As long as milk has been brought up here, I thought perhaps I could ask these two or three questions now if I have your indulgence.

Mr. HULL. Go right ahead.

Dr. STEWART. There was an area of dispute between the Department of Health, Education, and Welfare and the Department of Agriculture. As you are aware, Mr. Laird, the milk that was put into the process to produce the nonfat dried milk was commingled and was not graded. It was the feeling of the Public Health Service that we should only put grade A milk into it, that the processing itself was not enough to assure a safe product. What we were really interested in, in the Public Health Service, was that there be farm inspection because we believed that farm inspections are necessary to assure the safety of the milk that is put into the pool before the process of creating nonfat dried milk is carried out.

We now have an agreement which is a compromise, in a sense. The inclusion of grade B in the agreement satisfied the Department of Agriculture because of the commingling process. They were unable to separate the grades A and B. Requiring farm inspection for both satisfied our requirements.

We felt we had epidemiological evidence that it was necessary to have the farm inspection to assure the safety of the milk that goes into the process. The process itself, while it is almost always certain, was not total protection.

The agreement is that it will be grades A and B milk that will go into the process. We have a signed agreement between the two Secretaries.

Mr. LAIRD. You see, what I wanted was the U.S. Public Health Service certification. Your city health people where milk is used in large quantities and where our big market is accept and want Public Health Service certification. State boards of health are used to dealing with the Public Health Service and would much rather deal with you than with the Department of Agriculture.

I just wanted to make sure we were not breaking down the interstate agreements that have been worked out for Public Health Service standards. This means a lot to a surplus-producing milk area. I mean surplus. We have to move 87 percent of our production outside of our State. We have acceptance for Public Health Service certification not only for fluid milk but also for dried nonfat powder moving into milk processing in many places outside the State.

Dr. STEWART. This will fit right into the certification program.

Mr. LAIRD. What if you take this power under this new agreement; how will it grade out as far as fluid milk is concerned if it is reconstituted?

Dr. STEWART. That is a question that I cannot answer right now.

Mr. LAIRD. Before it was all going to be grade A milk. When you take that powder and reconstitute it, it will be grade A milk out of the bottle. What is this new agreement going to do to that?

Dr. STEWART. That part I have to look into. I do not know the other end of the line. The dispute was around the milk that went into the process. There was not any problem between Agriculture and HEW as far as the end product was concerned.

Mr. LAIRD. I understand what Agriculture wanted to do.

Dr. STEWART. What we insisted on was a farm inspection program to assure that the milk that went into the process was as good as possible.

INSPECTION PROGRAMS

Mr. LAIRD. You have published over a long period of time the plants that qualify. You have inspected these plants through State inspectors and monitored this operation through your own inspectors. We used to have this as a line item in your budget.

Dr. STEWART. That is correct.

Mr. LAIRD. We do not have a line item any more. I am concerned about that.

How much money is in this budget for that program?

Mr. BERSANO. $390,000.

Mr. LAIRD. How much was that 5 years ago?

Mr. BERSANO. Approximately the same amount.

Mr. LAIRD. I think that you will find it was more than that 5 years ago. We had the milk program in pretty good shape, not a disease outbreak anyplace in the United States for years. Milk is a clean, wholesome product and it is because of the U.S. Public Health Service and the cooperation we have gotten in the interstate program. I think that you are letting this interstate program go down the drain.

Dr. STEWART. Mr. Laird, I think that you have put your finger on the problem that we have had. As you know, the inspection programs are State and what we have done is monitor these programs to see that they meet the standards.

Mr. LAIRD. The important thing is that you got around and checked on the States every once in a while. These city health officers, whether in Los Angeles or Chicago or Houston, had gotten to accept this because you were checking. You have not checked on our inspectors in Wisconsin for quite a period of time.

Dr. STEWART. This is our problem. We used to do it every other year. We hit them all every other year. Now we are hitting them about at the rate of once every 4 or 5 years.

Mr. LAIRD. Ever since we knocked out this line item in this budget, I think that program has slipped.

Dr. STEWART. We have had to cut back because costs have gone up, but the budget has stayed the same, or is going down. I recall a decrease back a few years, myself. Just by necessity we had to cut back. We did not have enough people.

Dr. PRINDLE. May I point out the budget has been $395,000 since 1965, and flat ever since.

Mr. LAIRD. 1965?

Dr. PRINDLE. Yes, sir.

Mr. LAIRD. What was it 5 years ago?

Dr. PRINDLE. In 1964 it was $386,000; 1963, $366,000; 1962, $262,000. On the other hand, remember in that period we had something like 890 participating shippers. Now we have 1,581 participating shippers.

Mr. LAIRD. Your program requirements have gone up. The number of shippers has gone from what?

Dr. PRINDLE. 890.

Mr. LAIRD. To 1,581?

Dr. PRINDLE. Yes.

Mr. LAIRD. Almost double the number of shippers. That is why you are not getting around?

Dr. PRINDLE. Right.

Mr. LAIRD. You are cutting back on the program level and the number of shippers is increasing?

Dr. PRINDLE. That is right.

Mr. LAIRD. What did you ask the Bureau of the Budget for in this area?

Dr. PRINDLE. $579,000 in 1968; $395,000 in 1969.

Mr. LAIRD. They allowed?

Dr. PRINDLE. $395,000 in both years.

Mr. LAIRD. Thank you.

ATOMIC BOMB CASUALTY COMMISSION

Mr. FLOOD. This is the 10th or 11th year of the Hiroshima and Nagasaki study. What have been your most important findings so far?

Mr. TERRILL. Now, the Public Health Service, of course, merely supplied medical officers for the study. Basically, it is an AEC-supported study and has not been under the direction of the Public Health Service. Early in 1968, by agreement with AEC and the National Academy of Science we became a part of the planning organization of the study. I would like to ask Dr. Moore to comment on that study to the extent that he would consider it appropriate, since we merely supply personnel.

Mr. FLOOD. All right. Perhaps the Surgeon General would also like to comment.

Dr. STEWART. There have been some very valuable findings, Mr. Chairman. The relationship of ground zero, the development of disease, the leukemia rates, the psychological aspects that occurred. I think that it has paid off quite well as far as the study goes up to this time. I am just about at the end of it, Mr. Chairman.

Mr. FLOOD. Doctor?

Dr. MOORE. I could only amplify some of the things Dr. Stewart said. We did find about 5 years after the event an increase in the rate

of leukemia among those survivors. That was probably the first real solid fact that we found. We found there may be other subtle differences such as in aging.

Mr. FLOOD. Any particular kind of leukemia?

Dr. MOORE. Both lymphacytic and granulocytic were found. The rate of leukemia in the Japanese people before 1940 was not really known as they had not studied or did not know the rates. However, we are confident there was an increase in the leukemia rates in the survivors in Hiroshima and Nagasaki.

Mr. FLOOD. Apparently it was not very dramatic.

Dr. MOORE. Statistical. Several cases.

Mr. FLOOD. Apparently it was not very dramatic.

Dr. MOORE. No. Nevertheless, we are convinced it was there.

Other things that we have found over the years are an increase in the number of children born with microcephaly who were exposed to X-radiation in utero. We are looking for differences in aging as we are looking for this and we are seeking to find the effect upon the life-span. We are very anxious to know if there will be other forms of cancers develop, such as perhaps of the bone, perhaps of the thyroid, or other organs. We cannot tell you now, to my knowledge, that we have found these other forms of cancer although we are looking for them.

Mr. FLOOD. I think the record should show whatever other substantial findings you have to report in this area.

Mr. TERRILL. Yes, sir.

(The information follows:)

ATOMIC BOMB CASUALTY COMMISSION

The Atomic Bomb Casualty Commission in Hiroshima and Nagasaki, Japan, is operated under contract by the Atomic Energy Commission for the National Academy of Sciences. The National Center for Radiological Health has supplied to the Atomic Bomb Casualty Commission for a number of years medical officers working in the particular area of epidemiology of the effects of the atomic bomb upon the populations in both Hiroshima and Nagasaki. The National Center for Radiological Health consults with the Atomic Bomb Casualty Commission in the establishment of studies and the analysis of these studies which are of pertinent importance to the National Center for Radiological Health because of its overall interest in the effects of radiation upon human populations.

The studies at the Atomic Bomb Casualty Commission which have been particularly revealing concerning the effects of radiation from the atomic bombs include studies of leukemia and related disorders of the blood system. There has been demonstrated an increase in the rate of leukemia in the surviving populations of Hiroshima and Nagasaki, but so far, there is no demonstration of an increased rate in the offspring of survivors.

An extensive study is underway concerning the late dermal effects from the atom bombs in terms of aging, neoplasia, autonomic dysfunction, and scar formation. A study of effects upon the thyroid gland has so far demonstrated what appears to be an increase in thyroid pathology in the surviving population in both cities. There also appears to be some increase in the development of thyroid carcinomas over and above the number of thyroid carcinomas expected in a nonirradiated population.

Lung cancer is also under study and there appears to be an increased rate of lung cancer in those survivors who received over 90 rads total body dose from the atomic bomb. This also seems to be true at the same approximate dose level concerning breast cancer in the exposed population.

The continuing studies of the entire identified surviving population for the effects of radiation as it related to premature aging, metabolism of the individual, and various disease states, is serving an extremely important function in that it is showing potential differences in all of these parameters from the standpoint of the same diseases in a Japanese population not exposed to the atom bomb.

The studies of chromosomes in the surviving population and their offspring have so far revealed nothing of great significance; however, there are several interesting cytogenetic changes, the significance of which must be evaluated in order to determine whether these changes have a genetic significance in the subsequent generations.

The many studies going on at the Atomic Bomb Casualty Commission in Japan have resulted in several hundred technical reports published under the auspices of the National Academy of Sciences as well as several hundred reports which have appeared in the medical literature throughout the world. The officers of the Public Health Service assigned by the National Center for Radiological Health have contributed considerably to all of these studies.

FALLOUT LEVELS IN THE UNITED STATES

Mr. FLOOD. Have there been any significant changes in the fallout levels in the United States in the last year?

Mr. TERRILL. No, sir.

COLOR TELEVISION SETS

Mr. FLOOD. What responsibilities does your shop have in handling the problem of radiation from defective TV sets?

Mr. TERRILL. Our responsibilities at the present time are to investigate and ask the companies to volunteer to make corrections.

Mr. FLOOD. What do you mean "investigation"? How do you investigate?

Mr. TERRILL. We can go out and look at TV sets in the people's homes.

Mr. FLOOD. Like you did with these Federal employees in the District recently?

Mr. TERRILL. Yes, sir. And in Pinellas County we looked specifically for GE television sets to see if their correction program was effective. We can point out deficiencies to the industry, and thus far they have either done something about it or reported they have done something. We have not had the funds or resources to make what you would call a nationwide epidemiological study of radiation exposure from TV sets. There are too many of them.

Mr. FLOOD. What do you want to know?

Mr. TERRILL. I think the thing we want to do is, first, have the authority to learn what is going on in the plants before the defects occur to assure that components and sets are designed to control X-radiation emission and to see that they have good quality control so that the sets leave the manufacturers in a satisfactory way. Then we want to be relatively certain we know where all the components come from, who puts them in the sets, and how servicemen adjust the sets, to be relatively certain that voltage control is effective in the future to keep the voltage at the proper level, regardless of normal servicing.

Mr. FLOOD. Are you doing that now?

Mr. TERRILL. We are doing some of these things now. We have no basis at the present time for asking them to submit designs.

Mr. FLOOD. What do you mean by "basis"—law?

Mr. TERRILL. Law.

Mr. FLOOD. Do you need law?

Mr. TERRILL. Up until the present time the data we get are limited usually to our ability to ask industry very specific questions that happen to focus on the problem.

Mr. FLOOD. You know what you want to do; is that it?

Mr. TERRILL. Yes, sir.

Mr. FLOOD. Do you need law to do what you want to do?
Mr. TERRILL. Yes.
Mr. FLOOD. Did you ask for it?
Mr. TERRILL. We asked for it.
Mr. FLOOD. What happened to it?
Mr. TERRILL. It has been reported out by the full Committee of the House on Interstate and Foreign Commerce.

URANIUM MINERS

Mr. FLOOD. Why is the problem of the uranium mines a responsibility of the urban and industrial health people who just left this room, rather than your shop? Why is it theirs and not yours?
Mr. TERRILL. Historically, they started on an epidemiological study some 20 years ago.
Mr. FLOOD. So what?
Mr. TERRILL. I am describing it to you. I am trying to answer your question. As this thing developed, it has always been under their leadership and we have supported them from time to time by assigning professionals or by developing instrumentation that they might use. It has continued that way up until the present time.
Mr. FLOOD. Mr. Shriver?
Mr. SHRIVER. I have no questions.
Mr. FLOOD. Mr. Smith?
Mr. SMITH. No questions.
Mr. HULL. I am rather curious what the gadget is before us. Has anyone said what it is?
Mr. FLOOD. There is before the witness a gadget about which Mr. Hull is examining. Will you describe that for Mr. Hull? What is it? It looks like a Rube Goldberg thing.
Mr. TERRILL. This is a Geiger-Mueller type of radiation detector. It was designed to cover a relatively large area in a short period of time so that you could survey television sets rapidly. This instrument enabled us to make the surveys we have made in the last few months on color television sets. Prior to that time the instruments responses were so slow that you couldn't possibly survey color television sets effectively even in the factories or in the homes.
Mr. FLOOD. That is all there is to it?
Mr. TERRILL. That is all there is to it. If you put a small amount of radiation close to the surface, or bring it close to color television sets, you get a certain amount of noise. I had a little noisemaker here a few minutes ago. Here it is. The radiation produced here is about the amount that you would find in a small number of TV sets.
Mr. FLOOD. Could the average homeowner afford or operate a thing like that in case he was worried?
Mr. TERRILL. The homeowner should not have it, because it would probably not stay calibrated and it would be relatively expensive for him. I think it is quite possible that we can get most of the manufacturers and/or major TV servicing people to purchase these kinds of instruments now that they will be available, hopefully, through private industry.
Mr. HULL. That is all.
Mr. FLOOD. Mr. Casey?
Mr. CASEY. No questions.
Mr. FLOOD. Thank you, gentlemen.

JUSTIFICATION MATERIAL

PUBLIC HEALTH SERVICE

Radiological Health

Amounts Available for Obligation

	1968	1969
Appropriation	$15,687,000	$18,077,000

Obligations by Activity

Page Ref.			1968 Estimate Pos.	1968 Estimate Amount	1969 Estimate Pos.	1969 Estimate Amount	Increase or Decrease Pos.	Increase or Decrease Amount
	1.	Grants:						
158		a. Research....	---	$2,296,000	---	$2,328,000	---	+$32,000
	2.	Direct operations.....	799	13,276,000	804	13,187,000	+5	-89,000
159		a. Effects of radiation on man.....	133	3,377,000	133	3,392,000	---	+15,000
162		b. Development of methodology for exposure reduction and control.....	108	1,972,000	113	2,182,000	+5	+210,000
165		c. Training.....	117	1,572,000	117	1,586,000	---	+14,000
165		d. Measurement and surveillance.....	279	4,060,000	279	4,092,000	---	+32,000
167		e. Technical assistance.	162	2,295,000	162	1,935,000	---	-360,000
168	3.	Bureau program direction and management services	1/ ---	1/ ---	190	2,562,000	+190	+2,562,000
		Total obligations.....	799	15,572,000	994	18,077,000	+195	+2,505,000
		Unobligated balance, reserve.....	---	115,000	---	---	---	-115,000
		Total, obligations and reserve.....	799	15,687,000	994	18,077,000	+195	+2,390,000

1/ In 1968 Bureau program direction and management services was funded in the Public Health Service Management Fund at a level of 184 positions and $2,341,000.

Obligations by Object

	1968 Estimate	1969 Estimate	Increase or Decrease
Total number of permanent positions	799	994	+195
Full-time equivalant of all other positions	19	27	+8
Average number of all employees	781	961	+180
Personnel compensation:			
Permanent positions	$ 6,403,000	$ 8,467,000	$+2,064,000
Positions other than permanent	181,000	251,000	+70,000
Other personnel compensation	57,000	74,000	+17,000
Total personnel compensation	6,641,000	8,792,000	+2,151,000
Personnel benefits	1,011,000	1,220,000	+209,000
Travel and transportation of persons	472,000	644,000	+172,000
Transportation of things	135,000	160,000	+25,000
Rent, communication and utilities	722,000	815,000	+93,000
Printing and reproduction	110,000	137,000	+27,000
Other services	430,000	496,000	+66,000
Project contracts	2,042,000	2,072,000	+30,000
Services of other agencies	268,000	280,000	+12,000
Payments to:			
Public Health Service management fund	381,000	---	-381,000
National Institutes of Health management fund	28,000	---	-28,000
Supplies and materials	567,000	628,000	+61,000
Equipment	468,000	504,000	+36,000
Grants, subsidies, and contributions	2,296,000	2,328,000	+32,000
Insurance claims and indemnities	1,000	1,000	---
Total obligations by object	$15,572,000	$18,077,000	$+2,505,000

Summary of Changes

1968 enacted appropriation	$15,687,000
Unobligated balance, reserve	-115,000
1968 total estimated obligations	15,572,000
1969 estimated obligations	18,077,000
Total change	+2,505,000

Increases	Base Positions	Base Amount	Change from Base Positions	Change from Base Amount
A. Built-in				
1. Annualization of 13 new positions authorized in 1968 for Bureau program direction and management services	---	---	---	$ 97,000
2. Annualization of civilian and military pay raises	---	---	---	114,000
3. One extra day of pay in 1969	---	---	---	25,000
4. Bureau program direction and management services previously funded in the Public Health Service Management Fund	---	---	184	2,341,000
B. Program				
1. Research grants	---	$2,296,000	---	32,000
2. Expansion of development of methodology for exposure reduction and control	108	1,972,000	5	202,000
3. Expansion of Bureau program direction and management services	(184)	(2,341,000)	6	100,000
Total program increases	---	---	11	334,000

Decreases	Base Positions	Base Amount	Change from Base Positions	Change from Base Amount
A. Built-in				
1. Nonrecurring items of equipment.....	---	---	---	-25,000
2. Nonrecurring contribution to the Public Health Service Management Fund..	---	381,000	---	-381,000
Total decreases.....	---	---	---	-406,000
Total net changes requested.....	---	---	+195	+2,505,000

Explanation of Changes

Research grants

An increase of $32,000 is requested to support a total of 98 grants in 1969 as compared to 96 grants in 1968. Emphasis will continue on studies concerned with the effects of radiation on man.

Development of methodology for exposure reduction and control

An increase of $202,000 and five positions is requested for additional developmental work on the automatic collimator for medical X-ray equipment. These funds will provide for the adaption and application of the automatic collimator to additional types of medical X-rays now in use in order to significantly reduce patient exposure.

Bureau program direction and management services

An increase of $100,000 and six positions is requested for additional staff support to manage disease prevention and environmental control programs. Two of the positions are for improving the analytical capability within program planning and evaluation activities. Two new positions are for planning the design of environmental hazards intelligence systems by the Standards and Intelligence staff. Two additional positions will be devoted to further collection and analysis of program data as part of the Bureau management information system.

Contribution to the Public Health Service management fund

The $381,000 decrease for the nonrecurring contribution to the management fund is due to a change in the method of funding. In 1969, it is proposed to fund Office of the Bureau Director costs directly in the activity, "Bureau program direction and management services", in this appropriation rather than through contributions to the Public Health Service management fund.

Authorizing Legislation

Legislative authority for the award of grants for research is contained in Section 301 of the Public Health Service Act.

Introduction

The National Center for Radiological Health has the basic mission of improving the protection of human health against radiation hazards. The discovery of X-rays and radium, the growth of electronic technologies, and developments in the application of nuclear energy have opened opportunities for progress almost without parallel in human history. The Center assists in the realization of these opportunities for progress by fostering the development of safeguards against the dangers of radiation exposure.

Some radiation exposure is essential to the betterment of human health. Diagnostic radiation possibly represents the largest single man-made source of radiation reaching the U. S. population today. Concurrently, the unproductive fraction of this exposure should be minimized. More than 200,000 medical and dental X-ray machines are in use throughout the country and their number can be expected to increase steadily. More than half the population of the Nation is exposed each year either to X-rays or radioactive materials during the diagnosis and treatment of disease. Peaceful applications of nuclear energy, particularly for power generation, are increasing rapidly and will become a major source of potential population exposure to radiation in a few years. There also has been a rise in the number, variety, and sophistication of electronic products with a potential for dangerous radiation emission. Radiation exposure from these devices, many of which are primarily for home use, should be prevented.

As a consequence of this expansion of radiation, the chances that people may be exposed to radiation unnecessarily have substantially increased. Efforts to control unnecessary exposure must grow proportionally just to maintain the present degree of risk.

In 1969, this appropriation will provide support for a new activity--Bureau program direction and management services. This activity finances expenses of the Office of the Director, Bureau of Disease Prevention and Environmental Control, which were funded through the Public Health Service Management Fund in 1968.

1. Grants

a. Research

	1968 Estimate		1969 Estimate		Increase or Decrease	
	No.	Amount	No.	Amount	No.	Amount
(1) Non-competing continuations	56	$1,444,000	68	$1,626,000	+12	+$182,000
(2) New grants	40	820,000	30	670,000	-10	-150,000
(3) Supplementals	(4)	32,000	(4)	32,000	(-)	---
Total	96	2,296,000	98	2,328,000	+2	+32,000

The research grants program provides a means for utilizing the competence of outstanding scientists in the radiological field at leading non-governmental research centers throughout the nation.

Examples of grants concerned with the effects of radiation on man include research on effects of low-level gamma radiation on physiological performance being conducted by Dr. George M. Krise at Texas A&M College, College Station, Texas and research on radiation effects on the central nervous system and behavior by Dr. John Garcia, Massachusetts General Hospital, Boston, Massachusetts. The latest report on this latter research demonstrates that a single exposure of 10 to 50 roentgens to rats is sufficient to enable rats to detect a radiation field with their normal senses. The significance of this finding from a health standpoint is being further investigated.

Examples of studies of X-ray exposures, radionuclide exposures, environmental pathways, and protective action in environmental contamination include studies on radiation dose from diagnostic isotope procedures by Dr. Edward M. Smith, Society of Nuclear Medicine, Chicago, Illinois, and follow-up studies of irradiated Tinea Capitis cases by Dr. Roy E. Albert, New York University Medical Center, New York.

Dr. Roy E. Albert's publication in American Journal of Public Health, Vol. 56, No. 12, Dec. 1966, entitled "Follow-up Study of Patients Treated by X-ray for Tinea Capitis" reported that "although the research project is still in progress, this follow-up study of 1908 irradiated cases of tinea capitis and 1801 non-irradiated cases of tinea capitis has thus far shown a substantially larger number of cases of cancer, mental disease, permanent damage of the scalp hair in the irradiated group compared to the controls."

In studies to develop methods to prevent radiostrontium absorption in humans, Dr. Herta Spencer, Loyola University, Chicago, Illinois, has published a report which indicates that the use of aluminum phosphate gel, a non-toxic compound at recommended doses used widely in medical practice for many years, greatly reduces the assimilation of strontium ingested by humans.

The $2,328,000 requested for 1969 is to support 30 new grants and 68 non-competing continuations, an increase of 2 projects and $32,000 over 1968.

2. Direct Operations-Radiological Health

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
Personnel compensation and benefits	799	$7,652,000	804	$7,808,000	+5	+$156,000
Other expenses	---	5,624,000	---	5,379,000	---	-245,000
Total	799	13,276,000	804	13,187,000	+5	-89,000

Summary of Program

a. Effects of radiation on man	133	$3,377,000	133	$3,392,000	---	+$15,000
b. Development of methodology for exposure reduction and control	108	1,972,000	113	2,182,000	+5	+210,000
c. Training	117	1,572,000	117	1,586,000	---	+14,000
d. Measurement and surveillance	279	4,060,000	279	4,092,000	---	+32,000
e. Technical assistance	162	2,295,000	162	1,935,000	---	-360,000
Total	799	13,276,000	804	13,187,000	+5	-89,000

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
a. Effects of radiation on man	133	$3,377,000	133	$3,392,000	---	+$15,000

The objectives of this program are to document population exposure from all sources of radiation and to provide better understanding of the dose-effect relationship, particularly regarding low-level radiation and its long-term biological effects, whether it stems from diagnostic X-rays, radionuclide treatments, a nearby nuclear facility, or color television in the living room.

All of these sources are major factors or contributors to the paramount radiological health question, the cumulative health effects of radiation on man.

It is now recognized that large doses of radiation for short periods of time or smaller doses over longer periods can produce malignant as well as genetic changes. It still remains to be demonstrated whether all levels of radiation are potentially harmful, particularly when the fetus or child is exposed, and whether other environmental insults may reinforce the damage potential of ionizing radiation. Also parallel information is urgently needed to assess the public health significance of non-ionizing radiations such as microwaves and lasers. Existing programs to characterize long-term effects at low-levels of ionizing radiation with and without the introduction of other stresses will continue, and pilot studies on the effects of other forms of electro-magnetic radiation will be continued. In addition, the relationship of exposure and effects from the various types of sources to specific population groups must be delineated as it relates both to the hazards derived from the sources under study and as a factor of total exposure of the general population. In the area of medical X-ray exposure, for example, a study was completed to provide estimates of population exposure, by type of examination or procedure, for a variety of demographic and X-ray facility characteristics. Resultant data is contained in the Public Health Service Publication, "Population Exposure to X-rays--United States 1964". The information produced in this study will be chiefly used to guide the development of programs aimed at promoting more efficient use of X-rays, to formulate hypotheses for further research and to establish a baseline for evaluating program effectiveness. In addition, the study design provided a basis for estimating specific organ and genetic dose from X-ray exposure when used with models being developed through research at several universities.

Human population groups that receive unique and identifiable radiation exposures are studied to quantify long-term biological effects and to elucidate the major dose-effect phenomena. Scientific data on the relative radiosensitivity of various systems and organs provide additional information needed to establish public health exposure guides. For example, since 1958 the Public Health Service has participated in a long-term study of the survivors and progeny of the atomic bombing of Hiroshima and Nagasaki. Of immediate interest is the fact that results are now available from the Cooperative Thyrotoxicosis Therapy Follow-Up Study, initiated in 1961 to determine if the use of radioactive iodine presents a greater risk to patients undergoing treatment for thyrotoxicosis than does surgery. The effect of primary concern in this study was leukemia. The results of this study to date have indicated no demonstrable increase in leukemia in patients treated with radioiodine.

Experimental findings from animal studies conducted not only in our laboratories but also other laboratories provide evidence to support the hypothesis that prenatal and young age groups may be uniquely sensitive to the deleterious effects of radiation. At the Rockville, Cincinnati, and Colorado State University laboratories, using a variety of mammalian species, it has been shown that sub-lethal doses to animals result in changes

to certain enzyme systems, the stress response of the reticulo-endothelial system, ultrastructure of the eye, and chromosomes of various types of cells. Efforts are underway to relate these changes to the long-term effects associated with radiation both in the adult and young animal. Some examples of specific studies recently completed or in progress are as follows:

(1) Studies at the Collaborative Radiological Health Laboratory at Colorado State University, utilizing beagles, will evaluate the long-term effects from low-level external exposure to radiation. Emphasis is being placed on the effects upon the young from irradiation during pregnancy. The study is intended to elucidate effects of radiation exposure at varying ages on several factors such as physiological functions, the aging process, and mental acuity. These studies are essential to an understanding of the factors that should be included in exposure standards related to various age groupings.

(2) In rats, whole body X-radiation combined with ethionine, an analog of an essential amino acid, has resulted in a markedly increased incidence of mammary tumors as well as liver tumors. The tumors appeared earlier in those rats receiving combined treatment. In addition, cultured cells pre-treated with virus (SV-40), followed by radiation, developed a malignant potential in greater numbers than cells treated with virus or radiation only. Reversing the order of treatment gave similar results. Both studies clearly demonstrate that factors of a diverse nature (chemical and viral) can predispose animals to the carcinogenic effects of radiation, in an additive or multiplicative manner. In particular, the interaction between radiation and virus may imply that viruses harbored by a host might enter cells to which they might not ordinarily have access.

(3) Electron microscopic observations of human chromosomes have yielded considerable information about the arrangement of chromosome fibers in condensed metaphase chromosomes. Sites of X-ray induced breakage of chromosomes are being examined to determine the kinds of structural changes caused by the radiation.

(4) Experiments which have been performed to date indicate that radiation interferes with protein synthesis. This interference, more marked in prenatal vs. the adolescent animal, appears to result from a radiation induced change in normal genetic mechanisms, and thus has a potential for producing long-term deleterious effects. Comparison of results obtained from irradiated adolescent animal vs. animals irradiated prenatally suggests that the prenatal animal is considerably more sensitive to radiation than the adolescent animal.

(5) Investigations concerned with the emission of low-energy X-ray from color television receivers have demonstrated such X-rays to be more penetrating in bodily tissues than previously thought.

This penetrability is due to the almost monochromatic nature of the X-rays at an energy near the operating voltage of the receiver.

An increase of $15,000 is included in the total requested for pay raises and one additional day of pay.

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
b. Development of methodology for exposure reduction and control.....	108	$1,972,000	113	$2,182,000	+5	+$210,000

The objectives of this program are to evaluate and control exposures to individuals or population groups from machine-produced radiation, discrete radioactive sources, and environmental radioactivity.

The estimated 210,000 X-ray units used in the healing arts constitute one of the major man-made sources of radiation exposure to the general population in existence today. The 1964 Public Health Service survey found that there were over 143 million X-ray visits yearly--50 million dental and 93 million medical. This represents a 7.6 million increase over the previous reporting period in 1961. From the 1964 data, it has been estimated that these X-ray visits have resulted in a genetically significant dose to the population equivalent to 55 millirads per annum. As this dose utilizes a large proportion of that which is considered acceptable from all man-made sources, it is important that the increased usage of X-rays and other sources of radiation exposure in the practice of medicine be accomplished without a commensurate increase in the genetically significant dose.

Immediate progress is essential in the medical X-ray field in three areas: (a) creation of an image production system which will provide the necessary information for proper diagnostic use with a minimum of X-ray exposure (b) establishment of criteria for accepted levels of paramedical training and (c) research directed toward improvement of existing medical X-ray equipment, e.g., evaluation and demonstration of automatic collimators, as well as special purpose machines. Efforts must continue to be directed toward the improvement of equipment already in use. Activities presently underway should lead to a reduction of 35% in the current genetically significant dose to the population by 1971.

The increase requested of five positions and $202,000 is for adaptation and application of the automatic collimator, developed in the Center's X-ray Exposure Control Laboratory in 1967, to additional types of medical X-ray equipment in current use. The original model was designed as an attachment to existing medical X-ray equipment now on the market and for incorporation into future equipment. By automatically reducing the X-ray beam to the film size selected, much of the unnecessary exposure is

eliminated in diagnostic applications. Additional developmental work is required to adapt it to the variety of existing machines now in use as well as a program of demonstration and education to encourage wide-spread acceptance and use of the device. It is currently in routine use in two hospitals on a test and demonstration basis. Data from the 1964 X-ray exposure study indicates that proper collimation of the X-ray beam is the major factor in reducing unnecessary exposures during diagnostic procedures.

The diagnostic and therapeutic uses of radioisotopes have altered the entire concept of many disease processes and placed a multiplicity of new procedures in the armamentarium of the physician. It is essential that exposure to the organs directly involved as well as to those indirectly involved be known so that benefit-risk criteria can be applied effectively. It is estimated that three out of every thousand patients visiting clinics or admitted to hospitals undergo some type of diagnosis or therapy involving radioisotopes and that the demand for these services is growing at the rate of at least 15% per year. Current trends indicate that over 700,000 radioisotope administrations were performed in 1966.

It is estimated that 2,700 medical facilities are using radium, radon and particle accelerator produced radionuclides to treat 80,000 patients per year. During 1966, 1,000 facilities were inspected by State health departments and 257 defective or obsolete medical sources, totalling 2,085 milligrams of radium, as well as 624 obsolete industrial sources were removed from use and disposed of through the Center's Southeast Radiological Health Laboratory at Montgomery, Alabama.

The Center's program to evaluate the effectiveness of the construction of existing radium sources is nearing completion. Interim destructive testing data and photographic analysis of sources have indicated certain unacceptable characteristics of construction. These data will be used to recommend standards for design and manufacture of future sources, thus reducing the chance of serious contamination from broken or defective sources. To prevent radium losses in shipment, the Center has developed a reusable shipping container which will serve as a means of eliminating this cause of environmental contamination.

National Center for Radiological Health efforts in training State personnel in evaluation survey techniques and procedures have been instrumental in reducing population exposure by correcting inadequate equipment, facilities and sources. It is estimated that, as a result of corrective activities already underway at the State level and the Center's efforts in developing less hazardous substitutes for radium, a 50% reduction in present levels of unnecessary exposure from radium can be anticipated by 1971. The Center has just completed a developmental contract with the Minnesota Mining and Manufacturing Company to produce a cesium-137 source that has identical medical characteristics as radium, but is less hazardous. The volume of commercial sales of this type of source has jumped from less than 50 sources per year in 1963 to greater than 500 sources in 1966. A similar developmental contract with the New York Memorial Hospital is also underway to investigate less hazardous substitutes for radon-222 used in cancer therapy.

The Stanford Research Institute will complete a three-year contract in 1969 that will more precisely define the extent to which radioactive materials are being used in medicine. Based on the results of the first phase of this project, an intramural population exposure assessment study will be initiated in 1969 and continue through 1972.

With respect to environmental radioactivity, investigations will be continued at a reduced rate to better define the movement of the more important radioactive contaminants from their source, through the environment, to man in order to determine effective and feasible exposure control measures. A number of studies in this area will be brought to a satisfactory conclusion during 1968. These studies, conducted under contracts by the St. Louis County Health Department, the North Dakota State Health Department, and the University of Florida have demonstrated practical means for limiting uptake of radionuclides from the soil by forage plants under a variety of geographical and agricultural situations. Thus, information is available on agricultural methods that will reduce the transfer of radionuclides such as strontium-90 and cesium-137 from soil to milk. These techniques will be made available to the public through National Center for Radiological Health publications as soon as final reports, now in preparation, have been received from the contractors. While work will continue, as necessary, on such well-known radionuclides as strontium-90, cesium-137, and iodine-131, major emphasis will be placed on studies initiated primarily during 1968 on tritium, carbon 14, xenon, and krypton, more recently recognized as having significant health potential. Better methods of measurements and control potentials are important because of contributions to environmental tritium and carbon-14 from possible use of high-fusion- yield devices in peaceful nuclear explosive applications and the now-recognized potential hazards of inert gas (i.e. xenon, krypton) from nuclear facilities.

The recent discovery that certain color television sets are emitting X-radiation greatly in excess of the recommendations of the National Council for Radiation Protection requires prompt action in carrying out programs whereby the public may be assured that consumer products of this type can be safely used in the home. Exposure parameters from electronic products such as lasers, microwave generators, super-conducting magnets and ultra-sonic devices must be developed and related to the exposure potential in order to provide a basis for maximum health protection without denying the populace the beneficial uses of these products. To start work in this area an Electronic Products Radiation Laboratory was established during 1968. Thus far, field investigations have emphasized the color television problem and some manufacturers have improved their understanding of radiation emissions qualitatively and quantitatively. During 1969 work will be initiated on one or more classes of radiation producing electronic products on a selected basis to determine the nature of possible radiation hazards and possible methods of control.

An increase of $210,000 and 5 positions is included in the total requested; $202,000 and five positions is for further development of the automatic collimator, and $8,000 is for built-in items of increase and decrease. These include the additional day of pay, military and civilian pay increases, and non-recurring equipment cost.

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	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
c. Training	117	$1,572,000	117	$1,586,000	---	+$14,000

Training activities include specialized training courses given at the regional laboratories and at Rockville, Maryland, and the development of curricula, course material and other training aids in support of many types of radiological health training.

The Public Health Service technical short term training courses are designed for radiological health personnel in Federal, State and local programs. The courses provide updated training in all radiological fields with special emphasis on current problems, such as X-ray techniques. In 1968 an estimated 2100 persons will be provided such training. The planning figure for 1969 is 2200.

Development of formal radiological training programs as well as course material and training aids are available to all institutions which provide radiation protection instruction.

Contractual efforts will be continued at two leading universities directed towards development of curricula for non-medical as well as medical personnel who are to practice in the field of radiology. The first is that of Oregon State University where a program is being developed in X-ray science and engineering, including teaching, training, research, evaluation and development. Upon completion the contractor will present a plan that may be used as a model for the development of similar programs at other institutions. One of the recent benefits from this contract was the development of a low-cost X-ray circuit simulator with which standard equipment is simulated for training purposes. The second contract is with the University of California where a similar effort is underway. This one is directed towards teaching and training of undergraduate medical students, radiology residents, and non-radiology residents as well as of supporting staff of physicists, engineers and technicians.

An increase of $14,000 is included in the total requested for pay raises and one additional day of pay.

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
d. Measurement and surveillance	279	$4,060,000	279	$4,092,000	---	+$32,000

The Public Health Service currently maintains and operates national surveillance networks that measure environmental radioactivity, including releases from Federal test sites and ranges, in order to alert emergency

protective activities and to provide a continuing record of levels and trends of radiation in the environment. The principal data from the Radiation Alert Network together with the Pasteurized Milk Network, the Institutional Total Diet Sampling Network, and others are released monthly (or more often, as required) and are printed in Radiological Health Data.

Changes in the relative significance of the several sources of environmental contamination have required realignment of our surveillance capabilities. Potential sources of radioactivity include both that from nuclear bomb testing and the peaceful use of atomic energy. Activities resulting in contamination such as bomb testing conducted by other nations are not subject to our control. Contamination from domestic activities, while in a strict sense controllable, introduces problems that can be critical to the Nation's health, security and economy. For example, Project Gasbuggy, for which the Public Health Service provides services to the Atomic Energy Commission on a reimbursable basis, is a potential source of contamination. In addition to radiation resulting from the detonation, the Public Health Service may also be concerned with evaluating for radioactive contamination the natural gas thus liberated. It is important that environmental contamination programs consider the health hazards from all sources, under normal peacetime conditions, and are concurrently responsive to rapid expansion necessary to carry out Federal Radiation Council recommended protective actions if major nuclear testing contaminations occur.

Programs are necessary to determine the exposure-potential of the specific effluent of nuclear facilities on environmental radioactivity. Normal effluents from these sources may add significant concentrations of the inert gases, i.e. xenon and krypton, to the environment, which is not the case from generalized fall-out from weapons testing. In at least one case, the power level of an operating reactor had to be controlled on the basis of population exposures from these gases. In addition, a check must be maintained on the effect of possible inadvertent releases from these facilities to the environment of other radionuclides, particularly iodine-131. Thus new sampling and analytical techniques must be incorporated into existing networks to evaluate the possible public health hazards.

Demands for electricity in the United States are now nearly doubling every ten years. Recent figures published by the Atomic Energy Commission show that, of 41,535 megawatts-electrical (Mwe) of new steam-electric plant additions announced by the trade press through September of 1967, 20,893 Mwe are nuclear and 20,642 Mwe are fossil fueled. The trend toward a larger nuclear share of a greatly increased total capacity is expected to continue. The future may reflect a relative reduction in chemical pollutants resulting from conventional power plants as a result of the greater use of nuclear power sources.

An increase of $32,000 is included in the total requested for pay raises and one additional day of pay.

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
e. Technical assistance	162	$2,295,000	162	$1,935,000	---	-$360,000

The purpose of this activity is to provide technical assistance and specialized consultative services and support to the States in carrying out their radiological health programs. Assistance is also provided to other agencies and to industry in investigating, evaluating, and minimizing public health risks involved in consumer, industrial, military, space and other uses of ionizing radiation.

Programs are conducted to advise and assist State health authorities with respect to the surveillance and control of medical X-ray installations and the supervision of medical and dental X-ray services and methods. In addition, the States are aided in their effort to reduce the hazards associated with the medical uses of non AEC-controlled radiation sources such as radium. Related to this activity is work done to establish and implement techniques for determining, within each State, the integrity of radium source encapsulation.

Another major activity involves work with State and Atomic Energy Commission representatives in analyzing the potential health effects of proposed major nuclear installations. This activity is essential to assure an independent health appraisal of the environmental and human exposure potential of these new facilities.

Increased attention is being given to the evaluation and control of radiation emitted from electronic products manufactured directly for consumer use such as television sets, radar, microwave ovens and other electronic products which affect the population at large. Exposure parameters and certain practical control measures have been developed and are being applied to color television sets cooperatively with industry and, to some extent, the States. Measurements carried out by the Center supported by publicity given this problem through Congressional hearings and industry's own concern resulted in the correction of about 99% of the sets initially identified as emitting excessive amounts of X-radiation. However, in studies conducted to verify these corrections, additional sources of X-rays were found which made necessary the checking of a sample of additional makes and models of color TV sets. This survey of over 1,100 sets owned by Public Health Service employees in the Washington Metropolitan Area is yielding data which indicates the existence of an industry-wide problem. Continuing coordination with industry representatives as well as State health authorities will be required to assure effective control in this area.

The net budget decrease of $360,000 results from a decrease of $381,000 due to the change in financing of the management fund, offset by $21,000 for built-in items of increase and decrease. These items include the additional day of pay in 1969, military and civilian pay raises and non-recurring decreases.

3. Bureau program direction and management services

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
Personnel compensation and benefits.....	(184)	($1,989,000)	190	$2,204,000	+6	+$215,000
Other expenses.....	---	(352,000)	---	358,000	---	+6,000
Total.....	(184)	(2,341,000)	190	2,562,000	+6	+221,000

Summary of Program

a. Program direction.....	(80)	(1,128,000)	84	1,267,000	+4	+139,000
b. Administrative management.....	(104)	(1,213,000)	106	1,295,000	+2	+82,000
Total.....	(184)	(2,341,000)	190	2,562,000	+6	+221,000

In 1968, 184 positions and $2,341,000 for the Office of the Director, Bureau of Disease Prevention and Environmental Control were provided through the Public Health Service Management Fund. In 1969, this activity will be funded from the Radiological Health appropriation. The 1969 estimate provides an increase of 6 positions and $221,000 over the amount available for these activities in 1968. This increase includes $121,000 for built-in costs and $100,000 for a program increase. The program increase will finance 6 additional positions for executive direction and supporting program services for the Bureau. The Bureau encompasses activities carried out in five Centers -- the National Centers for Chronic Disease Control, Communicable Diseases, Air Pollution Control, Urban and Industrial Health, and Radiological Health. This broad scope of both recently realigned and rapidly changing programs requires the expansion of the Office of the Director to assist in providing the necessary management and administrative support objectives.

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
a. Program direction	(80)	($1,128,000)	84	$1,267,000	+4	+$139,000

Program direction activities of the Office of the Bureau Director encompass the executive direction and leadership for the Bureau. These activities include program planning and evaluation, compliance and control, standards and intelligence, research and development, and public information activities. Program direction provides the expertise necessary in directing the broad scope of the Bureau's responsibilities to its

Centers; in advising the Bureau Director on matters related to the various activities as they may affect Bureau programs; in maintaining liaison with interested groups and organizations outside the Bureau; and in participating in the development of Bureau goals and objectives. Included in program direction are the Bureau's Associate Regional Health Directors located in the Department's Regional Offices. They are responsible for coordination of technical assistance activities of the five Centers and those activities carried out by Bureau staff in Regional Offices. A program increase of four positions and $64,000 is requested in 1969 for Program Direction over the 80 positions and $1,128,000 available in 1968.

Two of these positions are requested for the Office of Program Planning and Evaluation. This office leads and coordinates program planning, development of objectives, identifies program problem areas, studies new program areas in their initial development, and evaluates program accomplishments. It explores and develops methods for interrelating various program activities in order to assure an integrated effort and is responsible for the implementation of the program, planning, budgeting system for the Bureau. The increase will provide for the expansion of practices and tools of program analysis and evaluation for more extensive use by management at all levels.

The Office of Standards and Intelligence will be expanded by two positions. This office assists and advises the Bureau Director in development, coordination, and assessment of criteria and of standards promulgated for use in program operations and of surveillance and other systems for provision of data relating to such standards. The increase will provide for design, in cooperation with the Centers, of intelligence systems to identify the needs for health protection standards and the adequacy of health data sources for pollutants and hazards including chemicals, metals, synthetic materials, radiation, and excessive noise. These systems will provide the mechanism to ascertain the nature and extent of these threats to man's health and to assure that effective measures for prevention or control of such threats are promptly devised and implemented.

An increase of $75,000 is also included in the total requested for Program Direction for the full-year funding of the ten new positions authorized in 1968, pay raises, and one additional day of pay.

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
b. Administrative management	(104)	($1,192,000)	106	$1,295,000	+2	+$82,000

Administrative management is responsible for the development, coordination, direction, and assessment of management activities and for assuring consideration of management implications in program decisions. It directs those management services provided at the Bureau-level, such

as financial and personnel management, supply management including contract negotiations and administration, grants administration, a management information system, and systems design and analysis.

A program increase of two positions requested in 1969 is for the Systems Staff. The Systems Staff designs, coordinates, and evaluates Bureau management systems and implements information systems in support of program planning and budgeting, and program evaluation. The increase will provide for expanded cooperation and work with other agencies and levels of government in systems consultation, training, and technical assistance, both within the Bureau and in relation to State, local and regional health programs and needs. This will be extended in the collaborative design and development of interrelated planning and information systems that will better support all of the needs of the Bureau.

Also included in the total for 1969 is an increase of $46,000 for full-year funding of three new positions authorized in 1968, pay raises, and one additional day of pay.

TUESDAY, MARCH 12, 1968.

COMMUNITY HEALTH SERVICES

WITNESSES

DR. CARRUTH J. WAGNER, DIRECTOR, BUREAU OF HEALTH SERVICES
DR. JOHN W. CASHMAN, DIRECTOR, DIVISION OF MEDICAL CARE ADMINISTRATION
KENNETH W. REVELL, ASSISTANT DIRECTOR, DIVISION OF MEDICAL CARE ADMINISTRATION
RICHARD G. THOMAS, ACTING EXECUTIVE OFFICER, DIVISION OF MEDICAL CARE ADMINISTRATION
J. T. WILBERN, ADMINISTRATOR, PRESIDENT'S COUNCIL ON PHYSICAL FITNESS
DR. HAROLD GRANING, DIRECTOR, DIVISION OF HOSPITAL AND MEDICAL FACILITIES
SAUL R. ROSOFF, EXECUTIVE OFFICER, BUREAU OF HEALTH SERVICES
RALPH BAHN, FINANCIAL MANAGEMENT OFFICER, BUREAU OF HEALTH SERVICES
DR. WILLIAM H. STEWART, SURGEON GENERAL
CHARLES MILLER, CHIEF FINANCE OFFICER
JAMES B. CARDWELL, DEPUTY ASSISTANT SECRETARY, BUDGET

OBJECT CLASSIFICATION (IN THOUSANDS OF DOLLARS)

	1967 actual	1968 estimate	1969 estimate
Personnel compensation:			
Permanent positions	4,173	5,819	9,327
Positions other than permanent	104	179	292
Other personnel compensation	24	40	40
Total personnel compensation	4,301	6,038	9,659
Personnel benefits	543	708	1,007
Travel and transportation of persons	652	798	1,202
Transportation of things	47	63	121
Rent, communications, and utilities	237	212	370
Printing and reproduction	106	93	198
Other services	306	327	471
Project contracts	5,186	4,837	5,402
Services of other agencies	250	400	400
Payment to "Public Health Service management fund"	401	591	----------
Payment to "National Institutes of Health management fund"	16	----------	----------
Supplies and materials	102	82	133
Equipment	70	83	137
Grants, subsidies, and contributions	13,173	15,010	44,720
Total obligations	25,390	29,242	63,820

PERSONNEL SUMMARY

Total number of permanent positions	574	602	924
Full-time equivalent of other positions	18	25	36
Average number of all employees	419	582	871
Average GS grade	5.9	6.0	6.1
Average GS salary	$7,065	$7,377	$7,593

PROGRAM AND FINANCING [IN THOUSANDS OF DOLLARS]

	1967 actual	1968 estimate	1969 estimate
Program by activities:			
1. Medical care administration and community health:			
(a) Grants:			
(1) Research	5,073	6,760	7,800
(2) Training and fellowships	900	1,050	1,100
(3) Migrant health services	7,200	7,200	8,100
(b) Direct operations	8,272	14,232	15,723
2. National Center for Health Services research and development:			
(a) Grants and contracts			27,720
(b) Direct operations			1,901
3. Program direction and management services			1,476
Total program costs, funded [1]	21,445	29,242	63,820
Change in selected resources [2]	3,945		
Total obligations	25,390	29,242	63,820
Financing:			
Receipts and reimbursements from: Trust funds	−3,512	−4,075	−4,320
Comparative transfers to other accounts	77,657	11,427	
Unobligated balance available, start of year			−17,500
Unobligated balance transferred to other accounts			17,500
Unobligated balance available, end of year		17,500	
Unobligated balance lapsing	1,524	146	
Appropriations available in prior years	27,056		
New obligational authority	128,114	54,240	59,500
New obligational authority:			
Appropriation	128,280	54,234	59,500
Transferred to other accounts	−166	−28	
Transferred from other accounts		34	
Appropriation (adjusted)	128,114	54,240	59,500
Relation of obligations to expenditures:			
Total obligations	25,390	29,242	63,820
Receipts and other offsets (items 11 to 17)	74,145	7,352	−4,320
Obligations affecting expenditures	99,535	36,594	59,500
Obligated balance, start of year	66,406	60,636	26,820
Obligated balance, end of year	−60,636	−26,820	−25,771
Adjustments in expired accounts	−1,538		
Expenditures	103,767	70,410	60,549
Expenditures are distributed as follows:			
Out of current authorizations	74,622	13,458	31,022
Out of prior authorizations	29,145	59,952	29,527

[1] Includes capital outlay as follows: 1967, $70,000; 1968, $83,000; 1969, $136,000.
[2] Selected resources as of June 30 are as follows: unpaid undelivered orders, 1966, $3,161,000 (1966 adjustments $282,000); 1967, $7,388,000; 1968, $7,388,000; 1969, $7,388,000.

Mr. FLOOD. Now, Dr. Carruth J. Wagner will present the justification of the 1969 budget for Community Health Services.

BIOGRAPHICAL SKETCH OF PRINCIPAL WITNESS

I see you have a biographical sketch here which we will have placed in the record at this point.

(The biographical sketch follows:)

BIOGRAPHICAL SKETCH

Name: Carruth J. Wagner, M.D.
Position: Assistant Surgeon General, Director, Bureau of Health Services.
Birthplace and date: Omaha, Nebr., Sept 4, 1916.
Education: University of Omaha, A.B. 1938; University of Nebraska College of Medicine, B.S. 1938, M.D., 1941, Honorary Degree D. Sc. 1966.
Experience:

Director, Bureau of Health Services, PHS (Assistant Surgeon General), Silver Spring, Md., Jan. 1, 1967.

Chief, Bureau of Medical Services, PHS (Assistant Surgeon General), Silver Spring, Md., Dec. 21, 1965 to Dec. 31, 1966.

Chief, Division of Indian Health, Bureau of Medical Services, PHS (Assistant Surgeon General), Silver Spring, Md., Aug. 1, 1962 to Dec. 20, 1965.

Chief, Division of Health Mobilization, Office of the Surgeon General, PHS, Washington, D.C., July 1960 to July 31, 1962.

Special Assistant in Charge of Health Mobilization, Bureau of State Services, PHS, Washington, D.C., February 1959 to July 1960.

Deputy Chief, Division of Hospitals, PHS, Washington, D.C., Nov. 1957 to Feb. 1959.

Director, Training and Professional Standards, Division of Hospitals, PHS, Washington, D.C., Feb. 1957 to Nov. 1957.

U.S. Public Health Service Hospital, San Francisco, Calif.; deputy chief, surgical service, July 1955 to Feb. 1957.

U.S. Public Health Service Hospital, Staten Island, N.Y.; chief, orthopedic service July 1953 to July 1955.

Resident, Shriners' Hospital for Crippled Children, Philadelphia, Pa., July 1952 to July 1953.

U.S. Public Health Service Hospital, Staten Island, N.Y.; chief, orthopedic service, July 1951 to July 1952.

Resident in surgery, U.S. Public Health Service Hospital, San Francisco, Calif., 1943–48; chief, orthopedic services, 1948–51; deputy chief, surgical service, 1949–51.

Served in U.S. Coast Guard, 1943 and 1946.

Intern, U.S. Public Health Service Hospital, Seattle, Wash., 1941–42; resident, surgery, June-Dec. 1942.

Memberships:

Diplomate: American Board of Surgery; American Board of Orthopedic Surgery.

Fellow: American Medical Association; American College of Surgeons; American Academy of Orthopedic Surgeons; American College of Nursing Home Administrators.

Member: American Association for Surgery of Trauma; Washington Orthopedic Club; American Society for Surgery of the Hand; Alpha Omega Alpha; American Legion; American Management Association; U.S. Section of the International Society of Orthopedic Surgery and Traumatology; American Public Health Association; Association of Military Surgeons; the International Platform Association.

Awards:

Special Pfizer Award of Merit Citation conferred by U.S. Civil Defense Council, Oct. 16, 1962.

Meritorious Service Award of the American Academy of General Practice, Apr. 1965.

Mr. FLOOD. Please proceed with your statement.

GENERAL STATEMENT

Dr. WAGNER. Mr. Chairman and members of the committee, the Bureau of Health Services administers some of the principal programs through which the Federal Government is now attempting to improve the availability, accessibility, efficiency, and effectiveness of medical care.

THE PROBLEM

We are dealing directly with the most basic of health care problems:

The rising costs of services;

The lack of availability of health care to many of our people;

The duplications, overlaps, and inefficient utilization of scarce resources in the health care system; and

The delay in application of the fruits of research and new and innovative health protection and treatment techniques.

In the last 2 years, substantially higher amounts of public funds have been pumped into the health services systems than in previous

years. Total expenditures now approach $50 billion annually. Greatly increased demand for services and the limited capacity of the systems to increase output have together resulted in strong inflationary pressures. Hospital costs have risen by about 16 percent in each of the last 2 years and average per diem costs, now averaging about $65, will probably reach $100 in the next 5 years. Physicians' fees increased 7.8 percent in 1966 and 6.1 percent last year—twice the rise in the overall Consumer Price Index.

The sharply higher costs of services have not resulted in significantly greater availability of high quality care. Nor have substantial changes in mortality data been demonstrated. Increasing numbers of people are becoming concerned about their difficulty in securing good medical care for themselves and their families, at reasonable cost and at minimum inconvenience.

The telling statistics of disease prevalence and lagging progress in the United States, in relation to other countries, find their way into print with increasing frequency.

About 96 million Americans have one or more chronic diseases or impairments. Infant mortality is higher than in many other less affluent countries. It is estimated that life expectancy today could be 5 years or more longer than it is if we could apply fully the current state of the health care arts across the country.

LIFE EXPECTANCY

Mr. FLOOD. What is the life expectancy now?

Dr. WAGNER. For a white male it is 67.6. In a nonwhite male, 61.1. For the female it is 74.7 for the white, and for the nonwhite 67.4.

The mortality rate is 2 to 1 or higher among nonwhites than it is among whites for tuberculosis, influenza, pneumonia, and other diseases. Maternal mortality rates among nonwhite mothers are four times those among white mothers.

Millions of Americans still seek medical care only in cases of complicated and serious illnesses; many not until the last or critical state of illness.

INEFFICIENCIES OF HEALTH CARE SYSTEM

The statistics that document the inefficiencies of our health care system continue to accumulate. Three national conferences and two major reports last year noted, among other matters, the substantial overutilization of hospitals caused by the benefit structure of prepayment and insurance policies. The inefficient use of physicians, nurses, and other scarce health manpower has long concerned the chairman and members of this committee, as well as many others.

In the Bureau of Health Services we are deeply involved in programs to help ease these problems.

Mr. FLOOD. It is going to take a lot more than mere dollars to meet these problems, is it not?

Dr. WAGNER. It certainly is, yes, sir. There are many aspects to these problems—how physicians practice, how they relate to social organizations, how they relate to the various subsystems within the systems, such as how does the doctor practice in the hospital, how does he practice in his office.

In all of these things, we think some changes are going to have to take place if we are going to increase the productivity and efficiency of operations.

Mr. SMITH. Are you making research grants on construction?

Dr. WAGNER. Yes, sir, on new and innovative ways of constructing facilities to increase the productivity of people and to limit it going out of style, so to speak, of the facility very rapidly.

PROVISION OF HOSPITALS AND RELATED HEALTH FACILITIES

The Division of Hospital and Medical Facilities supports construction and modernization of hospitals and related health facilities. The $2.9 billion it has provided in capital subsidy over its lifetime has gone far toward meeting critical needs in new health facilities and has rendered the facility deterioration problem less severe than it otherwise would have been. As a concomitant of its capital subsidy efforts, the program has brought about improved standards for design and construction in all States and has established State Hill-Burton and areawide agencies which, in planning systematically for each State's health facility needs, set th stage for the present comprehensive health planning movement. Only since the inception of this program has there been a consistent effort to plan health facility construction in the light of actual community needs.

The Division of Health Mobilization—whose appropriation request is heard by the Subcommittee for Independent Offices and the Department of Housing and Urban Development—utilizes the latest findings concerning the delivery of health services to assist States and communities in achieving better readiness to provide health services in national emergencies or disasters.

DIRECT HEALTH SERVICES TO LEGALLY DESIGNATED BENEFICIARY GROUPS

Our programs which provide direct health services to legally designated beneficiary groups are administered by the Division of Direct Health Services, the Division of Federal Employee Health, and the Division of Indian Health, the latter's appropriation request being heard by another committee. These programs incorporate the latest improved methods into their own health care systems and are serving increasingly as intramural laboratories for health services research and demonstration. We are just commencing to realize the potential of these programs as a means for discovering improved methods and for establishing models of excellence as examples to other providers of health services.

COMMUNITY HEALTH SERVICES

With your permission, Mr. Chairman, I would now like to address myself specifically to the appropriation entitled "Community Health Services."

During the past year we have been involved in programs—such as medicare and the migrant health program—which have helped large numbers of people meet their own health care needs. We have encouraged activities to help hospitals, extended care facilities and nursing homes, home health agencies, and independent laboratories

provide quality health services. We have worked to enable communities to better organize their health services according to their own particular needs. Examples of this activity include participation with the Department of Housing and Urban Development in the group practice mortgage loan program, involvement in the health demonstrations authorized by the Appalachian Regional Development Act, and programs to assist urban and rural communities.

Mr. FLOOD. Are you identified with the model cities program under HUD?

Dr. WAGNER. We are assisting in this model city program as part of the total HEW effort; yes, sir. And most of this assistance does come out of this particular appropriation title, both here at headquarters and within the regional offices within our Bureau.

We are exploring how automated multiphasic screening may be interwoven most effectively into the community health system; how indigenous aides, such as family planning educators, neighborhood workers, and health assistants, can be useful members of a health team; and what are various economic ramifications of health services.

All these activities are interdependent and interrelated. All have been of immediate and long-range benefit both to the people and to the communities in which they live. Each has been approached from the viewpoint of increased effectiveness and efficiency of operation, for its impact on medical care costs, and for its fitting into a picture of comprehensive care. But, during the course of our work, we have identified areas where these and related activities need strengthening. Particularly, many poor are not receiving health services they need; families of migrant workers are out of the mainstream of health care services; communities are having to face up to the problem of determining what health resources are really needed; the effective use of health personnel, the quality of care, and rising health care costs—all of these are major concerns. In 1969 we propose to step up our attack on some of these weak points.

HEALTH SERVICES FOR THE POOR

The poor in both urban and rural areas are not receiving the health services they need. Programs enacted in recent years for the financing of health care have eased some of their problems, but a more complete solution will depend upon the better organization of health services. We have placed a high priority on helping communities with this problem. One avenue of approach will be to make personnel available for a period of time to especially hard-pressed communities who request such assistance. These personnel would help to evolve approaches responsive to the community's needs and desires, and to turn these ideas into workable programs which can be supported by already existing funding mechanisms.

The migrant agricultural families are a particularly hard-to-reach low-income group with pressing health problems. The 115 projects now supported in 36 States and Puerto Rico reach about one-third of the migrant labor force sometime during the year. The requested increase will allow a modest expansion in outpatient visits and days of hospitalization.

COMMUNITY HEALTH RESOURCES

A problem of increasing importance to communities is how to determine what health resources they need. Two programs are affecting the way communities look at this problem. One is the partnership for health program which encourages a broad planning overview on an areawide, as well as State, basis. The second is medicare. Through its wide scope of benefits for hospital and out-of-hospital services, medicare has shown that a range of resources is needed to assure the provision of services in the most appropriate setting while still assuring continuity of care. Communities need the kind of data which will give them a better picture of their resources and services in order to consider essential interrelationships between resources and to pinpoint real needs. We expect to refine methodology during the coming year which will be of assistance to communities in carrying out this essential task.

GROUP PRACTICE

Group practice of medicine has adequately demonstrated its capacity as one approach to meeting the critical problems of effective use of health personnel and quality of care. We will increase our activities in stimulating interest in group practice, will provide consultation to interested parties, and will encourage needed studies and demonstrations.

RISING HEALTH CARE COSTS

The problems caused by rising health care costs pervade all thinking and planning. More precise information and understanding about economic factors involved in health care will help immeasurably in handling this problem. Toward this end, we will explore the economic aspects of home health services, a service spotlighted by medicare; costs involved in various components of comprehensive health services and how various organizational patterns affect these costs; and the feasibility of expanding health insurance, including voluntary plans, to cover persons and benefits heretofore considered uninsurable.

FAMILY PLANNING

Family planning is no longer synonymous with preventing unwanted children, but is a part of comprehensive personal health services. As such, attention must be given to how it can best be integrated into the total pattern of comprehensive community health services. And with organization and delivery of health services the direct concern of this Division, we must learn what approaches to the organization and delivery of family planning services will yield the greatest return per unit of resource invested, be it dollars or manpower.

IMPROVEMENT OF HEALTH SERVICES

Efforts to improve health services must be buttressed continually through new knowledge and understanding. We plan continued research efforts addressed to selected problems inherent in the medical care process and administrative patterns and procedures that affect organization for the delivery of care, its accessibility, its quality,

evaluation, economic analysis of costs and benefits of services, and utilization of services by special groups.

In 1968, several health services research centers are being established in communities around the country, after the pattern of the highly successful clinical research centers. These will be centers of excellence in medical care administration and community health in which multidisciplinary staffs will carry out focused patient and population-oriented programs of research, development, demonstration, and evaluation in fashions not possible under the usual research grant mechanism. We expect to fund two more of these centers in 1969.

NATIONAL CENTER FOR HEALTH SERVICES RESEARCH AND DEVELOPMENT

It is now generally recognized that the provision of health services constitutes one of the Nation's three or four major "industries." This enterprise not only creates and protects the health status of the country, but it is also the third largest employer. This enormous industry has grown, until very recently, with scant utilization of scientific principles. That is principally as it relates to management. Within the past year, however, the Congress and the President have acted to establish a new and more effective program of research, development, and demonstration to assist the health industry in this regard.

In his 1967 health and education message the President directed that a National Center for Health Services Research and Development be established in the Department of Health, Education, and Welfare. The Congress responded by enacting section 304 of the Public Health Service Act, which establishes broad authority for research, development, demonstrations, and related training in health services. The National Center constitutes a basic resource for developing in the health services industry a scientific capability similar to that which has contributed so significantly to the advancement of biomedical knowledge and technique. In reporting the new health services research legislation mentioned above, the House Committee on Interstate and Foreign Commerce said: "* * * given adequate funding and careful management, this area of research may prove as important to the health of individual citizens of our country as the basic biomedical research which over the past decade added immensely to the ability of the medical professions to save lives and prevent disease."

The ultimate goal of the Center is to aid the practitioners and institutions of the health services industry—such as the individual practitioner, group practices, hospitals and clinics, health professional schools, official and voluntary health agencies, third-party payors—to create greater capability for self-analysis, experimentation, and orderly self-improvement. The criteria to measure achievement of this goal are (1) the distribution of effective services to all individuals and families, and (2) accomplishment of such distribution at lowest costs in money, manpower, facilities, and materials.

The problem of introducing desirable changes into health service agencies and practices is much more complex than comparable innovations in the biomedical area. There are three distinct stages through which service improvements have to be carried before they become operational. The first stage is research to determine whether an improvement is technically possible. The next step is development to create and

test a prototype "model." The final step is simultaneous demonstration in several locations to observe its feasibility and acceptance under varying practical conditions. By providing financial support for each of these stages, an innovation is moved progressively from theoretical, experimental concepts to a practical, professionally accepted idea or method.

The existing supply of individuals qualified to conduct research, development, and demonstration projects in health services is very limited. It is therefore essential to institute and support training programs in both academic and service settings. The individuals trained in these programs will go to work in the research and development components of health service agencies and programs, or in universities involved in health services research and development.

The National Center will make grants and contracts to support research, development, demonstration, and training projects addressed to problems and opportunities in all major aspects of health services. Representative projects will include studies of—

1. Need and demand for health services;
2. Actual utilization of available services and the factors affecting utilization;
3. The organization and arrangements for delivery of services, including evaluation of the quality and effectiveness of services;
4. Types and magnitude of manpower, facilities, and financial resources which would be needed to meet specific levels of utilization and quality of services;
5. The design, layout, and operation of hospitals and other medical and health service facilities and their equipment;
6. The development and utilization of automatic and specialized equipment in screening, diagnosis, patient monitoring, and general patient care, and in collecting, storing, and transmitting information among practitioners, within hospitals, and in health service systems;
7. The analysis of economic factors affecting demand, costs, methods of payment, investment, and cost/benefit ratios;
8. The description and analysis of health services as a system; and
9. The development of more effective approaches and methods of research, development, and demonstration.

Center scientists, representatives of other cognizant Federal agencies, and distinguished non-Federal scientists will all cooperate in planning and developing this program. In this way, the best professional and scientific advice in the country will be sought, and coordination of Federal programs will be attained. As part of its program development process, the Center will support intramural studies and projects needed to determine research opportunities and priorities. Certain types of experimental service projects will be carried out in Federal hospitals and health service programs which afford environments favorable to study of complex health operations.

In establishing priorities for work, the Center will emphasize areas in which there are large unresolved problems or particular opportunities for constructive progress. At present, high priority will be given to the increased delivery and utilization of health services by low-income individuals, the aged, and those living in remote and rural

areas. Analysis of the cost structure and cost-producing factors in health services will have high priority, as will studies which give an overall picture of the industry and produce valuable information for policymaking and further planning of research and development operations.

An amount of $29,621,000 is requested under section 304 of Public Law 90–174 for administration by the National Center in fiscal year 1969. Of this amount, $27,720,000 is for grants and contracts and $1,901,000 is for direct operations.

PROGRAM DIRECTION AND MANAGEMENT SERVICES

Finally, a new activity appears for the first time under this appropriation. This account was formerly shown as an activity within the Public Health Service management fund and financed from the various appropriations within the bureau. The purposes of this activity are to provide effective program direction and management services for the various programs within the Bureau.

In summary, we are requesting $63.8 million, an increase of $13.1 million above the 1968 comparable level. This is made up of $4.1 million for community health and medical care programs and $8.9 million for the National Center for Health Services Research and Development.

Mr. Chairman, I would be pleased to answer any questions regarding this program or the budget.

Thank you very much.

MIGRANT HEALTH LEGISLATION

Mr. FLOOD. What is the status of legislation to extend the authority for the migrant health program?

Dr. CASHMAN. We had subcommittee hearings in the Senate, Mr. Chairman, in December; we have not yet had hearings in the House.

Mr. FLOOD. You do not know what happened to it?

Dr. CASHMAN. We have had no report. We understand hearings are imminent in the House.

Mr. FLOOD. But no action has been taken in the Senate?

Dr. CASHMAN. No, sir.

Mr. FLOOD. Is any other part of this request unauthorized as of now? Any part?

Mr. BAHN. No.

SUMMARY OF BUDGET REQUEST

Mr. FLOOD. Your 1968 budget is $35,069,000, taking into consideration transfer, unobligated balance carrying forward, and the reserve.

Dr. WAGNER. Yes, sir.

Mr. FLOOD. Your request for 1969 is $63,820,000. That is an increase of $28,751,000 and 322 additional jobs.

RESEARCH CENTERS

A little over a million of this increase is for research centers. Tell us a little bit more about those centers. First of all, locate those that have been established.

Dr. WAGNER. We have 14 applications, Mr. Chairman. Centers have not been established yet. The applications to establish the centers come up for review by the study section this next week. They will be established after council review in May with awards being made to those with the highest priority.

The review committee will not have finished their action before the middle of May. They will be selected through the process of the outside study section. We will list for you the 14 applications.

(Information follows:)

FOURTEEN APPLICANTS FOR HEALTH SERVICES RESEARCH CENTER GRANTS

1. University of Alabama, Birmingham, Ala.
2. Northwestern University, Evanston, Ill.
3. American Rehabilitation Foundation, Minneapolis, Minn.
4. Blue Cross of Western Pennsylvania, Pittsburgh, Pa.
5. University of California, Los Angeles, Calif.
6. University of North Carolina, Chapel Hill, N.C.
7. Duke University, Durham, N.C.
8. Harvard University, Boston, Mass.
9. Idaho Foundation for Medicine and Biology, Inc., Boise, Idaho.
10. Jefferson Medical College, Philadelphia, Pa.
11. Johns Hopkins University, Baltimore, Md.
12. University of Washington, Seattle, Wash.
13. Kaiser Permanente Medical Group, Oakland, Calif.
14. Kaiser Foundation Hospital, Portland, Oreg.

Mr. FLOOD. Tell me something about these research centers.

Dr. WAGNER. What we are trying to do with these centers, Mr. Chairman, is to establish about the country a critical mass of researchers who are directing their interest at the health services area rather than the biomedical area.

Mr. FLOOD. Where are you going to get the people to man these centers?

Dr. WAGNER. We feel there is a large untapped group of these people who not only have the interest but the capability.

Mr. FLOOD. Where?

Dr. WAGNER. Both within the universities and within various practice situations. We have had all sorts of interest in how the doctor can better his productivity by, for example, using allied health workers.

Mr. FLOOD. Are these centers going to be separate kingdoms unto themselves? Is there going to be any relationship between them?

Dr. WAGNER. We feel the National Center for Health Services Research and Development will be able to provide the kind of leadership and coordination to bring them together. These centers will be directing their attention to selective areas of interest within the total health services field without duplicating and overlapping.

Mr. FLOOD. But there will be a control over this?

Dr. WAGNER. Absolutely, this is one of the functions of the national center.

Dr. CASHMAN. One of the exciting things about these regional research centers, Mr. Chairman, is that they will be well-organized centers of research excellence and have multidisciplinary staffs.

Mr. FLOOD. Will what?

Dr. CASHMAN. They will propose or plan the research programs. They will carry out the experiments. If the work proves out, they will then proceed with the demonstration. They will also evaluate, and it will be up to them to disseminate and communicate this finding. So

this is not just a group of people who are going to do experimentation and research and then get a gold medal.

Mr. FLOOD. This is no ivory tower operation?

Dr. CASHMAN. No, sir. They will function in a fashion which emphasizes the expeditious carrying out of research and the implementation of the results of their research.

Dr. WAGNER. This has to be built right into the system. The people who are delivering services are the people who have to develop an interest in the research as to how they can improve the delivery. So as they look at various possibilities, determine the feasibility of these possibilities, and actually go through the analytical and experimental research that demonstrates that a particular way of doing it is actually better.

Mr. FLOOD. You think there is available a supply of people to do this kind of thing?

Dr. WAGNER. I think so.

HEALTH CARE FOR THE POOR

Mr. FLOOD. You are asking for an increase of 45 jobs and $361,000 to assist major cities in improving health care for the poor and minority groups. How much are you spending on this in 1968?

Dr. CASHMAN. If I may answer that, we have no exact parallel this year. As you are aware, there are many programs, not in our department only, but around Government that are focused upon the problems of the cities and the problems of the poor. In trying to see what we can do with our responsibility of trying to improve the organization for the delivery of services, there are a couple of factors, a couple of characteristics about the poor I think that attract our attention.

One is that the poor have a lesser ability to handle their problems of obtaining and financing health services, and also because of the very multiplicity of health programs they need some help to find their way through this maze. In order to capitalize on all of the new opportunities there are for receiving health care and paying for it, we think assistance is needed at the neighborhood level to help guide them to the programs that are there to help them.

We propose an investment of 45 people, to provide assistance to neighborhoods and cities that wish them. We will assign people who are knowledgeable about health services and especially about Federal health programs, to go into the communities and encourage residents to say what kinds of health services are most meaningful to them and help them find ways of getting them.

Mr. FLOOD. You go into their neighborhood and across the street you are going to find OEO doing exactly the same thing you are doing in the field of improving health care for the poor and minority groups.

Would it not be more efficient to have these services centralized in one Federal agency? You are going to get the people more confused than they are now.

Dr. CASHMAN. We do not intend to have any duplication of effort. We would not just merely assign them to a city because we felt there was a need. We would make it known that there are people available who are trained in the health field, who are knowledgeable about the provision of medical care services, who are knowledgeable particularly about the great number of Federal programs, and that there is a

willingness to come in and help the community look at its problems, and help it utilize the available resources.

Mr. FLOOD. I know all about that. But you know about these one-stop shopping centers. Do these people have to run around in the rain with papers in their hands up and down the street?

Dr. CASHMAN. These assignees are going to be running around in the rain. They are going to be meeting at night, on Saturday or whenever necessary, with neighborhood groups concerned about their problems in an effort to try to develop the kind of community leadership which must be created and must evolve if neighborhoods are going to resolve their problems.

We look upon our assignees as consultants, as catalysts, as resource people. Also, with a certain selfish interest, we expect to learn a great deal. We do not know the answers to the problems of delivery of services to the poor. We feel the neighborhood is going to benefit because of the knowledge of our health person, but we also feel that back here we are going to become more knowledgeable about alternative solutions to the problems, and thus increase the effectiveness of all our programs.

STUDY OF MEDICAL CARE COSTS

Mr. FLOOD. Your justification says—

An increase of six positions and $200,000 is requested to support economic studies of the rising costs of medical care and the future role of local and State-supported health facilities.

About a month ago we had the Department of Labor people before this subcommittee. One of the bureaus of Labor is the Bureau of Labor Statistics. They are expert at statistics. Why should they not be the ones to make such economic studies instead of you?

Dr. CASHMAN. Our concerns are broader than the gathering of statistical data. One aspect of our 1969 program will be to help develop new ways for consumers of health services to procure health care at reasonable prices through an investigation of present and potential insurance mechanisms which can lower the economic barrier to health services. We feel that knowledge about financing of health services and the cost of benefits of alternative ways of providing services, of getting services, are matters that are of concern in the field of health economics. One of our major programs has responsibility to look at health economics as it affects and relates to the total health services system. And our focus, as pointed out in the wording of our justifications, is we are aiming our efforts at the whole problem of rising costs. These are multiple in causation. There is a rise in demand for medical care; an increase in population; an increase in expectation of health services; an increase in payment mechanisms so the people can purchase more services. We have had only a slow increase in the number of of health personnel. Hospital costs have risen rapidly because of wage increases, increases in goods required by hospitals, and also because our technology now requires more staff per patient.

We are concerned about the rising cost of care and our program is designed to look at these various components to see if we cannot get a better buy for the health dollar.

What we are asking for really is a relatively small investment, considering the fact that this year the country will spend $50 billion for

health and medical care. One way of insuring this better buy is to arrange for services in less expensive facilities. Our Division does have programs for the improvement of nursing home services and for the development of home health services. Certainly these are two kinds of health resources that are alternatives to inappropriate hospital care. The fostering and promotion of these kinds of institutions is a way of getting a better buy for the dollar.

Mr. FLOOD. Are you going to do all of this with $200,000?

Dr. CASHMAN. No, sir. I was pointing out this is just adding to the kind of thing we are already doing.

ADVANTAGES OF "GROUP PRACTICE"

Mr. FLOOD. You are also requesting an increase of $400,000 and 15 jobs to initiate studies and demonstrations to encourage group practice. What are the advantages of group practice and how can you bring it about?

Dr. CASHMAN. There are a number of advantages to group practice.

First of all, grouping provides for skillful organization of scarce personnel and facilities into a most effective potential for providing care. It provides an opportunity for not only the best use of your professional people, but also for the development and use of subprofessional or paramedical people under appropriate supervision.

It is also a method of attracting scarce talent to rural areas. I am sure the fact that some of our finest clinics around the country are actually located in rural areas is due to the fact the availability and opportunity of practicing in rural areas does attract this kind of talent providing there is a solution to the problem of professional isolation. It also allows us to provide in one facility services that approach comprehensive health services. This is a day when it is impossible any longer for one physician to furnish the total health needs of an individual. Grouping of specialists under one roof provides this opportunity.

Mr. FLOOD. Suppose this is all so? How can you bring it about?

Dr. CASHMAN. One of the conferences Dr. Wagner spoke about was the National Conference on the Promotion of Group Practice. I have never been associated with any kind of a national meeting that had any greater enthusiasm from participants or any better, more complimentary letters after the conference than this particular one. There is a great deal of enthusiasm around the country for the promotion of group practice. And, of course, we hope to capitalize upon this interest. Already we have had numerous requests for consultation from groups of physicians in various parts of the country to help establish group practices.

One of our most successful efforts was working with the Group Health Association of America and AFL–CIO in Rhode Island in the establishment of a prepaid group practice in that State.

We are meeting next week in Denver with people of the medical society and AFL–CIO, again with an interest in establishing a prepaid group practice. There is concern and interest in the State of Florida that group practice may very well be a partial solution to the organization of services in areas of Florida where medical care services have

been less than adequate. So I think the climate is most appropriate and very right for the establishment of group practices.

RURAL HEALTH PROGRAM

Mr. FLOOD. There is an old adage which says if at first you do not succeed, try, try again. You have two increases in here that Congress disallowed last year and you are requesting them again—the rural health program and the family planning service program.

We understand that Agriculture and OEO are doing work in the first area, and a half-dozen Federal agencies, at least, are getting into family planning, since now apparently that is respectable.

Now you go to the jury. What makes you think we should give you funds for these two proposed activities?

Dr. CASHMAN. Yes, sir. It gives me an opportunity, Mr. Chairman, again to reemphasize the serious service gaps in our rural areas. About 30 percent of the population of the United States, 54 million people, live in rural areas.

Mr. FLOOD. I know, but Agriculture and OEO are already running programs.

Dr. CASHMAN. I do think it is important to emphasize the fact we do have problems, that 15 million of the 54 million inhabitants of rural areas are below the poverty level. There are real health problems in the rural areas—a higher rate of disease, infant mortality is greater, maternity mortality is greater, environmental conditions are poorer, health personnel are fewer, and many of these older, particularly physicians.

Generally speaking, the tax base is low and there is less money and less organized means for purchasing care.

Last year, with our small resources, we began to demonstrate some techinques to improve health levels in selected rural areas. In Pennsylvania, Mississippi, Alabama, Colorado——

Mr. FLOOD. Pennsylvania and Mississippi. Is that for contrast or what?

Dr. CASHMAN. No, sir. We worked with four States that were desirous of improving medical care in rural areas. These four projects are enabling multicounty areas to look at their needs, see what their resources are, and organize them most effectively.

Mr. FLOOD. You are not talking about migrant workers now?

Dr. CASHMAN. No, sir. But we are talking in many instances about people with the same kind of health problems as the migrants.

Mr. FLOOD. I understand.

Dr. CASHMAN. We feel that community development techniques are needed to improve rural health services and with a small investment, akin to the experience of this year, we can demonstrate that health services can be improved.

Mr. FLOOD. Are you public health people, the antipoverty people and the agricultural people coordinating your activities?

Dr. CASHMAN. We have a continuing dialogue with both the Department of Agriculture and OEO. One of my senior medical officers serves as liaison with the Department of Agriculture. We have had a number of joint activities with OEO.

Mr. FLOOD. Do they think you are disturbing the effectiveness of their activities?

Dr. CASHMAN. No, sir. Our approach is to try to help the community look at its resources and develop the kind of leadership that is necessary to solve their problems. We do not bring in anything magic, but we try to stimulate the development of resident leadership to take advantage of resources that are there and to help plan to meet their needs in the future.

NATIONAL CENTER FOR HEALTH SERVICES RESEARCH AND DEVELOPMENT

Mr. FLOOD. In 1969 you are asking $29,621,000 for the new National Center for Health Services Research and Development. Do you want to add anything to the discussion we have already had on this item?

Dr. WAGNER. Only to get as enthusiastic as I can, Mr. Chairman, that we feel this is of tremendous importance to the country and to the people in this country that we develop through this National Center for Health Services Research and Development new and innovative ways of organizing and delivering care and doing it in such a way that we maximize the productivity of every bit of resources being used.

I really think that the country is ready for it, the scientists about the country, the practitioners about the country, the institutions about the country, are extremely interested in this center and its leadership, and rather substantial inputs can be realized through this center.

EFFECT OF REDUCED 1968 SUPPLEMENTAL ON 1969 REQUESTS

Mr. FLOOD. Your 1969 budget is based on a supplemental for 1968. That supplemental request was estimated in the January budget at $12,427,000. Now we find that it is only $4,324,000.

What effect is that going to have on your 1969 budget?

Dr. WAGNER. Our 1969 budget request remains unchanged.

Mr. FLOOD. You base your 1969 budget on the $12 million supplemental. Now you are requesting only a $4 million supplemental.

Mr. BAHN. Mr. Chairman, may I answer that?

Mr. FLOOD. Yes.

Mr. BAHN. The $12,427,000 supplemental in 1968 included $6,600,000 for the mental retardation program. This activity has been comparatively transferred out of this appropriation and, therefore, will have no effect on this budget for 1969. The remaining $5,827,000 for the Center has been revised downward to $4,000,000. This reduction will result in a 1969 increase of $9,547,000 for grants and contracts for the National Center for Health Services Research and Development rather than the $7,720,000 presently shown in the estimates. I think Dr. Wagner indicated in answer to a previous question that there are transfers in the estimates in 1969 for this program. The 1968 base for these transfers approximates $16 million. These come primarily from the research part of the Hill-Burton program and the comprehensive health program section 314(e).

Mr. FLOOD. Suppose you did not get any supplemental except pay costs; what effect would that have on your 1969 budget?

Dr. WAGNER. The 1969 program will be operating from a lower base, Mr. Chairman.

Mr. FLOOD. Mr. Shriver?

FEDERAL SHARE OF TOTAL HEALTH SERVICES EXPENDITURES

Mr. SHRIVER. I was interested in your discussion of the $50 billion figure that you had also in the statement. I read this statement: "The last 2 years substantially higher amounts of public funds have been pumped into the health service systems than in previous years. Total expenditures now approach $50 billion annually."

Dr. WAGNER. That is the total cost.

Mr. SHRIVER. Public funds?

Dr. WAGNER. I am sorry. It is our mistake and I apologize for it. It was not intended to connote that it was all Federal funds.

Mr. SHRIVER. How much of it is public funds?

Dr. WAGNER. It is about one-third.

Mr. SHRIVER. Of that, how much is Federal?

Dr. CASHMAN. I can give you the figures.

Mr. SHRIVER. Place that in the record.

Dr. CASHMAN. Yes, sir.

(The information follows:)

HEALTH AND MEDICAL CARE EXPENDITURES, PRELIMINARY 1966–67

The Nation's total expenditures for health and medical care increased from about $3.6 billion in 1928–29 to an estimated $47.3 billion in 1966–67. This total includes both public and private expenditures.

Expenditures under public programs which amounted to 13.3 percent of the total in 1928–29, rose to about 25 percent in 1964–65 and make up an estimated 34.2 percent in 1966–67.

Considering only the $16.2 billion public expenditures for health and medical care in 1966–67, about 64 percent comes from Federal sources and 36 percent from State and local sources. In 1928–29 about 21 percent was Federal and 79 percent State and local; the corresponding figures for 1964–65 are 49.6 Federal and 50.4 State and local.

The Public Health Service estimates that total health and medical care expenditures will exceed $50 billion in 1968–69. Of this total amount, public expenditures are estimated at about 36 percent with the distribution between Federal and State and local remaining at about two-thirds to one-third.

TABLE 1.—HEALTH AND MEDICAL CARE PRIVATE EXPENDITURES AND EXPENDITURES UNDER PUBLIC PROGRAMS, SELECTED FISCAL YEARS, 1928–29 THROUGH 1966–67

[Dollar amounts in millions]

Type of expenditure	1928–29	1934–35	1939–40	1944–45	1949–50	1954–55	1959–60	1964–65	1965–66	1966–67 [1]
Total	$3,589.1	$3,123.2	$3,804.6	$7,914.4	$12,129.5	$17,923.6	$26,391.1	$38,989.8	$42,813.9	$47,266.6
Private expenditures	3,112.0	2,580.0	3,023.0	5,335.0	9,064.0	13,503.0	19,996.0	29,272.0	31,769.2	31,100.0
Health and medical services	3,010.0	2,570.0	2,992.0	5,305.0	8,849.0	13,178.0	19,518.0	28,038.5	30,458.8	29,730.0
Direct payments	[2] 2,900.0	[2] 2,500.0	[2] 2,900.0	[2] 4,875.0	7,146.0	9,448.0	13,087.0	17,386.0	18,981.0	18,000.0
Insurance benefits					879.0	2,344.0	4,674.0	8,280.5	8,935.4	9,000.0
Expenses for prepayment					274.0	596.0	792.0	1,212.0	1,347.4	1,500.0
Industrial inplant services	30.0	30.0	40.0	90.0	150.0	210.0	265.0	330.0	345.0	360.0
Philanthropy	80.0	40.0	52.0	340.0	400.0	580.0	700.0	830.0	850.0	870.0
Medical-facilities construction	102.0	10.0	31.0	30.0	215.0	325.0	478.0	1,233.5	1,310.4	1,370.0
Public expenditures	477.1	543.2	781.6	2,579.5	3,065.3	4,420.6	6,395.2	9,717.8	11,044.7	16,166.6
Health and medical services	372.5	495.1	679.5	2,468.2	2,470.2	3,862.3	5,346.3	7,815.3	8,933.9	13,785.4
OASDHI (health insurance for the aged)									63.6	3,393.1
Temporary disability insurance (medical benefits) [3]					2.2	20.0	40.2	50.9	54.3	56.0
Workmen's compensation (medical benefits) [3]	75.0	65.0	90.0	122.0	193.0	315.0	420.0	580.0	630.0	685.0
Public assistance (vendor medical payments)					51.3	211.9	492.7	1,367.1	1,709.9	2,318.3
General hospital and medical care	117.1	225.3	297.6	364.8	886.1	1,297.6	1,973.2	2,514.8	2,720.3	2,790.8
Defense Department hospital and medical care	29.2	27.7	45.4	1,631.1	336.2	744.8	820.1	1,036.8	1,273.4	1,571.8
Military dependents' medical care							60.1	78.3	76.2	150.8
Maternal and child health services	6.2	6.9	13.8	62.1	29.8	92.7	140.7	223.2	276.2	306.8
School health (educational agencies)	9.4	10.0	16.4	23.3	30.6	65.9	101.0	132.0	135.0	140.0
Other public health activities	88.8	112.2	154.5	178.0	350.8	383.7	401.2	671.5	723.8	900.9
Veterans' hospital and medical care	46.7	47.8	61.5	85.5	582.8	721.5	879.4	1,120.9	1,175.2	1,271.3
Medical vocational rehabilitation	.1	.2	.3	1.4	7.4	9.1	17.7	34.2	48.0	80.5
OEO health and medical care								5.6	48.2	120.2
Medical research		.3	2.6	2.5	72.9	138.9	471.2	1,229.2	1,379.7	1,540.5
Medical-facilities construction	104.7	47.8	99.6	108.7	522.3	419.4	577.7	673.2	731.0	840.6
Defense Department	[4]	[4]	[4]	38.9	1.1	33.0	40.0	34.8	28.6	58.5
Veterans' Administration	4.2	3.0	14.3	16.3	161.5	34.1	59.6	81.2	86.0	51.0
Other	100.4	44.8	85.2	53.5	359.8	352.4	478.1	557.2	616.4	731.2
Total expenditures as a percent of gross national product	3.6	4.5	4.0	3.7	4.6	4.7	5.3	5.9	6.0	6.2
Public expenditures as a percent of total expenditures	13.3	17.4	20.5	32.6	25.3	24.7	24.2	24.9	25.8	34.2
Personal care expenditures [5]	$3,272.2	$2,941.5	$3,502.1	$7,506.1	$10,578.2	$15,906.7	$23,481.7	$3,742.4	$37,025.0	$40,000.3
Private expenditures	2,990.0	2,560.0	2,979.0	5,220.0	8,475.0	12,437.0	18,551.0	26,619.0	28,898.9	27,360.0
Public expenditures	282.2	381.5	523.1	2,286.1	2,103.2	3,469.7	4,930.7	7,123.4	8,126.1	12,640.3
Percent from—										
Private expenditures	91.4	87.0	85.1	69.5	80.1	78.2	79.0	78.9	78.1	68.4
Direct payments	88.6	85.0	82.9	64.9	67.6	59.4	55.7	51.5	51.3	45.0
Insurance benefits					8.3	14.7	19.9	24.5	24.1	22.5
Public expenditures	8.6	13.0	14.9	30.5	19.9	21.8	21.0	21.1	21.9	31.6

[1] Preliminary estimates.

[2] Includes any insurance benefits and expenses for prepayment (insurance premiums less insurance benefits).

[3] Includes medical benefits paid under public law by private insurance carriers and self-insurers.

[4] Data not available.

[5] Includes all items shown under "Health and medical services" except (1) "Expenses for prepayment" and ⅓ of "philanthropy" under private expenditures, and (2) "Other public health activities" and administrative expenses for "Health insurance for the aged" and "Veterans' hospital and medical care" under public expenditures.

Mr. SHRIVER. Relative to the centers for research, did you testify about, first, the supplemental?

Dr. WAGNER. Right.

Mr. SHRIVER. You listed some that were being considered?

Dr. WAGNER. Right.

Mr. SHRIVER. Whether the list was completed or not, are those applications all in or not? Would you put in the record those that you listed even though your determination will not be made until May?

Dr. WAGNER. Yes, sir.

(List appears on p. 656.)

ENCOURAGEMENT OF GROUP PRACTICE

Mr. SHRIVER. What will you actually be doing relative to encouraging group practice, and why is the Federal Government interested in this? Why isn't this function performed by the States and private organizations rather than the Federal Government?

Dr. WAGNER. We feel, Mr. Congressman, that the group practice is one alternative the community ought to look at as a means of increasing the productivity of the resources while maintaining the quality. If I might give you one example of what I think is a very important study, the Federal employee under the health insurance program has an opportunity of selecting a group practice prepayment plan or an indemnity plan, Blue Cross or something of this sort. If we look at the study that was recently completed for those Federal employees who used group practice with a prepayment plan, they had 40 percent less hospitalization than those who used other means of providing care.

In that group there was two and a half times less tonsillectomies, two times less appendectomies, and one and a half times less female surgery. If we look at the admission rate per thousand for those who had Blue Cross plans, it was 12.9 as compared to 56.2 for those who had the group practice. To the Government this is extremely important. Where it is feasible and where a community can institute a group practice plan, particularly to carry it with or without the prepayment, they are increasing their capability of organizing and delivering care with the most productive use of their resources while maintaining ability and control that assures the quality will be maintained. They are not sacrificed.

Mr. SHRIVER. Why isn't that a determination that is purely voluntary?

Dr. WAGNER. It is.

Mr. SHRIVER. Of course, why are we bound?

Dr. STEWART. One of the stimuli in developing group practices has been the fact that Congress authorized mortgage guarantees for the construction of group practices 2 years ago. As a result of this and the general growing interest in group practices, the requests to us for help on how you do this in order to get a loan which would be guaranteed by the Federal Government have increased.

Mr. SHRIVER. Is it Congress fault?

Dr. STEWART. No. I was just illustrating the interest that has been expressed within the Federal Government in the whole group practice area: mortgage guarantee, technical assistance.

One of the recommendations in the Secretary's committee on costs and what we might do about costs is a development of group practices because of the data that Dr. Wagner cited. It looks like it decreases the amount of hospitalization, and, therefore, it would have an affect on medicare and medicaid. There is no Federal interest solely; there is private, and there are many other interests, in this whole area.

Dr. CASHMAN. The AMA is having its second annual socioeconomic conference next weekend and the primary subject is group practice. Group practice is of interest to organized medicine. We are interested because group practice is an alternative method of organization for the delivery of health services which has demonstrated its value in better utilization of health personnel and providing comprehensive health services in one setting.

MENTAL RETARDATION

Mr. SHRIVER. You mentioned mental retardation in connection with this particular section. What agencies of the Federal Government are involved in anything related to mental retardation? National Institutes of Health are.

Dr. STEWART. The reason that was in this particular budget was that we did have a Division of Mental Retardation in this bureau. It was transferred to the Social Rehabilitation Service of the Department. That is why the change occurs. The National Institutes of Mental Health has research in causes of mental retardation, learning effects, and since many mentally retarded have psychological problems too, one of the diagnostic problems we have is differentiating a behavior problem and a mental retardation problem.

The Child Health Institute is interested in human development in the area of normal and abnormal development of individuals. The Neurological Diseases and Blindness Institute has done a study on conditions of birth that lead to mental defects. The German measles vaccine which has been mentioned here many times has an effect in preventing mental retardation from occurring as a result of German measles affecting the mother. There are extensive programs in NIH. There are extensive programs in the Social and Rehabilitation Service in mental retardation.

Mr. SHRIVER. Where in the organizational structure do we really look to for accomplishments in this important field?

Dr. STEWART. The President's Commission on Mental Retardation is housed in the Department of Health, Education, and Welfare. They, in a sense, monitor the developments of these programs and suggest further developments.

Mr. CARDWELL. Isn't it fair to say, Dr. Stewart, the principal locus at the moment is under the 1968 Secretary's reorganization which would give the Social Rehabilitation Services the prime responsibility for coordinating and providing leadership in the broad field of mental retardation?

As Dr. Stewart pointed out, there are a number of elements of our Department that have an interest in and contribute to the broad area. The prime locus at the moment would be the Social Rehabilitation Service.

Dr. STEWART. Training service workers.

Are you talking about research in etiology and because of this or

better treatment? We are talking about NIH there. This is the principal split.

Mr. CARDWELL. At this point it might help answer the chairman's question about the effect of the change in the supplemental in the 1969 budget. Originally, as you point out, the President's budget identified over $12 million in supplementals chargeable to this appropriation. The original request really consisted of two parts: $6.6 million was identified for construction of university affiliated mental retardation facilities and would have been transferred to the new Social and Rehabilitation Service—leaving a figure of $5,827,000 relating to this program we are now discussing. The supplemental for the National Center was reduced to $4 million. The difference is $1,827,000.

That is the only effect that this change has on the base. It changes by $1,827,000. Thus, from 1969, we would be asking for an additional increase of $1,827,000. In effect, we would be restoring the effect of the cut made in the supplemental. In other words, to sum up, $6.6 million of the $12 million figure really had to do with mental retardation, and since the budget was prepared, that activity has been transferred.

Mr. SHRIVER. Thank you.

Mr. CARDWELL. It becomes rather complicated.

Mr. FLOOD. Mr. Smith?

HOSPITAL CONSTRUCTION AND FACILITY DESIGN

Mr. SMITH. Apparently a number of people and agencies have rather belatedly become interested in this matter of building hospitals in a manner so that there is less waste of the time of valuable personnel.

You are involved in that, too, are you not?

Dr. WAGNER. Yes, sir.

Mr. SMITH. In your budget request, am I correct, you have $9 million in here for research on this particular item?

Dr. WAGNER. Around $9 million.

Mr. SMITH. Suppose somebody wants to build a hospital and at the same time demonstrate some new approach? Is there a limit on the amount of Federal assistance?

Dr. WAGNER. Yes, sir; we have a limit of 50 percent for any construction or equipment.

Mr. SMITH. Is the 50-percent limit by regulation or law.

Dr. WAGNER. I believe it is by regulation.

Mr. SMITH. Anyway, you have a limit of 50 percent. Is there a dollar limit also?

Dr. WAGNER. No, sir.

Mr. SMITH. There is not?

Dr. WAGNER. No, sir.

Mr. SMITH. Do you have a lot of applications?

Dr. WAGNER. There is a considerable amount of interest in this because, as you know, there is a large backlog of hospitals which need remodeling and there is a considerable amount of interest in architectural-engineering firms and systems firms in coming up with new and better ways of constructing and remodeling hospitals so that they won't go out of date rapidly and they will have maximum flexibility.

Mr. SMITH. Do you anticipate that these projects that are approved will be for whole hospitals or wings on hospitals, or what?

Dr. WAGNER. Most of them that are being approved are for remodeling of facilities. Some of the proposals are for new facilities. A swing unit, for example, is proposed at one hospital because throughout the country hospitals which have a fixed number of obstetrical beds have a very poor utilization rate. They experience marked peaks and valleys so that over a year there will be days when many beds on the obstetrical service which will be empty while they have a backlog of surgical cases and internal medicine cases they cannot find a bed for. One of the proposals that has been worked on by several people about the country is that if you could build a swing unit so that the obstetrical ward could contract down to five beds or expand to 15 beds while you permitted the rest of the beds to be used for ordinary surgical cases is an example.

Mr. SMITH. Have you approved some or all of the circular arrangement of rooms? Have you supported research for some of those projects?

Dr. WAGNER. We have, sir.

Mr. SMITH. What can you tell us about the one at Mayo?

Dr. WAGNER. The one at an affiliated hospital?

Mr. SMITH. Yes.

Dr. WAGNER. I would like to ask Dr. Graning to respond.

Dr. GRANING. The Methodist Hospital in Rochester, Minn., has two designs that will permit comparative studies, on the cost of providing service. The program has progressed very well. They have some studies underway. They had previously established base lines prior to the construction period and have made very meaningful progress.

Mr. SMITH. Was that financed under this program?

Dr. GRANING. It was financed under the experimental construction program then under the Hill-Burton program.

Mr. SMITH. Is it proving to save substantial amounts of time for personnel?

Dr. GRANING. There are advantages and disadvantages. It is not viewed as being as exciting as originally supposed.

Mr. SMITH. Is the spoke design involved there?

Dr. GRANING. There have been several approaches to better design of the patient's care unit. There has been an interesting project in Massachusetts, the project at the Mayo Foundation, and a project at Georgetown University. In each of these instances there are certain advantages and disadvantages which are being costed out in the studies. The principal problem of the circular design relates to the size of the core.

People have been having some second thoughts about this and the circular design is getting some modification in terms of elliptical patterns.

Mr. SMITH. When you say that the one at Mayo has not proved as exciting as you thought it might me, that is not very definite in terms of saving of time of personnel. Are you talking about a 10-percent saving or what?

Dr. GRANING. The group at Mayo, as I say, is not prepared to report as yet. They have some cost studies underway and do intend to publish this but not yet.

Mr. SMITH. Should communities, that want to build a hospital and are willing to do a little experimenting in the course of things, be encouraged to make an application for funds under this program? Will there be enough funds so that they could expect to get perhaps part of the cost for one wing of this hospital in this case?

Dr. GRANING. Yes, sir, they should, particularly if they think they have something that is innovative.

Mr. FLOOD. Should what?

Dr. WAGNER. Should be encouraged to make application.

Dr. GRANING. The most exciting proposal that came before the Federal Hospital Council this past year related to a better way of building hospitals in the first place. We have known for years that hospitals take too long to build and that they cost too much. Hospitals, as other buildings, have been built on the sandwich principle. If you put the fourth floor between the third and fifth and if you want to change the fourth floor you have to go through the other floors to get at it.

We have known for years that the tensile strength of steel is greater than its compression strength. Therefore, if you were to build a steel core and suspend floors and prefabricated units, it would be possible to pull portions of it out when it no longer served its purpose and replace it. There would be some very real advantages.

It has been funded this past year at the University of Michigan. Prior to our approving this, we had to obtain the concurrence and approval of the labor unions. This was obtained and we are looking forward to this with a great deal of interest.

Mr. FLOOD. Isn't something of this sort being done in the type of high-rise apartment construction used first in Montreal?

Dr. GRANING. Yes, sir. It has been done very extensively abroad. At the recent meeting of the National Academy of Engineering in December, that was convened by Secretary Gardner, consideration was given to the cost of construction of health care facilities. It was recognized that this problem, the cost of construction, is generic to the whole building industry. In all probability it cannot be resolved by health care facilities by themselves. It was recognized that with shortages in manpower and the extreme shortages that prevail in terms of construction trades in some sections of the United States, it may be possible to look forward with some optimism to some shortcuts in building construction.

Mr. SMITH. If there is a total of $9 million allotted for this purpose, that is not going to finance many hospital projects; is it?

Dr. WAGNER. This is the research center.

Mr. SMITH. I am talking about whether they ought to be encouraged to apply. With that total sum available, you are not going to award very many grants?

Dr. WAGNER. That is correct.

Mr. SMITH. How are you going to determine which ones you are going to approve?

Dr. WAGNER. We have a mechanism, the scientific study section, which passes on scientific properties of the proposal and then a council made up of outside people——

Mr. SMITH. If you have never had research done in a certain area, who is qualified to know what is the most apt to be a successful one?

Dr. WAGNER. These people are pretty good at evaluating the feasibility and scientific merit of a proposal.

Mr. SMITH. How is there any scientific merit? Is it a matter of trying to get which would work the best or to scientifically determine which ones of these designs is going to save more personnel time?

Dr. WAGNER. There is no way of predicting it. Otherwise we wouldn't have to do the research.

Mr. SMITH. If they could scientifically determine that, why didn't they do it 20 years ago?

Dr. WAGNER. I am sorry, I misled you. I meant that these people are pretty good at evaluating the potential capability in the research area. They are pretty good at predicting possibilities of successful research based on the protocol, background of the people involved, and so forth.

Mr. SMITH. Do you have something to add?

OPERATIONAL COSTS OF HOSPITALS

Dr. GRANING. You might be interested in knowing that in a recent study made with reference to design of health care facilities on a university campus, a great deal of thought was given to the configuration of the layout of these facilities. Everyone has recognized for a long time that the cost of operation after you build is the critical item, much more critical than the original cost. By giving the problem to a computer of testing various configurations and computing the travel time of personnel, in terms of walking from one place on campus to another where they have to be——

Mr. SMITH. That is the most critical element there, is it not?

Dr. GRANING. It is certainly very important. During the course of the lifetime of the facility, one of the configurations would have cost $12.8 million more in personnel time just walking between places than some other configurations.

Mr. SMITH. That is what we are trying to get at through such research projects, is it not?

Dr. GRANING. Yes, sir.

CONSTRUCTION RESEARCH

Mr. SMITH. Meanwhile we just keep shoveling out Hill-Burton funds and most of them keep building hospitals the same old way, don't they?

Dr. GRANING. Yes, sir.

Mr. SMITH. If they can determine all this scientifically, what happened to the money?

Dr. GRANING. Studies of this kind are going on these days. We are seeing better designed health care facilities and we are making some very substantial forward steps.

Dr. WAGNER. We would have to admit, Mr. Congressman, that many of the decisions as to the results in the configuration of the facility have been made other than on a scientific basis. There are many——

Mr. SMITH. There is no doubt about it. I have talked to some doctors and hospital boards and I just talked to some last week that are thinking about a new hospital. They said: You know, when you get right down to it, I guess we have to admit that although we secure an archi-

tect and plan all this, in the end it is a group of doctors that decides what design they like.

Dr. WAGNER. They change the design and you change the design to fit new doctors.

Mr. SMITH. Most any design would work all right for them. That is not the critical point here in terms of expense.

Dr. WAGNER. I think that we can show you where we have hospitals that have changed their examining room and some major construction changes because the doctors that moved in did not want the examining table on the left side of the desk rather than the right side of the desk. We have had nurses that insisted upon an arrangement of the nursing stations in the layout of the ward based upon their specific way of doing things. The change then to a more efficient way is not an easy matter. I think that the state of the art to set up an efficient facility far exceeds the state of the art to change the behavior of the people who have to use the facility.

Mr. SMITH. Is there a concentrated effort being made to get people who are applying for Hill-Burton funds to take advantage of what is known so far in this area?

Dr. WAGNER. Very definitely. I think that the consultation that the Hill-Burton people have provided, model layouts that they have developed, have significantly influenced how hospitals have been constructed over the past 20 years.

Mr. SMITH. Have architects been willing to change or do they still want to use the same old plan?

Dr. WAGNER. I think the architects have been willing to change but they have to satisfy a customer. Sometimes they have had to provide a plan that they would not necessarily have provided if——

Mr. SMITH. If the architect only builds two or three hospitals in his lifetime, he is not going to personally know the need for new designs and all the reasons and so forth. However, he will be the one who is supposed to dig this out rather than the board at the hospital, is he not?

Dr. WAGNER. It is a combination of the engineer, architects, and systems personnel that really has to get the hospital administrator to define the program and define it so clearly that you can then translate this into a configuration which provides for maximum productivity and maximum accomplishment of that program with a minimum amount of capital investment and a maximum of productivity of people who use it. It is more a combination, I think, of approach that gets the facility personnel to define its program first.

Many of them do not have a program. They want a hospital and they figure that you can construct a hospital that meets the following criteria and the first thing they are interested in is the drawing of what will have occurred after the hospital has been constructed.

Mr. SMITH. Have you had any research projects under this program to determine the best design for a hospital that would serve an average-sized community rather than a big city?

Dr. WAGNER. The Hill-Burton program has developed prototypes, a 100 bed, a 200 bed, a 500 bed.

Mr. SMITH. Have you research projects in each of those sizes of projects?

Dr. WAGNER. Those are the results of research.

Mr. SMITH. I am talking about under this program. Have you awarded research grants to each of these sizes of hospitals?

Dr. WAGNER. I think there have been research grants.

Dr. GRANING. Not for a 50-bed hospital.

Mr. SMITH. Are you expecting to do that? I mean it is important, is it not, to work on designs for all sizes?

Dr. GRANING. We would welcome an application from a 50-bed hospital and it would probably relate to a portion of the hospital, as do applications from any other size. We would, for instance, welcome an application in terms of layout of the outpatient department. We would welcome an application in terms of any ideas they had in terms of better functioning of radiology or better communications tie-in with laboratory services.

Mr. SMITH. The reason you have not awarded one to a 50-bed hospital is you have not had the application?

Dr. GRANING. Yes.

Mr. SMITH. That is all I have.

Mr. FLOOD. Thank you, gentlemen. We will recess until 10 a.m.

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JUSTIFICATION MATERIAL

PUBLIC HEALTH SERVICE

Community Health Services

Amounts Available for Obligation

	1968	1969
Appropriation or estimate.....	$54,234,000	$59,500,000
Transfer from Social Security trust funds.....	4,075,000	4,320,000
Transfer to "operating expenses, Public Building Services," General Services Administration (79 Stat. 531).	-28,000	--
Transfer from "National Institute of General Medical Sciences".....	34,000	--
Proposed supplemental.....	12,427,000	--
Comparative transfer to "Social and Rehabilitation Service":		
1968 appropriation.....	-11,427,000	--
Proposed supplemental.....	-6,600,000	--
Unobligated balance carried forward.....	-17,500,000	17,500,000
Unobligated balance transferred.....	--	-17,500,000
Total, comparable new obligational authority.....	35,215,000	63,820,000

Obligations by Activity

Page Ref.		1968 Estimate Pos.	1968 Estimate Amount	1969 Estimate Pos.	1969 Estimate Amount	Increase or Decrease Pos.	Increase or Decrease Amount
	1. Medical Care Administration and Community Health						
	a. Grants:						
189	(1) Research.....	--	$ 6,760,000	--	$ 7,800,000	--	+$ 1,040,000
191	(2) Training and Fellowships.	--	1,050,000	--	1,100,000	--	+ 50,000
192	(3) Migrant health services....	--	7,200,000	--	8,100,000	--	+ 900,000
194	b. Direct operations.....	602	14,232,000	698	15,723,000	+96	+ 1,491,000
	Sub-Total.....	602	29,242,000	698	32,723,000	+96	+ 3,481,000
	2. National Center for Health Services Research and Development						
217	a. Grants and Contracts.....	--	$5,827,000	--	$27,720,000	--	+$21,893,000
225	b. Direct operations.....	--	--	130	1,901,000	+130	+ 1,901,000
	Sub-Total.....	--	5,827,000	130	29,621,000	+130	+ 23,794,000
	3. Program Direction and Management Services...	--	--	96	1,476,000	+96	+ 1,476,000
	Total Obligations.....	602	35,069,000	924	63,820,000	+322	+ 28,751,000
	Unobligated balance, reserve.....	14	146,000	--	--	-14	-146,000
	Total, comparable new obligational authority..	616	35,215,000	924	63,820,000	+308	+ 28,605,000

Obligations by Object

	1968 Estimate	1969 Estimate	Increase or Decrease
Total number of permanent positions.....	602	924	+322
Full-time equivalent of all other positions.....	25	36	+ 11
Average number of all employees.....	582	871	+289

11	Personnel compensation:			
	Permanent positions.....	$5,819,000	$9,327,000	+$3,508,000
	Positions other than permanent.....	179,000	292,000	+ 113,000
	Other personnel compensation.....	40,000	40,000	--
	Total personnel compensation.....	6,038,000	9,659,000	+ 3,621,000
12	Personnel benefits.....	708,000	1,007,000	+ 299,000
21	Travel and transportation of persons..	798,000	1,202,000	+ 404,000
22	Transportation of things.....	63,000	121,000	+ 58,000
23	Rent, communications, and utilities...	212,000	370,000	+ 158,000
24	Printing and reproduction.....	93,000	198,000	+ 105,000
25	Other services.....	327,000	471,000	+ 144,000
	Project contracts.....	4,837,000	5,402,000	+ 565,000
	Services of other agencies.....	400,000	400,000	--
	Payment to "Public Health Services" management fund.....	591,000	--	- 591,000
26	Supplies and materials.....	82,000	133,000	+ 51,000
31	Equipment.....	83,000	137,000	+ 54,000
41	Grants, subsidies, and contributions..	20,837,000	44,720,000	+23,883,000
	Total obligations.....	35,069,000	63,820,000	+28,751,000

Summary of Changes

1968 enacted appropriation	$54,234,000
Proposed supplemental	12,427,000
Transfer from "National Institute of General Medical Sciences"	34,000
Comparative transfer of Mental Retardation Activities to "Social and Rehabilitation Service":	
1968 appropriation	-11,427,000
Proposed supplemental	-6,600,000
Unobligated balance transferred	-17,500,000
Transferred from "Social Security Trust fund accounts"	4,075,000
Transferred to "operating expenses, Public Buildings Service," General Services Administration	-28,000
Unobligated balance, reserve	-146,000
1968 total estimated obligations	35,069,000
1969 estimated obligations	63,820,000
Total change	+28,751,000

Increases	Base Positions	Base Amount	Changes from Base Positions	Changes from Base Amount
A. Built-in				
1. Annualization of 72 new positions and program costs authorized in 1968	--	--	--	$317,000
2. Annualization of pay raise	--	--	--	120,000
3. One extra day of pay in 1969 (260 days in 1968, 261 days in 1969)	--	--	--	34,000
4. Within-grade and reclassification costs	--	--	--	202,000

Summary of Changes - Continued

	Base		Changes from Base	
	Positions	Amount	Positions	Amount
5. Adjustment to reflect base program previously funded in other accounts:				
a. National Center for Health Services Research and Development:				
(1) Grants and contracts...	--	--	--	$14,173,000
(2) Direct operations..	--	--	51	757,000
b. Program Direction. and Management Services.....	--	--	96	1,359,000
B. Program				
1. Medical Care Administration and Community Health:				
a. Research grants...	--	$6,760,000	--	1,040,000
b. Research training and fellowships..	--	1,050,000	--	50,000
c. Migrant health grants.....	--	7,200,000	--	900,000
d. Health insurance and field operations.....	257	4,045,000	50	461,000
e. Health economics..	41	1,482,000	6	200,000
f. Group practice....	3	100,000	15	400,000
g. Rural health program.....	3	187,000	20	279,000
h. Initiation of family planning services program.	--	--	5	200,000

Summary of Changes - Continued

	Base		Changes from Base	
	Positions	Amount	Positions	Amount
2. National Center for Health Services Research and Development:				
a. Grants and contracts..	--	$20,000,000 1/	--	$7,720,000
b. Direct operations.	51	757,000 1/	79	1,131,000
3. Program Direction and Management Services.....	96	1,359,000 1/	--	29,000
Total program increases.....	--	--	322	12,410,000
Decreases				
A. Built-in				
1. Non-recurring items of equipment.....	--	--	--	-30,000
2. Non-recurring contribution to Public Health Service Management Fund.....	--	--	--	-591,000
Total decreases..	--	--	--	-621,000
Total net changes requested.....	--	--	+322	+28,751,000

1/ Adjustments to reflect programs previously funded in other accounts.

Explanation of Changes

1. Medical Care Administration and Community Health

Research grants

The $1,040,000 increase will provide support for 2 new research centers, expansion of the 3 research centers established in 1968, and supplementals for approved research grants.

Research training grants and fellowships

The $50,000 increase for research training will provide support for 39 ongoing research training grants.

Migrant health grants

An increase of $900,000 is requested to expand and intensify health services for migrant workers by strengthening the medical, dental and hospital components of the 115 migrant health projects.

Health insurance and field operations

An increase of 45 positions and $361,000 is requested to expand staff capabilities to assist major American cities in improving health care for the poor and minority groups.

An increase of 5 positions and $100,000 is requested to develop community profiles and expand the health resources inventory.

Health economics

An increase of 6 positions and $200,000 is requested to support economic studies of the rising costs of medical care and the future role of local and state-supported health facilities.

Group practice

An increase of 15 positions and $400,000 is requested to initiate studies and demonstrations to encourage the development of group practice.

Rural health program

An increase of 20 positions and $279,000 is requested to provide consultative services and technical assistance in the development of health services in rural areas.

Family planning services program

An increase of $200,000 and 5 positions is requested to initiate a program of family planning services.

Explanation of Changes - Continued

2. National Center for Health Services Research and Development

An increase of $7,720,000 provides for the funding of additional contracts and grants under this activity. The $1,131,000 increase provides improved staff support for operation of the center.

3. Program Direction and Management Services

An increase of $29,000 is requested for contractual services.

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Authorizing Legislation

Legislation	1969 Authorization
Section 301	Indefinite
Section 304	$40,000,000
Section 310	0 1/

1/ Legislation pending to further amend and extend the Migrant Health program.

Public Health Service Act

Research, Research Training, and Fellowships

Section 301. Provides legislative authority for the award of grants for research, research training, and fellowships and is included in the section of the justifications under the tab, "Preamble Paragraph" in Volume V.

Research and Demonstrations Relating to Health Facilities and Services

Section 304. (a) The Secretary is authorized--

(1) to make grants to States, political subdivisions, universities, hospitals, and other public or nonprofit private agencies, institutions, or organizations for projects for the conduct of research, experiments, or demonstrations (and related training), and

(2) to make contracts with public or private agencies, institutions, or organizations for the conduct of research, experiments, or demonstrations (and related training),

relating to the development, utilization, quality, organizations, and financing of services, facilities and resources of hospitals, facilities for long-term care, or other medical facilities (including, for purposes of this section, facilities for the mentally retarded, as defined in the Mental Retardation Facilities and Community Mental Health Centers Construction Act of 1963), agencies, institutions, or organizations or to development of new methods or improvement of existing methods of organization, delivery, or financing of health services.

"(d) There are authorized to be appropriated for payment of grants or under contracts under this section $20,000,000 for the fiscal year ending June 30, 1968, $40,000,000 for the fiscal year ending June 30, 1969, and $60,000,000 for the fiscal year ending June 30, 1970; except that, for any fiscal year ending after June 30, 1968, such portions of such sums as the Secretary may determine, but not exceeding 1 per centum thereof, shall be available to the Secretary for evaluation (directly or by grants or contracts) of the program authorized by this section."

Family Health Service Clinics for
Domestic Agricultural Migratory Workers

Section 310. There are hereby authorized to be appropriated not to exceed $7,000,000 for the fiscal year ending June 30, 1966, $8,000,000 for the fiscal year ending June 30, 1967, and $9,000,000 for the fiscal year ending June 30, 1968, to enable the Surgeon General (1) to make grants to public and other non-profit agencies, institutions, and organizations for paying part of the cost of (i) establishing and operating family health service clinics for domestic agricultural migratory workers and their families, including training persons to provide services in the establishing and operating of such clinics, and (ii) special projects to improve health services for and the health conditions of domestic agricultural migratory workers and their families, including necessary hospital care, and including training persons to provide health services for or otherwise improve the health conditions of such migratory workers and their families, and (2) to encourage and cooperate in programs for the purpose of improving health services for or otherwise improving the health conditions of domestic agricultural migratory workers and their families.

Explanation of Transfers

	1968 Estimate	1969 Estimate	Purpose
Transfer from: Social Security trust funds.....	$4,075,000	$4,320,000	To implement Public Health Service functions related to Title XVIII of the Social Security Act.
Transfer from: "National Institute of General Medical Sciences".....	34,000	--	Transfer of scientific evaluation funds in support of the Health Services Research Study Section and a part of the Public Health Service reorganization.
Transfer to: "Operating expenses, Public Buildings Service", General Services Administration.....	-28,000	--	Rental of space.
Comparative transfer to: "Social and Rehabilitation Service":			Transfer of Mental Retardation activities as part of the reorganization of the Department of Health, Education, and Welfare.
1968 appropriation...	-11,427,000		
Proposed supplemental	-6,600,000		
Unobligated balance transferred.....		-17,500,000	

Community Health Services

	1968 estimate		1969 estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
Personnel compensation and benefits	602	$ 6,746,000	924	$10,666,000	+322	+$3,920,000
Other expenses	-	28,323,000	-	53,154,000	-	+24,831,000
Total	602	35,069,000	924	63,820,000	+322	+28,751,000

General Statement

The appropriation is divided into three major program components: "Medical Care Administration and Community Health", covers activities directed toward improving the quality, quantity, effectiveness, and availability of health and health protection services in all settings. It includes new approaches for planning and organizing for the delivery of health services in urban and rural areas as well as to migrant workers and their families. It also includes the provision of professional and technical support to the Social Security Administration in its administration of Title XVIII of P.L. 89-97 (the Social Security Amendments of 1965). It serves as a focal point within the Public Health Service for drawing upon the many skills and resources needed to implement the Medicare and Medicaid programs.

The National Center for Health Services Research and Development provides the focal point within the Public Health Service for health services research activities and is consistent with the President's directive to establish such a center. Included in its functions are the development of information systems, the development of research resources, and the financing of large scale research in the organization and delivery of health services and in the improvement of medical facilities design. In 1968 this activity was carried in Hospital Construction activities, Comprehensive Health Services and the Public Health Service management fund.

Program Direction and Management Services covers the immediate office of the Bureau Director. This office provides program direction and management services in the application and utilization of the Bureau of Health Services resources towards the achievement of its goals. This activity was previously carried in the Public Health Service Management Fund.

To carry out these activities, we are requesting a budget of 924 positions and $63,820,000.

Research grants

1968 Estimate	1969 Estimate	Increase
$6,760,000	$7,800,000	+$1,040,000

Estimated grant requirements

	1968 Estimate		1969 Estimate		Increase or Decrease	
	No.	Amount	No.	Amount	No.	Amount
Non-competing continuations	59	$4,241,000	57	$3,789,000	-2	-$452,000
New grants	27	1,369,000	27	1,369,000	--	---
Supplementals	--	150,000	--	450,000	--	+300,000
Sub-total	86	$5,760,000	84	$5,608,000	-2	-$152,000
Research centers --						
Non-competing continuations	--	---	3	1,500,000	+3	+1,500,000
New	3	1,000,000	2	692,000	-1	-308,000
Sub-total	3	1,000,000	5	2,192,000	+2	+1,192,000

Improvement of health services depends increasingly upon special research and development efforts addressed to selected problems inherent in the medical care process and administrative patterns and procedures that affect organizational delivery of care, its accessibility, quality and capability to provide a continuation of preventive, curative, and restorative services such as: the evaluation and improvement of procedures and regimens for patient care; economic analysis of costs and benefits of services; and the patterns of utilization of services by special groups and by the general population under varying urban and rural conditions.

During 1969, additional research needed for improving the delivery of health services to the community will be stimulated. Priorities for research will parallel priorities for program development. Thus special effort will be made to further research on the planning and organization of health services; quality of care; and cost of care.

We will encourage studies of the impact of cultural, economic, and political influences on the feasibility and success of health planning; studies of health needs in communities with limited fiscal resources; and studies of community readiness to improve health services, focusing on such variables as citizen

awareness, leadership awareness, etc. New knowledge is also needed with respect to the roles and relationships of the various health resources within the community, and new methods of achieving full coordination and utilization of total resources need to be explored. For example, there are still many unanswered problems in achieving fully satisfactory integration of medical services provided in the hospital, the extended care facility, nursing home, physician's office and patient's home. Likewise, successful integration of special programs dealing with particular population groups such as school children, or agricultural migrants with other existing community programs requires further research. Ways of reducing fragmentation of health services through such methods as regionalization and metropolitan organization must be studied more intensively than they have been to date.

High priority will be given research proposals dealing with the quality of health care. While some progress has been made in developing methods of assessing quality of hospital services, far less work has been done with respect to evaluation of the quality of out-of-hospital care. Studies, experimenting with a variety of approaches, are particularly needed in this area. These should include attention to care in individual and group office practice, in extended care facilities, and in the home, as well as in hospitals.

In 1968, three Health Services Research Centers are being established in medical or health service institutions. We expect from 10 to 15 applications for these awards. The centers will provide a setting in which a multi-disciplinary approach to the problems of the medical care will be pursued. The Center will serve as a long-term site for medical and health related investigative teams to conceptualize, operate, and evaluate new or different ways of providing health services.

The basic characteristic of the centers is purposeful experimentation -- setting up new services, operating them under controlled conditions, and evaluating the results against appropriate criteria. In 1969, it is anticipated that two new Health Services Research Centers will be established.

At the same time we will continue to encourage new independent research project proposals, since there is no substitute for original creative ideas of imaginative investigators. The increase of $1,040,000 will provide support for non-competing continuations and supplementals for approved research grants. Support of new grants will remain at the 1968 level.

Research training and fellowships

	1968 Estimate	1969 Estimate	Increase
Amount	$1,050,000	$1,100,000	+$50,000

To carry on a successful program of research in community health and medical care administration, an adequate supply of competent investigators is essential. However, there is a limited availability of academic curricula in the various disciplines needed for training graduate students to do research in these areas, as well as limited financial support for students.

Currently, we are supporting 9 training programs at the level of $800,000 designed to prepare students for careers in research in community health and medical care administration. We expect to award 30 research fellowships in 1968 amounting to $250,000. Students are supported directly by our research fellowship program; the research training grants program provides curriculum development and also provides faculty and student support to the university.

The 1969 research fellowship request is $250,000. The 1969 research training grant request is $850,000, an increase of $50,000, which is needed to provide support for ongoing research training grants.

Migrant health services

	1968 Estimate	1969 Estimate	Increase
Amount	$7,200,000	$8,100,000	+$900,000

An increase of $900,000 is requested to enable the Migrant Health Program to serve an increased number of migrant farm workers and families.

Migrant agricultural laborers and their families are among the most deprived groups in the nation. The purpose of this program is to raise the level of migrant health to that of the general population. At present less than 1 out of every 3 migrants is receiving health care at some time during the year through the migrant health program. Moreover, a program to provide needed hospital in-patient care for migrants has been in operation a little over one year. The increase requested for 1969 will enable some progress toward the program's goal by: (1) increasing the number of migrants reached; (2) increasing the quality and quantity of out-patient care being received by migrants; and (3) increasing the current level of in-patient hospital care.

In 1969, 115 projects in 36 States and Puerto Rico will continue to be supported. The typical project provides family health service clinics, home nursing visits to families in migrant camps, health education and the services of sanitarians working with migrants and property owners to upgrade living conditions.

Through a program initiated in 1967, 55 migrant health projects will be providing in-patient hospital care for migrant workers and their families. An intensified program of early casefinding, out-of-the-hospital medical care, and a more person-oriented program of pre-discharge planning will continue in each of these project areas.

The number of migrants living and working for 6 or more months of the year in counties which provide ready access to personal health care is approximately 310,000. The total number of patient visits for medical care is expected to grow to 230,000 in 1969, as compared to 216,000 in 1968. Dental visits will increase from 25,000 to 27,000. Approximately 128,000 sanitation inspections and follow-up visits will occur in 1969, an increase of 2,000 over the previous year.

The in-patient hospital component will provide hospital care for approximately 3,600 patients in 1969, as opposed to 3,400 in 1968. This will be an increase of approximately 1,000 hospital days for a total of 21,000.

Medical Care Administration and Community Health Program

Direct operations

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
Personnel compensation and benefits	602	$6,746,000	698	$7,965,000	+96	+$1,219,000
Other expenses	---	7,486,000	---	7,758,000	---	+272,000
Total	602	14,232,000	698	15,723,000	+96	+1,491,000
Subactivities:						
(1) Health insurance and field operations	257	$4,045,000	307	$4,860,000	+50	+815,000
(2) Standards and methods.	24	1,250,000	24	1,259,000	---	+9,000
(3) Health economics	41	1,482,000	47	1,725,000	+6	+243,000
(4) Group practice	3	100,000	18	500,000	+15	+400,000
(5) Nursing home services.	27	792,000	27	804,000	---	+12,000
(6) Home health services..	22	671,000	22	681,000	---	+10,000
(7) Adult health protection	42	1,455,000	42	1,475,000	---	+20,000
(8) State and urban health services	87	1,557,000	87	1,604,000	---	+47,000
(9) Health communications.	32	942,000	32	956,000	---	+14,000
(10) Health services for migrant workers	50	845,000	50	876,000	---	+31,000
(11) Rural health	3	187,000	23	466,000	+20	+279,000
(12) Family planning services	---	---	5	200,000	+5	+200,000
(13) Physical fitness program	14	315,000	14	317,000	---	+2,000
(14) Management fund	---	591,000	---	---	---	-591,000
Total, Direct operations	602	14,232,000	698	15,723,000	+96	+1,491,000

The major thrust of these direct operating programs is toward providing professional and technical assistance to States, communities, providers of health care, medical and health organizations, and other federal units. Our ability to provide the ever-increasing and complex assistance necessary to foster the development, improvement, and expansion of needed community health and medical care activities is dependent upon a variety of approaches. Primary among these approaches is a well-trained and widely dispersed staff, supplemented by program-directed studies and demonstrations carefully targeted at situations requiring prompt action.

Health insurance and field operations

	1968 Estimate	1969 Estimate	Increase
Positions	257	307	+50
Amount	$4,045,000	$4,860,000	+815,000

During fiscal year 1968, all hospitals, extended care facilities, and home health agencies certified to provide service under Title XVIII, P.L. 89-97, will be resurveyed and recertified by State agencies (6,872 hospitals, 4,223 extended care facilities, and 1,849 home health agencies as of October 1967). Regional staff of this Division will review certifications by the States and advise the Social Security Administration concerning the professional quality of the State certification effort.

In addition to this complete resurvey cycle, there will be a very heavy consultation workload resulting from those providers of service which are certified either with deficiencies or with a special certification. As of October 15, 1967, the number of providers with deficiences found were:

Non-accredited general hospitals--2,298 out of 2,693
Extended Care Facilities--3,470 out of 4,223
Home Health Agencies--705 out of 1,860

Through training, consultation, and technical assistance, we will assist State agencies to provide the necessary consultation to the providers to correct their deficiencies. The certification of those providers which do not correct deficiencies as required by P.L. 89-97 and regulations will be terminated. Much professional time will be required to assure that every provider is given all possible assistance to meet and continue to meet the standards established for the Health Insurance for the Aged Program.

Current position levels will permit the Division to continue its professional assistance under Title XVIII of P.L. 89-97. Providers of service will be assisted to improve their capability to provide care of high quality. State agencies will be helped to improve their performance in certification, consultation, and coordination. States will also be assisted to effectively utilize the "Partnership for Health" programs to improve medical care administration at State and local levels. In addition, regional staffs will expand their activities in relation to Title XIX.

Title XVIII is designed to provide assistance to the elderly in paying for high quality medical care. Title XIX is designed to assist those who are indigent or medically indigent. However, financial considerations are not the only barrier to care.

Both programs are limited in their effectiveness by the nature of the systems through which medical care is provided. The limitation of the systems are especially evident in our major cities, where services are fragmented, not available, or incomplete. Changes in the systems will be an evolutionary process over a long period of time. During this time period, the poor will not receive the medical care they need. For many reasons, these people are not able to use effectively the services available.

The increase requested provides for trained health personnel for assignment to selected cities to work with local public health departments, voluntary agencies, planning agencies, hospitals, universities, and medical societies. Assignees will function primarily as communicators and coordinators. They will need to be informed about resources available and how they can be utilized. They will need to be knowledgeable about the ways in which health services are organized, financed and delivered. They will need close supervision and support from regional offices.

Assignees will work with a wide range of organizations and groups. In one situation, an assignee could help inventory existing services, find ways and means to gain access to those services, help to relate the city plans to the area wide plans, help prepare proposals to take advantage of existing programs, e.g., establishment of a group practice, obtain support to demonstrate a new method of providing services in a ghetto or deprived area. An assignee to a health center could provide professional health advice concerning staffing, administration, scope of services, payment for services, and other aspects of medical care administration. The assignee could serve on task forces to plan, survey, analyze problems, and prepare operational plans for the health component of the total effort. Each assignment will have to be tailored to meet the unique requirements of the local situation.

An increase of 45 positions and $361,000 is requested for this activity.

Collection and analysis of health services and resources data

At the present time, information on all of the health resources and services in the United States does not exist in any single source. Data of this type are essential for program planning and evaluation at the Federal, State and local level. Such information is especially necessary in order to carry out Division responsibilities related to the Health Insurance for the Aged and Federal-State Medical Assistance programs (Titles XVIII and XIX, P.L. 89-97). This activity has the primary responsibility for obtaining, preparing and maintaining the health service and resource inventory and statistical data in support of the Division's programs, for assisting the States in their data collection activities, and for the development of methodology and preparation of health profiles for major communities in the country.

During fiscal year 1968, expansion of the health resources and services inventory continued. This includes data on licensed long-term care facilities, home health agencies, homemaker-home health aide agencies, and hospital characteristics. Also data will be obtained on community laboratories,

emergency health services, community health and health related agencies in approximately 300 communities, and on certain socio-economic and demographic characteristics of all counties and approximately 2,500 cities in the United States.

In fiscal year 1968 procedures will be completed for the development of basic health resources profiles for communities and will be applied to test communities.

The program increase of 5 positions and $100,000 requested for fiscal year 1969 is required to test and expand the development of community profile methodology and prepare profiles for communities in several States.

Both community profiles and sound planning at the Federal, State and local level are dependent on a broad data base.

The data available through the expanded health resources inventory in fiscal year 1969 will provide a base for preliminary development of indices of levels of community health services and for initial work on procedures for the development of models which will be used to predict the potential effectiveness of new or improved health service delivery systems.

In addition to the above program increases, the estimate also includes $354,000 for built-in costs related to (1) the annualization of the increased pay costs, (2) the annualization of 44 new positions in 1968, and (3) within grade promotions.

Standards and methods

	1968 Estimate	1969 Estimate	Increase
Positions	24	24	--
Amount	$1,250,000	$1,259,000	+$9,000

While it is important to stimulate the development of sufficient resources to assure adequate availability of health services, it is equally important to assure that the new and existing health care resources meet and maintain acceptable levels of quality. This requires the definition of adequate and acceptable and feasible standards of quality and the development of methods for their adoption, maintenance, and evaluation. Finally, the delivery of quality health care depends upon the appropriate, effective and efficient use of health services.

Standards of patient care

The Medicare program has provided the mechanism for defining and applying, for the first time on a national basis, standards of quality for hospitals, extended care facilities, home health agencies, and independent laboratories. Particular emphasis in 1968 was placed on the development of definitive guidelines for State agencies in methods of certification to assure uniformity in the application of standards. In 1969 a complete survey training program package will be disseminated to all States.

In 1967, a revision of the independent laboratory standards required development of policies and guidelines for establishing personnel testing procedures, as well as performance evaluation and proficiency testing programs to be implemented by the States. The Divison was responsible for arranging for the development of an examination for laboratory directors not meeting stated educational requirements, conducting the examination, and evaluating the results. The examination was first given to 450 laboratory directors in June 1967. A second examination was conducted early in 1968 to allow some 220, most of whom were those unable to pass certain sections of the initial examination, to attempt to qualify. In addition, the development of proficiency testing on a nationwide basis is a real breakthrough as a way to evaluate laboratory performance and to qualify laboratories which otherwise would have been unable to serve beneficiaries. Planning for this has been done jointly with National Communicable Disease Center, in relation to the new Federal licensing program for laboratories in inter-state commerce.

Review, interpretation, and revision of standards, policies, and methods of provider certification continued to be of major importance in 1968. To assure that the standards and policies of provider certification were consistent with accepted professional practice, special studies were conducted in (1) analyzing characteristics of providers in the various categories of certification; (2) the range of deficiencies reported; and (3) the adequacy of State agency performance.

Utilization review

In order to participate in Medicare, hospitals and extended care facilities must have a utilization review plan that meets basic standards. Utilization review serves both as a mechanism to control utilization of service and to provide a process of continuing education for physicians and it also facilitates continuity of care. For most hospitals and extended care facilities this function is new and has been adopted as a direct result of Medicare. Policies and procedures for its application have been formulated to promote flexibility and experimentation. Potentially, its importance extends far beyond the control purposes for Medicare; it can become an important means to promote community-wide concern with quality, effective utilization of all health care resources and stabilization of medical care costs. In 1968 particular attention was given to equipping State agency staff to work with the institutions in implementing plans for utilization review. This involved development of guidelines and conducting training courses for State personnel. For example, in cooperation with the National Institutes of Mental Health and the American Psychiatric Association, guidelines and training materials were developed for psychiatric utilization review. Intensive efforts were also made to provide training for State personnel with special emphasis upon cooperation between State agencies and fiscal intermediaries in improving the utilization review process.

Administration of Medical Care Activities

Another area of program activity in 1968 was to work for improved ambulatory care services. Several projects are demonstrating new or improved methods of organization or evaluating existing methods and systems.

Work also continued in 1968 toward improving the process of medical care administration. A series of 8 case studies was supplied to various medical care teaching programs. These cases have proved popular and are being used in more than 25 programs. Two cases, studying implementation of Title XVIII in Illinois and of Title XIX in California, will assess State administration of these programs and provide guidance on needed improvement for other States.

In 1969 the above activities will continue with special emphasis on (1) evaluation and improvement of standards and policies in Medicare, and (2) more intensive program in carrying out the professional health aspects of Title XIX by providing consultation and assistance in such areas as quantitative and qualitative broadening of the medical assistance programs in the States, adequate standards, program evaluation, and experimentation in improved delivery of services.

An increase of $9,000 is requested for built-in costs relating to the annualization of increased pay costs and within grades.

Health economics

	1968 Estimate	1969 Estimate	Increase
Positions	41	47	6
Amount	$1,482,000	$1,725,000	+$243,000

The rising costs of medical care are having a serious effect on both the consumer and the provider of health services. The ability of consumers to purchase adequate medical care is restrained, and providers of medical care are finding it increasingly difficult to give adequate care at reasonable prices.

Both the Consumer Price Index and its medical care component have been rising continuously for over two decades; however, medical care prices have been increasing much faster than consumer prices in general.

In 1969 activities which will be directed toward the problem of this upward trend are as follows: the program will (a) intensify its studies and analyses of the economic components of the health care delivery systems to develop new ways for providers of service to do their job more efficiently and (b) develop new ways for consumers of health services to procure health care at reasonable prices through an investigation of present and potential insurance mechanisms which can lower the economic barriers to health services.

In 1968 an extensive study on the socio-economic characteristics of the nursing home is being completed. Similar studies of the home health agency are currently being initiated. In 1969, the increase will allow for the initiation of the intensive phase of the home health studies to reveal the significant economic components of a home health agency and how they interrelate to perform efficiently or inefficiently in terms of the total health care system.

The utilization of municipal hospitals has declined substantially. While, at the same time many private hospitals are overcrowded. Economic questions to be decided in changing from old to new programs extend from the cost effectiveness of new combinations of services and settings to financial gains or losses in disposing of obsolete plants and facilities. Staff and contract studies of selected municipal systems facing the problem of evolving new patterns of services will be made to determine the true extent of the problem and possible solutions.

Because of the national trend toward comprehensive health programs there is an immediate need for: (1) cost determinations of the various components of comprehensive health services, and (2) cost-benefit analyses of alternative methods of organizing health care.

To meet these needs, studies will be initiated in 1969 to determine the costs of the components of comprehensive health services; such as costs per hospital day and stay, costs per nursing home day and stay, and costs per home health day and stay. Using the per day costs, cost-benefit analyses

of alternative methods of organizing health care will be performed. For example, the costs and benefits of the current uncoordinated health system will be compared to the costs and benefits of an interrelated system with centralized administration. An evaluation of alternative methods for estimating a region's health services needs will be made.

Lowering the economic barriers to health care

Present health insurance programs do not provide coverage to large segments of our population such as the poor and individuals with certain diseases and conditions. It appears that those who most need health insurance do not have it. These gaps in coverage must be identified and analyzed.

State expenditure patterns for health services need to be studied in order to maximize the use of the health dollar. By focusing on these expenditure patterns in 1969 we will be able to spend available resources more effectively and identify the greatest areas of need for new dollars. In 1968 a methodology is being developed to identify both private and public health expenditure patterns. A demonstration of this methodology is needed in 1969 to implement this tool.

There is very little information on the effects on cost through the utilization of an extended care facility or a home health agency. In 1968 we are supporting a study with the Kaiser Foundation Research Institute to add a benefit to their comprehensive pre-paid group practice plan for extended care facility and home health services. Investigation of the same type of utilization and cost data in a different setting was initiated in St. Louis in 1968. The overall purposes of these projects are to obtain (1) the medical needs for and cost of home health services and extended care services by specific age and sex group; (2) the optimum balance between the use of home health services, hospital services and extended care services in a continuum of medical care and (3) the effects of the provision of extended care and home health services on the utilization and costs of services now provided.

Cost-sharing provisions have important implications for public policy. Under a recent amendment to the Social Security Act, States will have the option of using such provisions in their assistance programs for the medically indigent. Cost-sharing provisions may also have a large contribution to make in solving the overall problem of the rising cost of medical care. To date there is very little empirical data available about the effects of cost-sharing provisions, and especially their effects on over-or under-utilization of services. We propose to investigate and develop empirical data about these effects.

In order to carry out these activities, we will require increases of 6 positions and $200,000. The estimate also includes $43,000 for built-in costs related to the annualization of 10 new positions in 1968, the annualization of the pay increase costs, and within grade costs.

Group practice

	1968 Estimate	1969 Estimate	Increase
Positions	3	18	+15
Amount	$100,000	$500,000	+$400,000

In 1967, the President's National Conference on Medical Care Costs and the National Conference on Group Practice were held. Both stressed that comprehensive group practice provides a significant system for achieving greater effectiveness. Also in 1967 the Mortgage Loan Insurance Program was enacted and this division assigned a small staff to work with the Department of Housing and Urban Development.

The increase requested provides for four areas of activity to encourage the growth of group practice and to better understand its organizational advantages.

General promotion of group practice

In order to promote the growth of group practice, the division proposes to:

(a) Implement specific recommendations as cited in the Report of the National Conference on Group Practice;

(b) develop liaison and effective working relations with national and State agencies, including voluntary and tax-supported health agencies and organizations, labor unions, management organizations, and other groups;

(c) Conduct regional conferences to educate and inform local communities about activities, of the Federal government and voluntary agencies, which affect development of group practice programs and facilities;

(d) encourage an additional series of conferences with special interest groups, including conferences with national voluntary and private agencies whose interest in problems of health and health services may be enlisted in behalf of group practice.

Consultation services to communities and individuals

Consultation will be provided in the fields of clinic and hospital administration, data and records organization, and health services systems, ancillary and medical staff organization and fiscal and funding techniques. Consultation will also be provided in study design and program evaluation in order to broaden knowledge of the full potentials of group practice.

Studies and demonstration

Studies and demonstrations will be initiated in the following areas:

(a) Exploration of the most efficient organization patterns for group practice.

(b) Studies of the utilization and cost of services not universally available in either prepaid or fee-for-service groups.

(c) Explorations of use of supporting personnel.

(d) Studies of the utilization of services by patients of group practices.

Coordination with Federal agencies

There is close coordination with the Department of Housing and Urban Development in the operation of the Mortgage Loan Insurance Program for Group Practice Facilities Title XI, National Housing Act. Primary responsibility for the operation of this program belongs to D/HUD but much of the promotional work, assistance to prospective sponsors of group practice facilities, and evaluation of the applications are provided by the Public Health Service.

To assure standard policies and coordination of effort relating to the formation and financing of group practice, there has to be liaison with other Federal Government programs which deal with group practice. There are two major and several small Federal programs which pay for health care delivered by group practices. The primary programs are Medicare and Medicaid, and among the others are the medical care programs of OEO, VA, Military Medicare, and SRS. Through contact with prepaid group practices, a continuous effort will be made to bring reimbursement policies and other policy and regulatory requirements onto common ground.

The requested increase provides for 15 positions and $400,000.

Nursing homes and related facilities

	1968 Estimate	1969 Estimate	Increase
Positions	27	27	--
Amount	$792.000	$804,000	+$12,000

The primary objective of this program is to improve patient care and services in nursing homes, extended care facilities, and other related facilities.

The 1968 program was directed toward three existing problem areas by: (1) strengthening of State licensure, survey, inspection and certification programs, (2) improving manpower skills, and (3) demonstration of the effectiveness of working relationships between nursing homes and hospitals, health departments, and other health related agencies.

The primary emphasis of the 1968 and 1969 program is the implementation of the State-PHS Cooperative Nursing Home Program. The long-range aim of this program is to establish a national program for continued training and certification of the approximately 400 existing State survey and inspection personnel. A conference will be held early in 1968 to acquaint State licensure officials with the aims of the program and procedures for implementing it. Training conferences including State officials will be initiated before the end of 1968.

To improve manpower skills, continued emphasis is being placed on enhancing the competence and effectiveness of administrative, professional, and other nursing home personnel: Curricula and training guides for in-service and pre-service training programs are being further developed and tested and their use promoted. The program is continuing to promote short-term training of administrators to upgrade managerial skills and training of professionals needed as consultants to nursing homes.

To help bring nursing homes into the mainstream of health services, the program is presently supporting five projects to demonstrate working relationships between nursing homes and other community resources. Four of the projects are State-wide: Louisiana (State Department of Hospitals); Tennessee (State Hospital Association); Nebraska (State Health Department); and Hawaii (State Hospital Association.) The fifth project, (Atlanta, Georgia), being conducted by the Community Council of the Atlanta Area, covers the city and adjacent counties. These five projects will reach an estimated 600 nursing homes. It is anticipated that these projects will become self-supporting, as in the experience of an earlier project in Waltham, Massachusetts. As of July 1, 1967, the Waltham project was continued independent of Federal assistance with nine of the original fourteen nursing homes continuing to work with the community hospital.

An increase is requested to provide $12,000 for built-in costs related to the annualization of pay increase costs and within grades.

Home health and related services

	1968 Estimate	1969 Estimate	Increase
Positions	22	22	--
Amount	$671,000	$681,000	+$10,000

Home Health Agencies are an expanding national resource with the potential for improving the quality and delivery of health care in the community and for alleviating some of the problems contributing to the rising costs of medical care.

In 1969, the Division will: promote the development of new programs in those areas not covered by these services; and increase the range and quality of services offered by existing agencies; and encourage the amalgamation or coordination of small or inadequate agencies into vital community programs.

There are currently about 1,850 home health agencies certified for participation in Medicare. These agencies are unevenly distributed throughout the Nation, with small communities and rural areas especially in the midwest and south having no home health service. In twelve States, less than 50% of the population live in counties with home health agencies. Even in areas with home health programs, the population needing care is greater than that currently being served.

In 1969, the principal target for new services will be hospitals which could develop effective programs.

Consultation

A major area of responsibility is the provision of technical assistance, professional consultation and information to States and localities on the conduct of their programs financed in part through grants from the Comprehensive Planning and Health Services Program.

Home health program evaluation

To facilitate planning and evaluation of home health services programs, support is being provided for a feasibility study of home health agency statistical and business office procedures.

Improving manpower skills

Providing good care and a sufficient range of services requires more adequate manpower than is currently available to Home Health Agencies. The program in 1968 continued its support to home health training centers with emphasis on efforts to assist the centers to find other appropriate sources of funds.

In 1968 the program supported a workshop at the University of Kansas Medical Center to develop guidelines for curriculum to teach home care in medical schools. Likewise, the importance of physical therapy in public health and medical care programs is emphasized through 1968 support of a contract for the development of guidelines in the basic curriculum of physical therapy.

Patient evaluation

Selecting patients able to benefit from home health care requires knowledge of medical, nursing, and social factors pertaining to each patient. In 1968, several contracts were carried out and a study group conference, including representatives from seven projects where methods of patient evaluation are being studied, was held to develop common definitions and methods for effective patient evaluation, the use of which we expect to promote in 1969.

An increase of $10,000 is requested to provide for built-in costs related to annualization of pay increase costs and within grades.

Adult health protection and aging

	1968 Estimate	1969 Estimate	Increase
Positions	42	42	---
Amount	$1,455,000	$1,475,000	+$20,000

If we examined today any average group of one thousand Americans over the age of 45 who have no symptoms of illness and consider themselves "well" we would expect to find 115 cases of hypertension, including vision impairment; 73 cases of coronary heart disease; and 20 cases of diabetes; as well as significant numbers of other controllable or curable diseases such as breast and cervical cancer and kidney disease. Very few, if any, of this same group will do anything about their health problems until they reach a stage when extensive use of expensive facilities and scarce health personnel are required.

During 1969, in an effort to develop solutions to these problems we will continue a three-pronged approach: development of automated multiphasic screening, referral and follow-up programs for adults; stimulation of changes in what and how health practitioners are taught and development of continuing education programs for those who are now in practice; and development of activities and services designed to educate and motivate people so that they will take positive action to protect their health.

Automated multiphasic screening and referral and follow-up

This method of health assessment services combines, through use of the computer, automated laboratory and functional testing with medical history-taking. The physician is provided with data on the patient before the first visit, thus reducing the physician time required to complete a physical examination. Furthermore, the cost to the economy per amount of service given is reduced by organizing to achieve efficient use of health resources. And, finally, an automated multiphasic screening center organized to serve thousands of persons is in a far more favorable position to improve quality and efficiency than is the private office or small laboratory which now provides most of the technical services.

Automated laboratory and related individual health data-gathering services have been successfully demonstrated in a prepaid health plan at the Kaiser-Permanente Health Foundation. Our activities for the last several years, therefore, have been directed toward testing and refining the system for application in various organizational settings to the community at large. Four demonstration programs currently are underway: the City of Milwaukee Health Department, Tulane University in New Orleans, the Brookdale

Hospital Center in Brooklyn and the Rhode Island State Health Department. By the end of 1969, the four projects will be operating at a capacity of approximately 100,000 examinations per year.

In 1969, we will continue to develop and evaluate this new system of getting people to health care. We will analyze initial findings with respect to community acceptance--lay and professional--of automated multiphasic screening and referral services and information on the success of follow-up techniques as they relate to physicians and participants.

Of special significance will be evaluation of project efforts to provide these preventive services to economically deprived groups. Some of these activities will be supported in cooperation with other government programs having related interests.

Training and orientation of professional health personnel

Contracts have been developed with three schools of medicine to stimulate interest in developing undergraduate medical curricula which provide orientation in comprehensive management of the aging patient. These include the schools of medicine of the University of Missouri and Tufts University and the Mount Sinai School of Medicine of the University of New York. It is expected that each of these schools will develop a "blueprint" for a teaching program in comprehensive patient care and that these, in turn, will be used to modify existing teaching programs.

For several years initial support has been provided for centers for continuing education in applied gerontology as components of university-based schools of continuing education. These centers have been established at the University of Oklahoma and University of Georgia; and are in process at Boston University and the University of Nebraska.

At the University of Pennsylvania School of Social Work, a program now in its second year is providing supervised field experience for students in work with the aged. The Pennsylvania project has been most successful in generating interest among both faculty and students in this area, and serves as a demonstration to other schools.

In 1969 these training and orientation activities will be continued with emphasis on the health and functional effectiveness of the "whole patient" rather than with the various disease processes which may affect him.

Encouraging individual action

Periodic health assessment services, however accomplished, can only be successful if individuals are motivated to seek them.

The automated multiphasic screening and referral centers have as an integral part of their programs, specific activities directed at informing the public of the need for preventive health services.

Four pilot projects, begun in 1967 and 1968, will continue to develop and test a method of providing personal health counseling to individuals applying for Social Security retirement benefits as a way of motivating them to take positive action to protect their health. Each project is designed to secure information regarding common health maintenance practices and the attitudes about such practices held among a group of the elderly who have a high risk of developing chronic diseases.

By late 1969, sufficient experience will have been gained in counseling various groups to make a comprehensive assessment of the value of this approach. Based upon this assessment the feasibility of personal health counseling as a service for the aging at the time of social security application will be determined.

An increase of $20,000 is requested to provide for built-in costs relating to the annualization of pay increase costs and within grades.

State and urban health services

	1968 Estimate	1969 Estimate	Increase
Positions	87	87	---
Amount	$1,557,000	$1,604,000	+$47,000

One of the major problems in the urban health area is the failure to relate effectively new or developing health programs with the existing ones. This is a problem which will immediately confront the persons we are proposing to assign to metropolitan areas in connection with the Health Insurance and Field Operations program. This problem is also being accentuated by such new urban development programs as Model Cities and Neighborhood Health Centers. To help offset this problem, our 1968 and 1969 program will be directed to the following areas:

Contracts and staff efforts will be used to explore specific methods of linking and phasing health program components with the total model cities program. Concurrent with the study of linkages between health and other programs, the implications that occur for health programs when these non-health community service programs are modified will be examined. Examples of projects already undertaken are: 1) the initiation of an urban renewal relocatees project for development of an integrated health component in the urban renewal process in order to provide health services through existing resources for individuals in need of care, and to integrate the health services needs into the total plan; 2) the documentation of the development of a neighborhood health center which includes the range of considerations that went into the specific services offered, the internal organization of the center and relationships with organizations providing services supportive of those in the center. Work will continue on these areas in 1969.

Planning for the program, organizational, financial, and staff relationships necessary to obtain the maximum delivery of services from fixed or limited resources will be a major activity. This form of detailed operational planning will be concerned with health services provided in or related to specific 1) facilities, e.g. multipurpose centers, 2) programs, e.g. ambulatory care, or 3) population groups e.g. the poor in limited geographic areas of major cities.

In 1969, emphasis will also be given to the further development and community testing of methods for predicting the effect of alternative program plans on the efficiency and utilization of health service resources. The development of criteria with respect to accessibility, acceptability, and other factors affecting utilization for use by the community health planner will be a part of this activity.

An increase of $47,000 is requested to provide for built-in costs related to within grades and the annualization of pay increase costs.

Health communications

	1968 Estimate	1969 Estimate	Increase
Positions	32	32	--
Amount	$942,000	$956,000	+$14,000

The mission of the Health Communications program is to bring about broad, effective consumer participation in improving the organization, delivery, and utilization of personal health services.

The program will work with States in helping selected communities: (a) obtain data on present consumer participation; efforts that have been made to improve consumer participation; (b) develop measurable objectives and relevant plans of action; (c) complete a substantial educational program to improve opportunities for consumer action, and (d) evaluate the effect of the program.

To help communities obtain data needed to plan and carry out programs for improving use of home health services, extended care facilities, and other services, a protocol and related survey instruments are being developed through a contract with the Boston Medical Foundation. The preliminary survey package will be completed before the end of 1968.

To insure practicability and reliability, these instruments will be field-tested early in 1969. Then communities across the country will be encouraged to make use of the revised materials in developing services that are client-oriented and in developing effective consumer education activities regarding use of health services.

To develop innovative approaches for bringing about widespread use of significant findings about information and referral services, a pilot seminar was conducted in January 1968. Persons who have conducted successful projects were brought together with representatives of agencies contemplating establishment of such a service, and with experts in principles and methods of community organization. Guidelines developed in this seminar with be published before the end of 1968.

In 1969, these guidelines will serve as a focus for discussion in conferences to be conducted in several regions.

To promote effective patient education practices, a procedure is being developed for systems analysis of staff-patient communications in the Outpatient Clinic of the PHS Hospital in Baltimore. Through contract, present communications patterns and their impact on patient understanding and action are being determined. Out of this experience will come a model procedure

which may be used by other clinics to study and improve their patient education practices. Development of this procedure is scheduled for completion by the end of 1968.

In 1969 widespread use of this model procedure will be promoted, starting with emphasis on its use in other PHS hospitals.

To improve the recruitment, selection, training, supervision, and utilization of indigenous health auxiliaries, guidelines are being developed in cooperation with the OEO-sponsored neighborhood health center at Columbia Point in Boston. This project is scheduled for completion in April, 1969. Use of the guidelines will then be promoted throughout the country.

An increase of $14,000 is requested to provide for built-in costs related to within grades.

Health services for migrant workers

	1968 Estimate	1969 Estimate	Increase
Positions	50	50	--
Amount	$845,000	$876,000	+$31,000

Program staff will be utilized to meet the need for consultation and technical assistance to projects and other organizations which can contribute to improving health services for migrants. Staff trained in community organization, medicine, nursing, sanitation, health education, hospitalization and other fields, working as a team at headquarters and regions will promote interagency, intergovernmental and interarea planning and program development to improve health conditions and services for the migrant and his family. Coordinating and cooperative efforts will include those with the Office of Economic Opportunity and the Department of Labor. The staff will continue their direct consultation and technical assistance in the development of migrant health programs. They will also serve as focal points for program planning, including the collection and dissemination of pertineent information, and the technical review of project reports and applications.

Conferences and seminars of project workers from different locations will be held in 1969. The Midcontinent Regional Stream Conference in 1969 will result in better coordination between the projects, develop improved methods of identifying migrants and their migration patterns, and improve continuity of migrants' health care.

An increase of $31,000 is requested to provide for built-in costs related to within grades and annualization.

Rural health

	1968 Estimate	1969 Estimate	Increase
Positions	3	23	+ 20
Amount	$187,000	$466,000	+279,000

Approximately 54 million Americans (30 percent of our population) live in rural areas. The incomes of approximately 15 million of these rural citizens are below the poverty level.

During 1968, the Rural Health program began demonstrating methods and techniques to improve health levels in selected rural areas. In four States, contracts with State or local organizations to enable multicounty areas to organize their total resources, identify gaps in service, establish priorities, and plan remedial programs were started.

The San Luis Valley in Colorado has developed an application for demonstrating a rural neighborhood health services program. This neighborhood health program would provide a wide range of preventive and remedial health services to a rural population characterized by poverty and limited health resources.

In Alabama, in cooperation with the State Health Department and the University of Chicago, a demonstration of the effectiveness of several methodologies for extending family planning services to rural poor families is being conducted. This project includes the use of indigenous health aides as a contact for family planning information and educational purposes.

Another effort involves a cooperative agreement with the State of Pennsylvania in which a rural health specialist was assigned to assist in the development of a Statewide rural health program. In Mississippi, we are supporting the development of comprehensive health services for a five-county area in the Mississippi Delta.

The program in 1969 will demonstrate at the community level various methods and techniques to improve rural health services. Examples of these projects include improved organization of emergency transportation services; improved communications between rural medical practitioners and medical centers; and various arrangements for establishing comprehensive health center services to operate successfully in a rural setting.

The requested increase in 1969 will provide personnel to provide technical assistance to rural communities in self-help projects. Regional offices will be strengthened to promote rural health services. This staff will provide rural communities with information of existing rural health programs, projects, and methods in other areas, and assist in planning, developing, and implementing programs for health services.

The requested increase will provide for 20 new positions and $279,000.

Family Planning

	1968 Estimate	1969 Estimate	Increase
Positions	...	5	+5
Amount	...	$200,000	+$200,000

Although family planning services are becoming increasingly available in many areas of the country, all women of child-bearing age who desire these services are not making use of them. In view of this fact, we must immediately begin a program to examine and evaluate the existing systems for providing family planning services. We must determine the most effective methods of providing services which are accessible to and will be used by those persons desiring assistance in family planning, and then promote their adoption in communities.

The intent of the proposed program is to promote actively, insofar as the limited resources permit, the integration of family planning services into the basic core of comprehensive health services. We will concentrate on determining the most effective methods of organizing and delivering family planning services and promoting their adoption to assure maximum economy of operation combined with high accessibility and usage by those who desire them. A primary concern would be the development of comprehensive family planning programs which would not be limited purely to assistance in planning family size. To be truly effective, these services must be concerned with decreasing the infant mortality rate through prevention of premature births, decreasing the number of predictably defective infants, and the encouragement of proper child spacing and of maternity during the most favorable child-bearing age period.

As a step toward these objectives, major emphasis in 1969 would be placed on evaluation of various approaches to providing effective family planning services as an integral part of comprehensive health services. This program is not intended to provide family planning services, but is designed to lead to the development and promotion of model techniques for the organization and delivery of family planning services. The program would concentrate on all health-related aspects of family planning to promote and assist in the improvement of existing programs providing family planning services, and to encourage the development of systems of services which would ensure effective provision of family planning assistance to all persons desiring it.

With 5 positions and $200,000, conduct of studies and support of research and demonstration projects designed to evaluate current family planning programs and evaluate new concepts in the provision of family planning services will be initiated. In addition, staff will provide

technical assistance to organizations wishing to initiate or improve family planning programs. It would also stimulate use of other existing mechanisms for application in the family planning areas, e.g., training grants, research grants, special grants.

Specific examples of the type of effort to be undertaken in 1969 are:

1. Test and evaluate alternative methods of providing family planning services. We would determine the most effective approaches to providing these services by varying such factors as the organizational framework of a family planning program, the stage in family formation when services are offered, the physical location of service facilities, etc.

2. Conduct special studies to determine how family planning services can best incorporate or be used to complement programs dealing with related socio-medical problems. These could include counseling to prevent conception of predictably defective offspring, and programs dealing with the problems of early marriage, divorce, sterility, and breakdown of the family structure.

3. Support demonstration projects which investigate the application of modern demographic techniques to the allocation and development of family planning services. In a State such as North Carolina in which good records are available, the demographic data could be analyzed in depth, birth and fertility rates calculated, and projections made to guide the State in the provision and optimum placement of family planning services.

An increase of 5 positions and $200,000 is requested to initiate this activity.

Physical Fitness Program

	1968 Estimate	1969 Estimate	Increase
Positions	14	14	...
Amount	$315,000	$317,000	+ $2,000

During 1969 the President's Council on Physical Fitness will place its major stress upon further refinement and strengthening of its ongoing programs. This effort will lie in four major areas:

Presidential Physical Fitness Award Program
Physical Fitness Clinics Program
Physical Fitness Demonstration Center Program
Physical Fitness Information Program

The Presidential Physical Fitness Award Program will be continued, but the numbers of participants will be increased.

The Clinics program stresses the development of leadership qualifications of persons already participants in fitness programs. It also endeavors to bring increased numbers of persons into the fitness field in official leadership capacities.

The Physical Fitness Demonstration Centers program stresses the development of improved physical fitness programs at schools throughout the country.

The Physical Fitness Information program will include two national advertising campaigns which will continue to popularize physical fitness and exercise activities and continue the emphasis currently being placed on fuller utilization of the nation's schools for fitness purposes.

The Council plans to expand its efforts to utilize private nongovernmental resources in carrying forward present and newly developed programs. Cooperative efforts with private resources will be carried out on a public service basis, with the President's Council providing the technical knowledge and guidance on a consultation basis. Among those activities will be local action programs aimed at the summer physical fitness and sports activities of disadvantaged youth in the large urban areas of more volatile circumstance. Pilot activity in the same substantive area for the disadvantaged adult population members will also be developed in conjunction with and using private resources.

An increase of $2,000 is requested for built-in costs relating to the annualization of pay costs.

National Center for
Health Services Research and Development

	1968 estimate		1969 estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
Personnel compensation and benefits	51	$624,000	130	$1,421,000	+79	+$ 797,000
Other expenses	--	20,133,000	--	28,200,000	--	+ 8,067,000
Total	51	20,757,000	130	29,621,000	+79	+ 8,864,000
Subactivities:						
Grants & Contracts		20,000,000	--	27,720,000	--	+ 7,720,000
Direct Operations	51	757,000	130	1,901,000	+79	+ 1,144,000
Total	51	20,757,000	130	29,621,000	+79	+ 8,864,000

The 1968 estimate shown above is composed of funds from the following sources:

	Pos.	Amount
Grants and contracts:		
Hospital Construction activities	--	$9,173,000
Supplemental, proposed for separate transmittal, Community health services	--	5,827,000
Comprehensive health planning and services	--	5,000,000
Total, grants and contracts	--	20,000,000
Direct operations:		
Hospital construction activities	30	416,000
Public health service management fund	21	341,000
Total, direct operations	51	757,000
Grand total	51	20,757,000

The Health Services Crisis

We face a national crisis in our health services--so concludes the President's National Commission on Health Manpower after an extensive study by outstanding medical and lay leaders. The crisis is due primarily to defects in the organization and management of health services, rather than a lack of biomedical knowledge or even of a sufficient number of physicians. "Unless we improve the system through which health care is provided, care will continue to become less satisfactory, even though there are massive increases in cost and in numbers of health personnel." 1/

More specifically, the crisis consists of several issues. These are:

1. Absence or declining availability of health services to the poor, the medically indigent, and those living in rural areas.
2. Uncontrolled increases in costs of care.
3. Shortages of professional health manpower with particular reference to distribution and utilization.
4. The paradox of fragmentation of the advanced diagnostic and treatment capabilities made possible by progress in the specialized biomedical sciences.

By themselves research or demonstration of modifications in isolated elements of the system cannot meet the needs. A broad scale effort is indicated. Even without fiscal constraints, merely to continue to multiply untested and uncoordinated programs would not serve usefully to correct the defects, in time, or at all. The large number of health programs now in being, most of them no older than the 88th Congress, provide a broad range of authority, and in some cases even sufficient funds, to supply more effective and available service programs than they do.

The Congress has recognized the necessity to bring the existing programs into coordinated focus, and at the same time use the opportunity to improve medical care services to the poor, moderate inflation of medical care cost through provision of more economical services and offset manpower shortages. As the Senate report on the Public Health Service Amendments (now P.L. 90-174) dated November 4, 1967, states:

> "Despite our increasing investment in behalf of health, we spend relatively little in research and development to improve our efficiency and effectiveness."

1/ Report of the National Advisory Commission on Health Manpower, Volume I, November, 1967, p. 2.

Both the House report, dated August 3, 1967, and the Senate report quoted above state:

> "The cost of health care will continue to rise, at least for the next decade. Every saving will not only benefit the consumer directly, but also the Government, to the extent that health care costs are covered by Government programs of payment, such as Medicare and Medicaid."

And the House report goes on to add:

> "There are numerous industrial management problems for the health service industry. Many involve the application of new technology to patient care and management; and many involve organization for the efficient delivery of services to patients."

It was the foregoing points, as well as the problems of extraordinarily high infant mortality, inadequate and improper distribution of health facilities, and insufficient application of existing knowledge to prevention of disease and early death that the President had in mind when he said in his Health and Education Message on February 4, 1967:

> "Research and development could help eliminate these conditions by pointing the way to better delivery of health care."

It was in response to stimuli such as these that the President directed the establishment of a National Center for Health Services Research and Development in his Health and Education Message of February 1967.

The establishment, financial implementation, and broad functioning of the National Center for Health Services Research and Development has been emphatically endorsed by the Health Manpower Commission:

> "Financial support should be made available for large-scale experimental projects of integrated health service systems under a variety of auspices including

> physicians in private practice, universities, hospitals, voluntary agencies, and government. These systems should include, but not be limited to, programs which are comprehensive, serve a cross-section of socio-economic groups on a community or areawide basis, and emphasize organized services for ambulatory patients." 2/

Functions and responsibilities of the National Center for Health Services Research and Development.

A. The general scope and function

In order to attack these problems meaningfully, such a Center has to be realized in a number of dimensions. First, it needs to have a capability to collect, analyze and distribute information in regard to research in this area. It needs to be able to stimulate and fund the specific kinds of strategic and catalytic research and demonstration required, either large scale, involving whole care systems, or significant critical elements. It must be able to support the training of specialized people to undertake research leadership or carry out specific aspects of research designs. And it must be able to transmit the research information of value and utility into actual operational channels.

In the same House and Senate reports, areas of effort for a Center for Health Services Research and Development are blocked out:

> "Increases in efficient utilization of health personnel are, in the view of the Committee, one of the most essential tasks to which this program should be directed."
>
> "This new program of health service research and development offers a vehicle through which alternative means for maintaining and increasing the availability of good health care can be achieved; the productivity of health manpower can be increased; better hospitals and nursing homes can be designed, and a full range of alternatives to costly institutional care can be developed. Organizational and administrative practices in the health service industry must be updated and brought into line with the most modern practices in other sections of the economy."

2/ Report of the National Advisory Commission on Health Manpower, Volume I, November 1967, p. 85.

"The application of computer technology to automation of many aspects of the patient care system . . ."

"Efforts must be encouraged to develop, to test, and to demonstrate new measures, devices, apparatus and other novel means to improve techniques of prevention, diagnosis, treatment and control of diseases and disabilities of man."

"The design of hospitals could be improved--to deal with specialized tasks:"

"The design and initial operation of a health service system could be planned in cooperation with developers of 'new towns'."

"Research studies are needed to investigate the comparative cost of alternative methods of providing and financing health services."

It would be the purpose of the Center, therefore, to follow these lines. Existing research efforts to improve clinic organizational patterns, or design new structures, must go on and should continue to be funded, along with modest experimental forms of health services delivery or improved systems of medical communications. However, without a conscious attempt to fit the elements together, direct the kinds of experiments, and draw the lessons, these solitary efforts will be fruitless.

Large scale, major experiments and demonstrations need not be funded entirely from this one source, but individually funded projects from a variety of sources can be fitted together to have a central focus. Overall, some central planning, evaluation, direction and supervision must enter. This is a role the Center can play, as well as supplying modest additional funding for a part of the comprehensive program not covered by other grants.

In addition to coordination activities, research in the delivery of health services is the other great key to meeting our objectives. Systems research, demonstration of new and more efficient methods of practice and health care organization are crucial.

--to show how services can be improved,
--to show how services can be provided more effectively,

--to show how facilities can be planned, designed and constructed less expensively and more appropriately, and

--to show how costs can be controlled.

Major research in this area must include demonstrations of improved health services to the poor, more effective programs to attack infant mortality, and innovations in health facility construction and design. New staffing patterns, new types of manpower, and more appropriate criteria for selecting locations for the provision of health services are required. Development of improved techniques for cost control is also an essential element in ensuring efficiency in the operation of the total health services system. The research described above will help produce these techniques and assist in restraining the inflationary spiral of reimburseable costs. Other useful research findings can be quickly put to work by promoting and stimulating their application in alternate types of health services and by incorporating them into the operation of such activities as the Regional Medical Program and Comprehensive Health Planning and Services.

B. Outline of Areas of Program Concern and Operation

Program Areas

1. Information and intelligence

   a. Information Clearinghouse--collection, storage, retrieval, analysis, and dissemination of information on all health services research and development here and abroad.

   b. Identification of additional information needed to change or improve service designs.

   c. Collection and correlation of existing information for planning and organization design.

2. Planning

   a. Synthesis of activities among agencies and departments.

   b. Establishment of priorities.

   c. Direction of cooperative and joint activities.

3. Research and Development

   a. Investigation of institutional and professional relations and roles.

   b. Investigation of sociological and economic questions of patient care.

   c. Methodological studies.

   d. Technological development (multiphasic screening, automated laboratories, information and data processing, etc.).

   e. Hospital and medical facility design and operation.

4. Analysis and Evaluation

   a. Determination of preconditions for establishment of service programs--requirements in knowledge, experience, or manpower in order to provide services to the poor, the old, the handicapped, or other groups.

   b. Development of operational definitions of service activities.

   c. Determination of types of training and types of people needing training in order best to carry out service programs.

   d. Evaluation of program output: institutional, area-wide, State, Federal.

5. Demonstration

   a. Application of what is known in better design in elements or composites of a medical care system.

   b. Application of new knowledge about disease into more efficient patterns of service.

   c. Experimentation with different forms of structure and organization to establish more economical methods of health services delivery.

6. Training

a. Establishment of programs to train health services research workers in academic and in service settings offering opportunities to learn by doing.

b. Provision of technical assistance to communities and organizations participating in systems modification to ensure appropriate development.

c. Establishment of extension service type of technical assistance from conjoint university centers.

Operations Areas

1. Intramural Activities

a. Research and development activities.

b. Planning, coordination and policy formulation.

c. Information and intelligence - jointly with National Center for Health Statistics.

d. Grant and contract management.

2. Extramural Activities

a. Project grants.

b. Institutional and other highly-organized and goal-oriented grants. Regional centers will be established to parallel and extend functions described above.

The centers are intended to develop long-term programs which apply research, development and demonstration to selected areas of health services for the purpose of producing evidence of marked improvement in their effectiveness and efficiency. They will also provide training opportunities in the field. Because of differences in regional needs or regional systems of health care, the centers will be free to create laboratory conditions for exploring regional possibilities.

c. Contracts. Contracts will be used to support focussed research carried on by private industry, group practice clinics, universities, and public and private nonprofit agencies.

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Utilization of 1969 Funds Requested

Public Law 90-174 authorizes total appropriations of $20,000,000 to carry out its provisions during fiscal year 1968. An appropriation of $29,621,000 for the National Center for Health Services Research and Development is requested for 1969.

This request represents an increase of $8,864,000 over the amount available in 1968. Of this total increase, $7,720,000 represents an increase for grants and contracts under the program of the Center; and $1,144,000 represents an increase in the amount for direct operations of the Center. Of the total increase for direct operations, $797,000 is for personnel costs, $334,000 for other expenses, and $13,000 for mandatory costs. The increase in personnel is for 79 new positions.

The Center will be established in fiscal year 1968 with a minimal staff of 51 positions transferred from various other operations. The 79 new positions will place the Center on an effective basis. Increased staff will permit an orderly expansion of activities to produce positive and recognizable results in improved health services.

Because the Center is beginning a new program to bring about major improvements in health services, 24 new positions are requested to augment the number of experienced scientists and program managers in the Center. These positions will be used to determine the greatest needs for research, demonstration, and training and to develop program concepts and policies needed for effective operation of the Center program. The increase will also permit expansion of grants and financial management activities.

Both intramural and extramural research programs will be established by the Center. The development and review of research projects demands the most competent available scientific and technical talent. Thirty positions are requested to provide initiative in the design and establishment of intramural research, to stimulate, develop, and analyze the proposals of grant and contract applicants.

To maximize the benefits gained from the research, an increase of 25 positions is requested for program coordination, evaluation and reporting. They will be responsible for a program to help reduce Federal health services research overlap and will administer at least four regularly constituted scientific review groups. They will also carry out an evaluation program on research efforts so that positive results can be applied to service programs.

Program direction and management services

	1968 estimate		1969 estimate		Increase or decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
Personnel compensation and benefits	96	$1,192,000	96	$1,280,000	..	+$88,000
Other expenses	..	167,000	..	196,000	..	+ 29,000
Total	96	$1,359,000	96	$1,476,000	..	+117,000

The 1968 estimate of 96 positions and $1,359,000 for this activity represents funds previously shown under the Health Service activity of the Public Health Service Management Fund and is shown here in the estimate for purposes of comparability.

The purposes of this activity are to provide program direction and management services in the application and utilization of the Bureau of Health Services resources toward achievement of its goals. The programs within the Bureau are primarily designed to improve the organization and delivery of health services for the people of the United States.

The 1969 increase of $117,000 provides funds for mandatory increases totalling $88,000. These mandatory costs include annualization of new positions authorized in 1968, $43,000; statutory salary increases, $22,000; one day of extra pay, $6,000; and annualization of the 1968 pay raises, $17,000. The program increase of $29,000 is to provide for increased contractual requirements.

WEDNESDAY, MARCH 13, 1968.

"PATIENT CARE AND SPECIAL HEALTH SERVICES"

WITNESSES

DR. JOHN J. WALSH, DIRECTOR, DIVISION OF DIRECT HEALTH SERVICES
DR. HOWARD D. FISHBURN, CHIEF MEDICAL OFFICER, COAST GUARD
DR. GORDON S. SIEGEL, DIRECTOR, DIVISION OF FEDERAL EMPLOYEE HEALTH
ANDREW J. CARDINAL, EXECUTIVE OFFICER, DIVISION OF DIRECT HEALTH SERVICES
DR. CARRUTH J. WAGNER, DIRECTOR, BUREAU OF HEALTH SERVICES
SAUL R. ROSOFF, EXECUTIVE OFFICER, BUREAU OF HEALTH SERVICES
RALPH BAHN, FINANCIAL MANAGER, BUREAU OF HEALTH SERVICES
DR. WILLIAM H. STEWART, SURGEON GENERAL
CHARLES MILLER, CHIEF FINANCE OFFICER
JAMES B. CARDWELL, DEPUTY ASSISTANT SECRETARY, BUDGET

OBJECT CLASSIFICATION (IN THOUSANDS OF DOLLARS)

	1967 actual	1968 estimate	1969 estimate
Personnel compensation:			
Permanent positions	40,477	48,363	51,366
Positions other than permanent	805	920	860
Other personnel compensation	1,676	1,820	1,820
Total personnel compensation	42,958	51,103	54,046
Personnel benefits	5,635	6,866	7,140
Travel and transportation of persons	689	800	876
Transportation of things	653	753	779
Rent, communications, and utilities	1,181	1,238	1,464
Printing and reproduction	231	301	343
Other services	3,946	4,513	5,609
Project contracts	13	127	418
Services of other agencies	1,663	1,897	1,881
Payment to Public Health Service management fund	368	485	
Supplies and materials	6,298	6,641	7,691
Equipment	2,265	2,633	4,098
Grants, subsidies, and contributions	1,484	1,551	1,564
Insurance claims and indemnities	117		
Subtotal	67,501	78,908	85,909
Quarters and subsistence charges	−360	−360	−360
Total obligations	67,141	78,548	85,549

PERSONNEL SUMMARY

Total number of permanent positions	6,296	6,855	6,940
Full-time equivalent of other positions	145	98	93
Average number of all employees	5,918	6,697	6,866
Average GS grade	5.9	6.0	6.1
Average GS salary	$7,065	$7,377	$7,593
Average salary of ungraded positions	$5,922	$6,083	$6,182

PROGRAM AND FINANCING (IN THOUSANDS OF DOLLARS)

Program by activities:			
1. Operation of hospitals and clinics	60,630	69,711	75,145
2. Medical care for special groups:			
(a) Coast Guard medical services	2,039	2,290	2,432
(b) Federal employee health services	1,739	2,889	4,017
3. Special health services:			
(a) Emergency and rehabilitative services	699	1,373	1,670
(b) Payments to Hawaii	1,200	1,200	1,200
4. Personnel detailed to other agencies	871	1,085	1,085
Total program costs, funded [1]	67,178	78,548	85,549
Change in selected resources [2]	−37		
Total obligations	67,141	78,548	85,549
Financing:			
Receipts and reimbursements from:			
Federal funds	−11,074	−13,011	−13,933
Non-Federal sources [3]	−459	−424	−423
Comparative transfers to other accounts	8,494		
Unobligated balance lapsing	79		
New obligational authority	64,181	65,113	71,193
New obligational authority:			
Appropriation	64,121	63,230	71,193
Transferred to other accounts		−10	
Transferred from other accounts	60		
Appropriation (adjusted)	64,181	63,220	71,193
Proposed transfers from other accounts for pay increases		1,893	
Relation of obligations to expenditures:			
Total obligations	67,141	78,548	85,549
Receipts and other offsets (items 11-17)	−3,039	−13,435	−14,356
Obligations affecting expenditures	64,102	65,113	71,193
Obligated balance, start of year	4,173	4,354	4,496
Obligated balance, end of year	−4,354	−4,496	−5,689
Adjustments in expired accounts	17		
Expenditures	63,938	64,971	70,000
Expenditures are distributed as follows:			
Out of current authorizations	60,148	61,073	65,735
Out of prior authorizations	3,790	3,898	4,265

[1] Includes capital outlay as follows: 1967, $2,831,000; 1968, $2,633,000; 1969, $4,098,000.
[2] Selected resources as of June 30 are as follows.

	1966	1967 adjustments	1967	1968	1969
Stores	583	−69	635	635	635
Unpaid undelivered orders	2,329		2,171	2,171	2,171
Total selected resources	2,912	−69	2,806	2,806	2,806

[3] Reimbursements from non-Federal sources represent collections from pay patients (42 U.S.C. 221).

BIOGRAPHICAL SKETCH OF PRINCIPAL WITNESS

Name: John J. Walsh, M.D.
Position: Director, Division of Direct Health Services.
Birthplace and date: New York, N.Y., July 31, 1924.
Education:
State University of New York, College of Medicine, 1944–48, M.D., Ph. D. candidate.
Tulane University Graduate School, 1960–65 (pharm.)
Tulane University Graduate Business School, 1964–65.
Experience:
Director, Division of Direct Health Services, 1966 to present.
Medical officer in charge, New Orleans PHS Hospital, 1964–66.
Chief of medicine, New Orleans PHS Hospital, 1963–64.
Chief of research activities, New Orleans PHS Hospital, 1958–64.
Fellow in cardiology, Tulane Medical School, 1956–58.
Deputy chief of medicine, New Orleans PHS Hospital, 1956.

Assistant chief of medicine, New Orleans PHS Hospital, 1954–56.
Resident, internal medicine, Seattle PHS Hospital, 1951–54.
Medical officer, U.S. Coast Guard, 1949–51.

Association memberships:
Diplomate, American Board of Internal Medicine.
Fellow, American College of Physicians, American College of Cardiology, American College of Chest Physicians, American College of Clinical Pharmacology & Chemotherapy.
Member, American Association of University Professors, American Thoracic Society, National Tuberculosis Association, Society of Nuclear Medicine, American Medical Association.

Special awards, citations, or publications:
Recipient of USPHS Commendation Medal.
Plaque for Distinguished Services for the Louisiana Tuberculosis Association.
Author or coauthor of approximately 50 publications.

Mr. NATCHER. The committee will come to order.

At this time we take up patient care and special health services of the Public Health Service. We have before the committee, Dr. John J. Walsh, Director of the Division of Direct Health Service, together with certain members of his staff. Doctor, I wonder if you would present the other members of your staff to the committee.

Dr. WALSH. Yes, sir; on my immediate left is Mr. Andrew J. Cardinal, executive officer of the Division of Direct Health Services. Next to him is Dr. Carruth J. Wagner, Director of the Bureau of Health Services. Next to him is Mr. Ralph Bahn, financial manager of the Bureau of Health Services. In the back is Dr. Gordon S. Siegel, Director of the Division of Federal Employee Health; and next to him is Dr. Howard D. Fishburn, Chief Medical Officer of the Coast Guard.

Mr. NATCHER. We are delighted to have all of you gentlemen before the committee at this time.

Do you have a statement, Dr. Walsh?

Dr. WALSH. Yes, sir.

Mr. NATCHER. We will be pleased to hear from you.

GENERAL STATEMENT

Dr. WALSH. Mr. Chairman and members of the committee, the provision of comprehensive health care for Federal beneficiaries, training of health services personnel, conduct of clinical and health services research, and participation in certain broad community programs are the main tasks of the Division of Direct Health Services. In discharging these responsibilities, we deal with every aspect of health care. It follows that as this Division meets its responsibilities, it is given an opportunity to make significant contributions to the Nation's health. We are committed to just such a role.

In keeping with that view, we intend to provide the best and most comprehensive health services. The resources and programs we devote to the care of Federal beneficiaries are not isolated entities, but are integral parts of the local, regional, and national communities. Our efforts are directed toward making these resources and programs functioning components of community health programs at all of these levels.

We are committed to using our direct health care activities, including training and clinical research, as a base for health services research and for community services. Such research and services not

only contribute significantly to the accomplishment of our primary mission, but also permit the development and demonstration of more effective and more economical methods by which health services can be delivered.

In addition to longstanding programs for the training of physicians and dentists, the Division has greatly increased its effort in the training of allied and auxiliary health personnel. During the last fiscal year, more than 1,800 individuals received at least a portion of their training in our facilities, such training involving affiliations with over 170 academic and other educational institutions.

Our collaboration with and participation in health-related community programs also involve health services, training, and research. The Division's medical facilities are participants in programs such as Headstart, Job Corps, manpower development and training, work experience and training, and others. The Division also administers national programs in emergency health services, poison control, and rehabilitation medicine.

Our 1969 budget estimates are consistent with these program concepts. They support the progress being made in the modernization of the facilities, the programs of our hospitals and clinics, and community services.

OPERATION OF HOSPITALS AND CLINICS

Major improvements in patient care are proposed, with particular emphasis on the ambulatory care program of the Division's outpatient clinics and offices. These improvements encompass increased staffing for the outpatient clinics, and the purchase of additional equipment to complete modernization of the clinics in Chicago and Tampa. For the hospital and clinic system as a whole, additional support is required for the improvement of the level of professional and other contractual medical services provided to beneficiaries, to meet urgent supply needs, and for newer and more complex forms of medical treatment.

Maintenance and repair funds are necessary to correct physical deficiencies of a potentially emergency nature, as well as to implement further a preventive maintenance program for our facilities.

Other increases in the budget will permit us to (1) purchase new equipment so that our facilities can keep abreast of current medical practices, and (2) meet subsistence costs and a number of mandatory and minor increases in other budget categories.

One of the Division's most promising projects involves a multiphasic screening program, and funds are requested to continue the development and implementation of this program. By perfecting the application of automation and computer techniques to medical services, this program will lead to improvement in the quality and scope of care provided to our beneficiaries. The development, evaluation, and demonstration of such a multiphasic operation also promises to increase efficiency and economy in the delivery of health services. Because of the innovative nature of this effort, most of the requested funds will be expended in equipment. It is anticipated that the successful development and operation of this program will permit its replication by public and private health agencies at a considerably lower cost.

SPECIAL HEALTH SERVICES

The poison control program provides support services to the Nation's 563 community poison control centers. In 1969, funds will be used to establish a second regional toxicological laboratory and for research efforts focused on the development of better methods of diagnosis and treatment. We also propose to apply modern data processing methods to the collection and interpretation of data on accidental poisonings, to assure rapid and accurate delivery of diagnostic and therapeutic information to the physician in the community. The number of toxic compounds (40,000) and annual incidents of poisoning (90,000, two-thirds in children aged 5 to 7) require that we expand our efforts to meet this health problem.

Incorporated in our emergency health services program is support of community and regional research, training, and demonstration projects. These projects are directed to improving the quality and quantity of health services available to all citizens, from the onset of a particular medical emergency to attainment of maximum rehabilitation. Considerable emphasis will be placed on the training of professional and lay personnel, and in providing consultation and technical assistance on a national level. Noteworthy in the efforts to date are the activities of the Information Clearinghouse, which provided more informational material during the last 9 months of 1967 than in the previous 4 years of its existence, the liaison established with the national highway safety program of the Department of Transportation, and participation in the Public Health Service survey of emergency health services in 77 major cities last summer.

COAST GUARD MEDICAL SERVICES

The U.S. Coast Guard is one of the five armed forces of the United States and is required to maintain a posture of military preparedness so it can, when required, serve with or as part of the Navy. In fact, today, a significant contribution to the effort in Southeast Asia is being made by Coast Guard operational forces. In addition to the military requirements, the Coast Guard is charged by statute to conduct search and rescue operations, maintain aids to navigation, law enforcement, merchant marine safety, operation of ocean station vessels, oceanographic patrols, and all Arctic and Antarctic icebreaking operations.

The Coast Guard medical program is a major support element that provides the operational commander with personnel physically fit to perform their duties.

In support of the medical program, the Coast Guard operates infirmaries, dispensaries and sickbays in its shore stations, air stations, and vessels both in the United States and in remote and isolated areas of the world. Station-manning levels are from one to 2,000 men; however, 71 percent of our 612 shore stations in the United States are manned by 15 or fewer men.

The Public Health Service is charged by statute to provide the professional staff to operate these activities and to provide other medical support in Public Health Service hospitals, outpatient clinics, outpatient offices, and designated physicians' offices.

FEDERAL EMPLOYEE HEALTH SERVICES

The Division of Federal Employees Health is attempting to meet the problems and needs arising in protecting the occupational health of the 2,800,000 Federal civilian employees, and the work safety of some 40,000 Public Health Service personnel.

Public Law 658 holds the Public Health Service responsible for providing consultation, standards, and evaluation of Federal employee health programs and services. The law authorizes agencies, after securing such consultation, to enter into contractual and reimbursable agreements for the provision of needed services.

The occupational health of the Federal labor force continues to be a direct and rising cost of "doing business." Work injury loss among Federal employees currently costs the Government in excess of $46 million annually in direct expenditures. An alarming percentage of premature Federal employee retirements are for health disability. The use of over 20 million days of sick leave per year by Federal employees can be translated into disablement that brings discouragement, hardship, and loss of productivity.

We are now operating 62 employee health units, serving over 450 Federal agencies and activties, and 105,000 Federal workers.

In summary, Mr. Chairman, the estimate for 1969 totals $71.2 million in appropriated funds, as compared with $65.1 million anticipated to be available in 1968 from appropriated funds, an increase of $6.1 million.

This concludes my statement on patient care and special health services. I am available to answer questions, and Admiral Fishburn, Chief Medical Officer of the Coast Guard, and Dr. Siegel, Director of the Division of Federal Employee Health, are present to respond to questions you may have regarding their programs.

Mr. NATCHER. Thank you, Dr. Walsh.

APPROPRIATION LANGUAGE CHANGES

Before talking about dollars, the explanation on page 232 of the language change to add reference to section 328 is not very meaningful to us, Doctor. What is involved here? What do you have in mind?

Dr. WALSH. Section 328 was instituted to permit us to enter into agreements with patient care and training operations so as to provide, either on an exchange or reimbursable basis, scarce or unusual talents, equipment, facilities, and services. What this means is that often we will be able to operate more economically by taking advantage of this authority.

Mr. NATCHER. Doctor, would there be more money involved?

Dr. WALSH. We do not anticipate any increased expenditures as a result of this authority. We hope to utilize those resources which we currently have more efficiently. The use to which this authority would be put in terms of its extent is rather difficult to define at this point. We think it would be used to a limited extent. Thus, for example, rather than embarking on an expensive intramural program, particularly in terms of treatment, we would be able to obtain these same services from a community or Federal agency on a reimbursable basis.

SUMMARY OF 1969 BUDGET REQUEST

Mr. NATCHER. Your total budget for 1968 is $78,548,000, and your request would give you $85,549,000 for 1969, or an increase of almost exactly $7 million.

Dr. WALSH. Yes, sir.

Mr. NATCHER. You have some pluses and minuses for relatively uncontrollable items that net out to plus $1,418,000, so the increase as far as the program is concerned totals about $5,583,000; is that correct?

Dr. WALSH. Yes, sir.

Mr. NATCHER. It appears to me from the justifications that the only increase you have in personnel for the operation of your clinics and hospitals is 43 for the outpatient clinics. That increase is tied directly to increased caseload, and six for preventive medicine; is that correct?

Dr. WALSH. Yes.

PREVENTIVE MEDICINE PROGRAM

Mr. NATCHER. This increase for preventive medicine would be to start a new activity, and it seems these six would be used just to plan and get a pilot program started. Give us some specifics on what activities are anticipated and how big this program is likely to be in a few years if we let you give birth to the program.

Dr. WALSH. As is true in most of American medicine, our care program is basically episodic in nature. In other words, the patient presents himself at one of our facilities because of illness. Or he may come in for a physical examination. However, we normally do not see the patient between these episodes. The effort is to develop a comprehensive program with a greater emphasis on prevention. This is desirable for several reasons. The first, of course, is that it is a better practice of medicine to either prevent disease or to be able to treat it in its early and incipient stages. There is also a valid economic reason for doing it since it is much more economical to treat patients early in their disease processes.

It is with these objectives in mind that our preventive medicine program has been proposed. The thought behind it is to develop the overall program so that our beneficiaries are brought in regularly for physical examination and counseling so as to receive timely care in terms of early diagnosis and control of disease. We would like to extend this service to all of our patient-care operations. We think that to provide our patients with good medical care, preventive care is essential.

CONTRACTUAL SERVICES

Mr. NATCHER. You have an increase of $540,000 for contractual services. How much of that is for increased costs such as increased fees for doctors and dentists and laboratory fees, and so on, and how much is for additional services?

Dr. WALSH. $115,000 represents the sum of money which we are allocating to our 28 outpatient clinics, to provide better and more comprehensive consultative services. This sum is for 28 clinics for 52

weeks. It represents two additional consultative visits a week which they are not now receiving and which we think should be made available to our beneficiaries.

In addition, $301,000 is requested to upgrade the salaries paid to our consultants to make them comparable with the community and other programs in the area. Traditionally we have not met the market price in terms of our consultants. This situation has been aggravated by several factors, the first of which is an increase in physicians' fees which Dr. Wagner said yesterday approximated 15 percent or more in the last 2 years. In connection with various insurance and other programs, standard fees are being established. In some States, such as Michigan, laws have been enacted that require us to meet these standard fee schedules. We have approximately 1,500 consultants.

Secondly, it is expected that expenditures in 1969 over 1967 for these consultants will approximate $450,000. We received $150,000, or one-third of that sum, in our 1968 budget and are requesting the $301,000 to close the gap with the community. This represents about $4 per physician per week, although obviously the exact amount each physician will receive will vary considerably.

We have requested $61,000 for increased contract medical and dental laboratory services. This is based primarily on increased patient load with some increase in prices.

In addition, we have requested $63,000 for miscellaneous services. This is largely based on the increased patient load.

MULTIPHASIC SCREENING PROGRAM

Mr. NATCHER. The largest increase you request is $1,479,000 for the multiphasic screening program at the Staten Island hospital. There is a lot of interest in this type of thing so give us a little more detail about the progress you are making under the appropriation of $405,000 for 1968 and what you will be able to accomplish if you receive the entire request for 1969.

Dr. WALSH. During the last year we have been able to make progress in various areas which comprise important segments of our multiphasic screening operation. Some illustrations of this are, for example, in our New Orleans hospital, where we are developing an outpatient medical information system. This system is not currently available and the system is being computerized. In our San Francisco hospital we have operational a pulmonary testing unit. We receive immediate computer readings on screening tests performed to determine the presence or absence of lung disease.

In the Baltimore hospital, within the next few weeks, we will be operational in terms of automating our laboratory, thereby welding together computer resources, biomedical resources, and record systems.

We feel we have made good progress in the past year in developing our multiphasic screening program. It is anticipated the funds which we are requesting for 1969 will permit us to become operational at the Staten Island hospital. This is a very complicated area and while we are shooting for what might be termed a second generation multiphasic program, we realize that further sophistication will come in future years. However, we feel this is important in that it will provide the Public Health Service with a laboratory in which to develop and

evaluate new screening procedures and to evaluate and demonstrate new methods in the prevention of disease. Also, it will provide more efficient services for our patients and, we think, in some terms, more economical services. The third objective we have behind the program is to attempt to come up with hard, reliable, scientifically sound information at a time when so many segments of the private and public sector are clamoring for this information.

Mr. NATCHER. The justifications say you will be able to examine 50,000 people per year at this facility. What is your estimate of the number of staff people and the dollar cost to do this, and what staff and dollar cost would there be to do it in the conventional way?

Dr. WALSH. To examine 50,000 people a year we will be required to operate the unit on a 70-hour-a-week basis. It is anticipated this will approach 100 personnel total, a 40-hour-a-week operation representing 50.

The cost estimates for such an operation are rather indefinite. Cost accounting has been incomplete in those operations which have thus far been implemented. We anticipate that the equivalent laboratory work which will be done will approximate one-fourth of the cost of its being done by the regular methodology.

I think it is important to add one comment, and that is probably the greatest saving is in physician time. This is difficult to measure in terms of dollars, although it can be done, and is part of our plan. We think there will be another saving in that our operation will be located in a hospital, which should cut down in the length of stay since these patients can be admitted and the laboratory work performed in a shorter period of time. But, again, we feel the most important results of this effort will be in terms of the saving in physician time, better health services for the patients who go through the system and the development of the program for community replication.

EMERGENCY HEALTH SERVICE

Mr. NATCHER. You are requesting an increase of $403,000 for expansion of "Emergency health services." This committee and the House disallowed a similar increase last year, and one of the reasons was the National Highway Safety Bureau had plans for quite a similar activity.

Will you comment on that?

Dr. WALSH. There is no conflict that we know of between our operation and that of the National Highway Safety Agency. We have established and continue to maintain close liaison with Dr. Haddon, the director of that agency. Our responsibilities are clearly delineated and they are distinct from those of Dr. Haddon. For example, Dr. Haddon is concerned with vehicles, transportation, communications, road repair, design, and maintenance. He is not, has not been, and does not intend to be involved in the medical service aspects of highway safety. By that—and I think this should be defined a little more clearly—I mean it is our responsibility. These responsibilities were defined in repeated instances. They include the provision of consultation on the medical aspects of his safety standards.

Secondly, we provide to his staff advice and consultation in terms of reviewing their grant requests and contract proposals if there is

a medical aspect involved. Thirdly, it is our responsibility to provide to him in the near future a standard text for the training of ambulance attendants. And fourth, it is our responsibility to develop the guidelines, the information, and the support in terms of equipment that is on an ambulance; in terms of the training of ambulance crews; and in terms of the staffing, the equipping, and the construction of the emergency facilities.

Mr. NATCHER. Doctor, assuming that you receive the increase, what would you do? You have explained what you are now doing. What would you do if you got the increase?

Dr. WALSH. The provision of emergency health services to the victims of accident and injury has lagged behind much of our national medical effort. Only recently has this come into prominence in terms of awareness and in terms of appreciation of the problem. We currently are focusing on the provision of emergency services to the victims of accident and, of the more than 100,000 such victims each year, less than half are from vehicular accidents. We plan to provide better services for all these people. We are just as concerned with the man who has a heart attack at 2 o'clock in the morning as with the man who gets hit by a car on the highway. As a result of the legislation that established the Highway Safety Agency and its companion bureaus, there has been new interest in the emergency health services aspect of injury. This has been, if you will, accentuated as a result of the highway safety standards with which the States must comply in order to receive matching grants and Federal road funds.

In that connection I think the educational program necessary is of tremendous importance. Of the funds received, approximately, $80,000 will be programed for our information clearinghouse. We literally are inundated with requests on how to evaluate an emergency room, how to evaluate an ambulance service, and so on. There are probably less than five States in this country that govern the actual operation of an ambulance service in that State. They all say what type of vehicle, what type of siren, what type of lights, but they do not say how the service shall be provided. So we promulgate a model ambulance ordinance as part of our informational services.

In addition, we will spend some of the funds in workshop, and forums and instructional efforts. This year we have five forums scheduled and expect to have in attendance 1,800 physicians. We are supporting workshops directed toward physicians, rescue squads, and State and local health officers to educate them as to the needs for emergency services, how they should be evaluated, how they should be planned, and how implemented.

We have innumerable requests to support demonstrations and studies. This year we will have completed 26 ambulance studies. In every case it is apparent there are considerable defects. It is our intention to use these funds both in further studies and in supporting community efforts by grants and by improving local services. Again, this is basically a community effort but we stimulate, we consult, and we educate.

Dr. WAGNER. If I may interrupt, the American College of Surgeons has 250 trauma committees and they are working with local hospitals in emergency services. The national highway safety program is directing itself primarily to the highways and we can go down the

line with many different efforts being directed from a National, State, and local effort. This program provides the mechanism by which the community has a consultant who is very knowledgeable about all these activities and it really provides the glue that brings them together. I think this is an extremely essential program. It does not get the headlines but it gets things done through these other people and is very essential for the efficient use of all the program efforts.

Dr. WALSH. I might add two or three activities we are currently engaged in that may be of interest. The first is, the activity of our people in the headquarters and in the field. They have had over 1,000 meetings with local authorities, physicians, and others. In addition, they have helped 25 to prepare their grant applications to make sure emergency health services are included in the regional planning efforts.

Second, we have a continuing program with the National Academy of Sciences which is working with us in developing the ambulance training manual I mentioned, as well as to define the medical aspects of ambulances. I doubt any two people will define an ambulance identically.

Third is an effort made in conjunction with the Department of Transportation and the Department of Justice and focusing on the national emergency telephone number. You may have seen mention of "911." The American Telephone & Telegraph Co. has agreed to take the first steps in developing a system whereby one emergency telephone number will be available to the entire Nation. A meeting concerning this program will be held in Philadelphia next week, to be attended by public administrators, people from industry, and representatives of the medical profession. It will not only be an important step forward but a very real challenge to establish local quality emergency health services by the time the telephone system is established.

Mr. NATCHER. Of course, we will hear from the Coast Guard and when Dr. Fishburn appears we will take up the four new positions requested for the Coast Guard. But there is a large group of miscellaneous items for supplies, maintenance, et cetera. What do you want to say to us about that, Doctor?

Dr. WALSH. I think there are a few remarks it would be worth my making.

MAINTENANCE, REPAIR, AND SUPPLY FUNDS

The first relates to the maintenance and repair funds. Currently we are funded at 60 percent of the recommended level for maintenance and repair. Second, our buildings are 30 to 40 years of age. They are showing the signs of a vigorous life and as a result require even more than normal maintenance. Finally, if we do not maintain an adequate preventive maintenance program, it will be much more expensive, more expensive to ourselves in terms of programs, and more expensive to the Government in terms of funds

The requested $200,000 will bring us up to 80 percent of the level recommended by the Oklahoma University-Veterans' Administration formula for determining such needs.

Subsistence, which has been planned for an increase of $150,000, represents our response to increased prices in the food area. What this will represent is, first, the annualization of the increased cost we are

experiencing this year; and second, will give an increase of 5 cents per day, per ration, for our hospitals and for the national leprosarium.

The $620,000 in supplies represents several areas in which increases are needed. To begin with, approximately $91,000 is requested for linen. This will raise the allowance to 17 cents per inpatient-day and 2 cents per outpatient visit, which we feel is the necessary level to support linen purchases. We have arrived at this difficult position in terms of linen shortage because in the last 3 or 3½ years the Department of Defense linen surplus program has ceased to exist so far as we are concerned. Previously we received approximately $1 million from them in surplus linen. With this $91,000 our linen will then be on a self-paying basis. We feel this will be an adequate sum for a long time to come.

We have asked $94,000 for family planning. We initiated a program this past January at the level of $60,000. To provide family planning services to 11,000 female beneficiaries will require the additional $94,000. We do not anticipate any significant increase in this program after this year. All the increase does is bring to the remainder of our eligible beneficiaries family planning services.

We have requested $124,000 for disposable supplies. Actually, disposable supplies are in general use in all Federal and private hospitals in this country. We have lagged very far behind in this area. Disposables are important for several reasons. They are important in terms of decreased demand for manpower. Sometimes this results in a saving of dollars and sometimes there is no saving but a reduction in the demand for short-supply people whom we could not hire even if we had the funds. It results in improved patient care. Of no little consequence, is the fact that it has an important effect on our staff. If the entire community is using disposal supplies and the one institution providing care for Federal beneficiaries is not, this is most detrimental to the morale of the staff. The final major supply request is for $311,000 for the purchase of drugs, occasioned by increasing prices and an increased patient load.

We are requesting $398,000 in additional equipment. These are for two major categories; $170,000 is to equip two new clinics. This is a one-time item. Having made all the steps and proposals and plans to relocate these as new, modern clinics, it is reasonable that we equip them in terms of modern medical facilities.

We are requesting $228,000 for additional equipment for our hospital system. Our inventory shows we have a need for approximately $3.5 million in additional equipment. This is equipment which is not necessarily brandnew but has been developed in the last 10 years, such as isotopic diagnostic techniques and radiographic equipment. With the increase of $228,000 we will have a base of about $500,000 each year to purchase equipment for the 11 hospitals and 28 clinics.

Mr. NATCHER. Mr. Smith.

TRAINING AMBULANCE OPERATORS

Mr. SMITH. How are you getting along with the training of lay people to operate ambulances?

Dr. WALSH. We have two efforts in this area, one intramural and one extramural. The intramural has just gotten off the ground with a course for ambulance attendants at Staten Island.

Mr. SMITH. Will they come from all over the United States for that course?

Dr. WALSH. No. At the present time it is directed to the Greater New York metropolitan area. We had three to four times as many applicants as we could train. We were quite impressed with the need for training these people presented and we anticipate providing this kind of course in other hospitals and clinics. There is a need in every community in which we have facilities.

The extramural program has not yet engaged to a large extent in the training of ambulance attendants. This is for several reasons. One is the magnitude of the job. Another reason is that most ambulances are run by morticians and are operated at a financial loss as a community service. It is a high turnover category and, generally speaking, they are not trained. This is true even of private and good ambulance service. It is very difficult to keep these people, let alone train them.

Another problem is the approximately 50 different attendant training programs, ranging from one extreme to the other. As a result, we have held off, as the Department of Transportation is holding off, until we are advised by the Advisory Committee of the Academy of Sciences as to what should be the national program for training ambulance attendants.

Mr. SMITH. How long have you been working on this?

Dr. WALSH. We have been working with the Academy of Sciences several months as well as with the College of Surgeons. This report should be out at the end of the month.

Mr. SMITH. So there has not been very much done as yet in training ambulance attendants?

Dr. WALSH. Courses are given by the College of Orthopedic Surgeons and others but the problem is the high turnover rate and large number of persons to be trained. I do not think, frankly, that the surface has been skimmed yet.

EMERGENCY TREATMENT IN HOSPITALS

Mr. SMITH. What, if anything, is being done or can be done about hospitals refusing emergency treatment to people after they arrive at the hospital door?

Dr. WALSH. I think you are particularly referring to an emergency that arrives by ambulance or private vehicle. We feel that the organization of a good emergency health program will solve this problem. We think it will obviate the question of political jurisdiction. Local professional associations are the proper bodies to police this in their areas of responsibility. Certainly our policy is that all emergencies are to be seen, but this is something that must be done through local professional associations.

Mr. SMITH. That does not give much hope for getting it done, does it?

Dr. WALSH. I hope I am correct in disagreeing with you. I think this emphasis on emergency health services will bring it about. Many factors will be operative, I think, in clearing up the situation. The highway safety standards, better planning and organization of all efforts, but particularly the upgrading of emergency health services,

will help. This year there will probably be in excess of 44 million visits to emergency rooms and 70 percent will not be emergencies, so that the problem is a serious one requiring various solutions.

Mr. SMITH. But in a lot of cases there is not competent personnel at the emergency door to determine if they should be treated.

Dr. WALSH. That is correct. Should all hospitals have emergency rooms? That is question No. 1. And question No. 2, should every hospital take every type of emergency? And No. 3, while we know the present pattern of distribution of services, we should determine what should be the pattern. Approximately 70 percent of traffic deaths occur in smaller communities. That suggests what might be accomplished through improved emergency health services. An emergency room should be open 24 hours a day. There should be a trained staff in attendance. There should be adequacy and availability of the equipment that is necessary. Another problem is how to find the emergency room in a town, particularly for a stranger at 2 o'clock in the morning. What is the backup in terms of X-ray, laboratory, and consultants?

Mr. SMITH. Suppose you have found the hospital and you drive up and have an emergency and somebody says, "Sorry, you have to go to another hospital."

Dr. WALSH. I think this is done because such institutions do not have adequate emergency services. Most of the cases I know of occurred because the institutions did not have an adequate emergency room in terms of competent staff, equipment, supplies, and procedures. I think if we correct these things we will do away with this problem.

Mr. SMITH. This is not an isolated case. It happens every day, does it not?

Dr. WALSH. Yes, unfortunately. I feel in most cases it is because of the inadequacy of the institution's emergency medical services.

UNIFORM NATIONAL EMERGENCY PHONE NUMBER

Mr. SMITH. You mentioned a three-digit figure allocated for emergency calls. At least one Member of Congress has been working on that for 10 years and they finally allocated three digits. Are you familiar with the efforts to get a digit allocated?

Dr. WALSH. I know A.T. & T. estimates a cost of $50 million. Another problem has been the awareness that more often than not were such a system operative, the medical services would not be available in quality and quantity required.

Mr. SMITH. An operator can take the call on another digit as well as zero. Now they have finally allocated a three-digit number which a 6-year-old child will not remember, and it takes longer to dial a three-digit number than to dial a one- or two-digit number. It seems to me some of the people interested in health could become more active in getting this simple thing solved. And if one dials zero, one must have a dime, but you will get the dime back anyway—so why have to take the time to deposit the dime and perhaps be prohibited from making the call because you do not have a dime in change?

Dr. WALSH. That is another problem to be solved.

Mr. SMITH. I think the Public Health Service ought to be involved in this. After all, it is interested in the public health. People who are interested in health ought to be bringing whatever attention they can to this because it involves lives and there is not a good excuse for it.

Dr. WALSH. We have done everything we can to bring about a uniform national emergency number. We are supporting the first conference on it next Monday in Philadelphia. Why a three-digit rather than a one-digit number was given, I cannot say. This is probably a part of the technical problem and will be brought out on Monday.

Mr. SMITH. That is all I have.

Mr. NATCHER. Mr. Laird.

Mr. LAIRD. I think you handled it very well, Mr. Chairman. I have no further questions.

Mr. NATCHER. Dr. Walsh, we want to thank you for your excellent presentation on your budget request for 1969.

Dr. WALSH. Thank you.

COAST GUARD MEDICAL SERVICES

Mr. NATCHER. At this time we will take up the request of the Coast Guard. Dr. Fishburn, do you have a general statement?

Dr. FISHBURN. Thank you.

Dr. Walsh, in his opening statement, essentially covered the Coast Guard operation. I would like to merely supplement that by pointing out this year's request is for $2,432,000, an increase of $142,000 over the current operating budget.

This increase provides for four new positions which are urgently needed; a $2,000 increase in contractual services; a $45,000 increase for supply funds; and a mandatory increase of $33,000.

PERSONNEL INCREASE

Mr. NATCHER. What about the four new positions? What would you use these people for and why are they necessary?

Dr. FISHBURN. Two of them are to staff a newly established aviation training base in Mobile. As I am sure you appreciate, the Medical Department of the Coast Guard supports the programs of the Coast Guard. This base has been established and there is a requirement for one medical and one dental officer at the base. That requires two positions. One of the other positons is to continue a trainee in aerospace medicine. We have not been able to support him out of operating funds for the first year. It is a 3-year program. We feel having a man trained in this specialty is important for the Coast Guard.

The fourth position is for a dentist to operate an additional mobile dental unit primarily in the midwestern region where we have many stations far from a regional dentist. It has been found economical to bring the mobile unit to the station rather than transport people many miles to the facility.

Mr. NATCHER. Mr. Laird.

Mr. LAIRD. No questions.

Mr. NATCHER. Mr. Smith.

Mr. SMITH. No questions.

Mr. NATCHER. Thank you, Dr. Fishburn.

JUSTIFICATION MATERIAL

PUBLIC HEALTH SERVICE
Patient Care and Special Health Services

Amounts Available for Obligation

	1968	1969
Appropriation	$63,230,000	$71,193,000
Proposed transfer from "National Heart Institute" for pay increases	1,893,000	...
Transferred to "Operating expenses, Public Buildings Service," General Services Administration	-10,000	...
Advances and reimbursements from:		
Federal Funds	13,011,000	13,933,000
Non-Federal sources	424,000	423,000
Total	78,548,000	85,549,000

Obligations by Activity

Page Ref.		1968 Estimate Pos.	1968 Estimate Amount	1969 Estimate Pos.	1969 Estimate Amount	Increase or Decrease Pos.	Increase or Decrease Amount
247	Operation of hospitals and clinics	6,238	$69,711,000	6,287	$75,145,000	+49	$+5,434,000
	Medical care for special groups:						
254	(a) Coast Guard medical services	144	2,290,000	148	2,432,000	+4	+142,000
256	(b) Federal employee health services	347	2,889,000	379	4,017,000	+32	+1,128,000
	Special health services:						
262	(a) Emergency and rehabilitative services	54	1,373,000	54	1,670,000	...	+297,000
265	(b) Payments to Hawaii	...	1,200,000	...	1,200,000	...	...
266	Personnel detailed to other agencies	72	1,085,000	72	1,085,000	...	...
		6,855	78,548,000	6,940	85,549,000	+85	+7,001,000

Obligations by Object

	1968 Estimate	1969 Estimate	Increase or Decrease
Total number of permanent positions	6,855	6,940	+85
Full-time equivalent of all other positions	98	93	-5
Average number of all employees	6,697	6,866	+169
Personnel compensation:			
Permanent positions	$48,363,000	$51,366,000	$+3,003,000
Positions other than permanent	920,000	860,000	-60,000
Other personnel compensation	1,820,000	1,820,000	....
Total personnel compensation	51,103,000	54,046,000	+2,943,000
Personnel benefits	6,866,000	7,140,000	+274,000
Travel and transportation of persons	800,000	876,000	+76,000
Transportation of things	753,000	779,000	+26,000
Rent, communications, and utilities	1,238,000	1,464,000	+226,000
Printing and reproduction	301,000	343,000	+42,000
Other services	4,513,000	5,609,000	+1,096,000
Project contracts	127,000	418,000	+291,000
Services of other agencies	1,897,000	1,881,000	-16,000
Payment to "Public Health Service management fund"	485,000	....	-485,000
Supplies and materials	6,641,000	7,691,000	+1,050,000
Equipment	2,633,000	4,098,000	+1,465,000
Grants, subsidies, and contributions	1,551,000	1,564,000	+13,000
Subtotal	78,908,000	85,909,000	+7,001,000
Deduct quarters and subsistence charges	-360,000	-360,000	....
Total obligations by object	78,548,000	85,549,000	+7,001,000

Summary of Changes

1968 enacted appropriation	$63,230,000
Transferred to "Operating expenses, Public Building Service," General Services Administration (Space rental)	-10,000
Proposed transfer from "National Heart Institute" for pay increases	1,893,000
1968 estimated reimbursements	13,435,000
Total estimated obligations, 1968	78,548,000
1969 appropriation estimate	71,193,000
1969 estimated reimbursements	14,356,000
1969 estimated obligations	85,549,000
Total change	+7,001,000

	Base		Changes from Base	
	Positions	Amount	Positions	Amount
Increases				
A. Built-in				
1. Annualization of pay act increases	...	...	...	$455,000
Operation of hospitals and clinics	...	...	...	(429,000)
Coast Guard	...	...	...	(13,000)
Federal Employee health	...	...	...	(6,000)
Emergency and rehabilitative service	...	...	...	(7,000)
2. Annualization of new positions authorized in 1968	...	...	...	156,000
3. Net additional cost:	...	...	...	582,000
Within-grades	...	...	...	(409,000)
Reclassifications	...	...	...	(173,000)
4. Net additional cost of incentive pay and longevity increases	...	...	...	214,000
Operation of hospitals and clinics	...	...	...	(199,000)
Coast Guard	...	...	...	(15,000)

	Base		Changes from Base	
	Positions	Amount	Positions	Amount
5. Social security contributions	...	...	...	54,000
Operation of hospitals and clinics	...	...	...	(49,000)
Coast Guard	...	...	...	(5,000)
6. Annualization of 1968 wage board increases	...	...	...	180,000
7. Payments to Employee Compensation Fund	...	...	...	23,000
8. One extra day's pay in 1969 (260 days in 1968; 261 days in 1969)	...	...	...	104,000
9. Contract medical care price increases	...	...	...	210,000
10. Adjustment of minimum rates and rate ranges of nurses	...	...	...	145,000
B. Program				
1. Operation of hospitals and clinics				
(a) Staffing for outpatient clinics	613	$5,595,000	43	$341,000
(b) Contractual services	...	1,892,000	...	540,000
(c) Maintenance and repairs	...	670,000	...	213,000
(d) Supplies	...	3,872,000	...	620,000
(e) Subsistence	...	1,177,000	...	150,000
(f) Equipment	...	352,000	...	398,000
(g) Preventive medicine	...	...	6	64,000
(h) Multiphasic Screening program	46	405,000	...	1,479,000
(i) Minor increases in other objects	...	...	...	31,000
Subtotal, operation of hospitals and clinics			49	3,836,000

	Base		Changes from Base	
	Positions	Amount	Positions	Amount
2. Medical care for special groups				
(a) Coast Guard medical services.....	144	2,290,000	4	109,000
(b) Federal employee health services.....	347	2,889,000	32	1,122,000
3. Special health services				
(a) Emergency and rehabilitative services.....	54	1,153,000	...	516,000
Subtotal program increases			85	5,583,000
Gross increases			85	7,706,000
Decreases				
A. Adjustment for elimination of a reimbursable project....	...	...	...	-220,000
B. Non-recurring contribution to PHS management fund.....	...	...	...	-485,000
Total decreases.....	...	...	...	-705,000
Total net changes requested	...	...	+85	+7,001,000

Explanation of Changes

Operation of Hospitals and Clinics

Clinic staffing -- An increase of $341,000 and 43 positions is requested to provide for increased patient workloads in the outpatient clinics.

Contractual services -- The program increase of $540,000 is made up of the following: An increase of $477,000 is requested for contractual medical and dental services. This will provide additional consultant visits to the outpatient clinics, equalization of fee schedules of contract physicians and dentists to the prevailing rates, and support of price and workload increases for medical and dental laboratory services to the hospitals and clinics. A further increase of $63,000 will enable the hospitals and clinics to purchase additional laundry and other services arising from increased workloads.

Maintenance and repairs -- The increase of $213,000 will permit us to upgrade our substandard maintenance program.

Supplies -- Of the $620,000 increase requested in the supply category, $91,000 will be expended on linen, $94,000 on family planning services, $30,000 on outpatient offices, $124,000 on disposable supplies, and $281,000 on hospital and clinic supplies.

Subsistence -- The increase of $150,000 will permit an increase in unit ration allowance of fifteen cents in the general hospitals and thirteen cents in the Carville hospital. This will provide $1.28 per ration in the general hospitals and $1.44 in the Carville hospital.

Equipment -- The increase of $398,000 will provide funds for modernization of two outpatient clinics ($170,000) and funds for the most essential additional equipment for the hospitals and clinics ($228,000).

Preventive medicine -- An increase of $64,000 and 6 positions is requested to initiate preventive medicine programs at two of our larger clinics.

Multiphasic screening program -- The requested increase of $1,479,000 will provide for the completion of the second phase of the program to develop and demonstrate new, automated screening procedures at the Staten Island hospital.

Minor increases in other objects -- An increase of $10,000 will be used to cover the cost of rental space for the San Diego clinic. The increase in other objects is $21,000.

Medical Care for Special Groups

Coast Guard medical services -- The increase of $109,000 and 4 positions will provide increased medical and dental support to present and proposed medical and dental facilities.

Federal employee health services program -- An increase of 32 positions and $1,122,000 in reimbursable funds will be used to operate 12 new health units requested by Federal agencies.

Special Health Services

Emergency health services -- The requested increase of $403,000 for expansion of this program is primarily for project contracts. It will also provide for the dissemination of health educational material to the public through its information clearinghouse.

Rehabilitation medicine -- The requested $3,000 will provide funds for supplemental research grants.

Poison control -- The $110,000 requested will permit immediate retrieval of information on poisons, toxic agents, and related exposures by means of a computer, establishment of a second regional laboratory, and the support of new research projects and supplemental grants.

Authorizing Legislation

Legislation	1969 Authorization
Public Health Service Act	
Section 301--Research and Investigation.....	Indefinite
Section 331--Lepers.....	Indefinite

PUBLIC HEALTH SERVICE ACT

Title III--General Powers and Duties of Public Health Service

Part A--Research and Investigation

Appropriation

Section 301. The legislative authority in section 301 of the Public Health Service Act which provides for the award of grants for research is included in the section of the justifications under the tab, "Preamble Paragraph" in Volume V.

Title III--General Powers and Duties of Public Health Service

Part D--Lepers

Appropriation

Section 331. "xxx When so provided in appropriations available for any fiscal year for the maintenance of hospitals of the Service the Surgeon General is authorized and directed to make payments to the Board of Health of Hawaii for the care and treatment in its facilities of persons afflicted with leprosy at a per diem rate, determined from time to time by the Surgeon General, which shall, subject to the availability of appropriations, be approximately equal to the per diem operating cost per patient of such facilities, except that such per diem rate shall not be greater than the comparable per diem operating cost per patient at the National Leprosarium, Carville, Louisiana."

Explanation of Transfers

	1968 Estimate	Purpose
Proposed transfer from:		
"National Heart Institute"	$1,893,000	To cover cost of the Civilian and Uniformed Services Pay Acts of 1967 and additional costs of Social Security contributions.
Transfer to:		
"Operating expenses, Public Buildings Service," General Services Administration	10,000	Transfer of rental costs for Division of Federal Employee Health.

Justification

Patient Care and Special Health Services

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
Personnel compensation and benefits	6,855	$57,969,000	6,940	$61,186,000	+85	$+3,217,000
Other expenses.....	....	20,939,000	....	24,723,000	....	+3,784,000
Subtotal.....	6,855	78,908,000	6,940	85,909,000	+85	+7,001,000
Deduct quarters and subsistence charges.....	....	-360,000	....	-360,000	....	....
Total.....	6,855	78,548,000	6,940	85,549,000	+85	+7,001,000
Reimbursable obligations.....		-13,435,000		-14,356,000		-921,000
Direct obligations.....		65,113,000		71,193,000		+6,080,000

General Statement

A total of 11 hospitals, 28 outpatient clinics, and 124 outpatient offices will be operated to furnish medical and dental care to legal beneficiaries of the Public Health Service. The major beneficiary groups are American seamen, Coastguardsmen and their dependents, Bureau of Employees' Compensation cases, and persons afflicted with leprosy. Among these, the largest single category is the American seamen who receive comprehensive medical care in Service facilities for all conditions. Medical care is also provided to foreign seamen and beneficiaries of other Federal agencies on a reimbursable basis.

Though the primary mission of this program is to provide comprehensive health services to its beneficiaries, it also has responsibility for the training of health services personnel; conducting clinical and health services research; and participation in community health service programs. This broad responsibility is in keeping with the recognition by many authorities, including the National Commission on Community Health Services, that the hospital is, and should be, the focal point for all health services.

1. Operation of hospitals and clinics. - Under this activity are operated 10 general hospitals, and the National Leprosarium at Carville, La. Average daily inpatient loads and annual total outpatient visits are expected to be as follows:

	1967 Actual	1968 Estimate	1969 Estimate
Average daily patient load			
Hospital patients, by type of hospital:			
General hospitals.....	2,214	2,210	2,195
Leprosarium.....	279	270	270
Total.....	2,493	2,480	2,465
Annual total outpatient visits			
Hospital outpatient visits....	794,807	808,000	815,000
Outpatient clinic visits.....	749,064	804,000	844,000
Outpatient office visits.....	62,740	64,000	65,000
Annual total outpatient visits	1,606,611	1,676,000	1,724,000

The estimates for 1969 provide for an increase in staff for the outpatient clinics to accommodate the increased patient workload, thereby permitting the maintenance of the current staffing ratio. Provision is also made for improvement of patient supplies and subsistence, contractual services and the acquisition of additional equipment.

During 1968 considerable progress was made in the implementation of the hospital and clinic modernization program. Newly modernized clinics at Tampa and New York City are scheduled to begin operation this year. All general hospitals are expected to be under the first phase of the Architectural and Engineering contract by August 1, 1968. The Architectural and Engineering phase of the Carville modernization will be completed during 1969 and construction will begin in 1970. The contracts for the first phase of the San Francisco Architectural and Engineering effort will be signed by April 1, 1968.

2. Medical care for special groups:

(a) Coast Guard medical services. - Medical services are provided for Coast Guard personnel at shore stations and on vessels. The estimates provide for increased staff and funds to improve medical and dental care.

(b) Federal employee health services. - The Public Health Service is responsible, under law, for providing all Federal agencies with recommendations and evaluations of proposed Federal employee health services. The activity also provides clinical health services to Federal employees on a reimbursable basis. On July 1, 1967 this program covered 100,000 employees served in 62 clinics. This activity is also responsible for the internal safety program for employees at Public Health Service installations and facilities. The reimbursable operations will increase

by 32 positions and $1,122,000 in 1969.

3. Special health services:

(a) Emergency and rehabilitative services. - This activity includes the Emergency health services, Rehabilitation medicine and Poison control programs.

(b) Payments to Hawaii. - Grants are made to Hawaii to defray the cost of care and treatment of persons afflicted with leprosy. Average daily patient load is expected to be 250 in 1969, compared with 254 in 1967 and 251 in 1968.

4. Personnel detailed to other agencies. - Medical, dental, and other professional personnel are detailed to certain other Federal agencies on a reimbursable basis.

1. Operation of hospitals and clinics

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
Personnel compensation and benefits	6,238	$52,468,000	6287	$54,899,000	+49	$+2,431,000
Other expenses	...	17,603,000	...	20,606,000	...	+3,003,000
Subtotal	6,238	70,071,000	6287	75,505,000	+49	+5,434,000
Deduct quarters and subsistence charges	...	-360,000	...	-360,000	...	...
Total	6,238	69,711,000	6287	75,145,000	+49	+5,434,000
Reimbursable obligations		-9,663,000		-9,682,000		-19,000
Direct obligations		60,048,000		65,463,000		+5,415,000

Basic program and workloads

The 1969 estimates reflect the continued operation and improvement of eleven hospitals, - ten general hospitals and the leprosarium at Carville, Louisiana.

Care is also provided to beneficiaries of this program in 28 outpatient clinics, in the private offices of 124 contract physicians, in other Federal hospitals, and in community hospitals. In 1967, outpatient visits to the clinics and physicians totaled 811,804. In 1968 and 1969, the estimates provide for 868,000 and 909,000 visits respectively.

These hospitals and clinics are the primary source of medical care for an estimated 410,000 beneficiaries. The major groups served are American seamen, whose care and cure has been the mission of these installations since 1798, Coast Guardsmen and their dependents, Federal employees injured in the course of their work, and, at the Carville Hospital, patients suffering from leprosy.

The hospitals of this system provide an economical means of furnishing care on a reimbursable basis to the legal beneficiaries of other Federal agencies that lack health facilities in the areas served by the ten general hospitals.

The requested increases will permit an improvement in outpatient care staffing levels to keep pace with a growing patient load, the inauguration of new preventive medicine programs, and the completion of equipment purchases for the clinics at Tampa and Chicago. The increases will also permit the purchase of additional equipment to permit the application of new and improved scientific techhiques in all programs. In addition, these increases will make possible an improved level of professional and contractual services, the meeting of supply needs, the strengthening of our facilities' maintenance and repair program, and the further development of our multiphasic health screening program.

Increases totaling $5,434,000 for positions, supplies, and other expenses are requested for the operations of hospitals and clinics activity, as explained below:

Direct Care

Increased staff in the outpatient clinics

	1968	1969	Change
Positions	613	656	+43
Amount	$5,595,000	$5,936,000	$+341,000

An increase of $341,000 and 43 positions is requested in the outpatient clinic facilities to meet an increased outpatient workload, thereby permitting the maintenance of the current staffing ratio.

Contractual services

1968	1969	Change
$1,892,000	$2,432,000	$+540,000

The justification of the $540,000 increase is as follows:

Consultants to clinics

The amount of consultative services provided the outpatient clinics is inadequate. An increase of $115,000 will significantly improve the quality of patient care by permitting more frequent and more diversified utilization of consultants by the clinics.

Contract physicians and dentists

An increase of $301,000 is requested for the equalization of fee schedules of contract physicians and dentists to the prevailing rates.

Contract medical and dental laboratory services

The provision of medical care requires increasingly frequent use of complex special laboratory services. Examples are hormone assays, neurological tests, and dental prostheses. It is estimated that an additional $61,000 is required to support these necessary services.

Miscellaneous contractual services

An additional $51,000 is requested to support the cost of providing increased laundry and other miscellaneous services in the hospitals. The request is based on a projected increase of 1,000 admissions and 7,000 outpatient visits for 1969. A further increase of 40,000 visits to outpatient clinics and offices is projected for 1969. This will require an additional $12,000.

Maintenance and repair

1968	1969	Change
$670,000	$883,000	$+213,000

Based on the University of Oklahoma-VA formula, the Division's maintenance and repair needs are $1,084,000 annually. This is a formula for mathematically computing a reasonable daily maintenance cost based on square foot area, type of construction, and percent of utilization. The requested increase of $213,000 will raise our funding from 60% to 80% of the recommended level and permit us to substantially upgrade our current substandard maintenance program.

Supplies

1968	1969	Change
$3,872,000	$4,492,000	$+620,000

The justification of the $620,000 requested for supplies is as follows:

Patient supplies

Inadequate supply funding remains a major problem in the hospitals and clinics. The use of desirable, but more expensive items, such as, oral hypoglycemic agents for diabetics now routinely used in modern medical practice, is significantly restricted in the hospital system because of cost. The increased cost of many routine supply items contributes to the problem. New modalities of treatment and diagnosis, such as renal dialysis, are extremely expensive.

The requested increase of $281,000 will alleviate to some extent the undesirable restrictions in patient care mentioned above. Increases of $.12 per inpatient day and $.10 per outpatient visit projected for 1969 will result in an estimated increased cost of $281,000.

Outpatient offices

The requested increase of $30,000 will cover the estimated workload of 65,000 outpatient visits.

Linen

An additional $91,000 is requested for linen for hospitalized patients, for outpatient departments of hospitals, and outpatient clinics. Based on current experience, the minimum requirement for linen will be $.17 per inpatient day and $.02 per outpatient visit in 1969.

Family planning supplies

The requested increase of $94,000 will provide support for the continuation and expansion of the family planning program. It is estimated that in 1969, family planning services will be provided to 11,000 female beneficiaries at an annual cost of $14 per beneficiary.

Disposable supplies

The requested increase of $124,000 will permit the utilization of standard disposable supply items. In contrast to current medical and hospital practice, our facilities do not use disposable supply items to any significant extent. In order to improve the efficiency of operations, patient care, and professional practice, it is necessary that our facilities adopt, where feasible, this important practice.

Subsistence

	1968		1969		Change	
	Ration Cost	Amount	Ration Cost	Amount	Ration Cost	Amount
General hospitals, and Carville employees and guests.....	$1.13	$1,048,000	$1.28	$1,185,000	$+.15	$+137,000
Carville hospital, patients only	$1.31	129,000	$1.44	142,000	$+.13	+13,000
Total	...	1,177,000	...	1,327,000	...	+150,000

The requested increase of $150,000 will provide for: (1) the full year cost of increased raw food prices that have been experienced in the first half of FY 1968 ($.10 in the general hospitals and $.08 at Carville); and,

(2) an increase of $.05 per ration to improve the quality of selective menus. Even with these increases, and after allowing for the advantages of bulk and Federal purchasing procedures, our ration allowance does not compare favorably with community hospitals.

Equipment

1968	1969	Change
$352,000	$750,000	$+398,000

The outpatient clinics in Tampa and Chicago will undergo relocation and modernization in 1969. The amount required to re-equip these facilities is $170,000.

The estimate of current additional equipment needs in our facilities is $3,500,000. This is in addition to our replacement equipment program. The requested increase of $228,000 will provide $580,000 for additional equipment.

Preventive medicine

	1968	1969	Change
Positions	...	6	+6
Amount	...	$64,000	$+64,000

Prevention of disease is a prime objective of all medical care programs. Resources applied to this aspect of medical care potentially produce the greatest benefits both from a financial and a social point of view. Since preventive medicine is practiced by each specialty in the hospital and clinic system, there is an urgent need to coordinate these services so that each patient receives preventive services according to his need.

The requested increase of $64,000 will permit initiation of preventive medicine programs by providing staff in two medical care facilities. Staff responsibilities will include: (1) formalizing a program of preventive care for different age groups and occupations; (2) developing an effective occupational health program; (3) coordinating the clinic programs with local community programs; (4) performing special studies on the medical needs of the various beneficiary groups; (5) follow-up medical care; and (6) providing certain direct preventive services to beneficiaries.

Multiphasic screening program

	1968	1969	Change
Positions	46	46	...
Amount	$405,000	$1,884,000	$+1,479,000

Funds requested in 1969 for the Multiphasic screening program will permit completion of the second phase of this program in the Staten Island PHS Hospital. This will bring the facility to full operational status, including conversion to a totally automated system. Of the amount requested, $1,039,000 is needed to achieve maximum automation in multiphasic screening. The remainder of the funds will support necessary personnel, supplies, and other expenditures to conduct the screening activities. When fully operational, the facility will be capable of examining up to 50,000 individuals per year. It will provide the Public Health Service with a laboratory in which to develop and evaluate new screening procedures and to evaluate and demonstrate new methods in the prevention of disease.

Other changes

Mandatory increases in the amount of $2,077,000 and an increase in other objects of $31,000 have been partially offset by the decrease resulting from the nonrecurring contribution to the PHS Management Fund.

Comparative Statement of Reimbursements

	Actual 1967			Estimate 1968			Estimate 1969		
	Average daily load	Rate per day	Amount	Average daily load	Rate per day	Amount	Average daily load	Rate per day	Amount
Operation of hospitals and clinics									
Special Study	43	$45.00	$706,300	43	$45.00	$708,200	43	$45.00	$706,300
Veterans	31	27.00	307,287	40	27.00	395,300	40	27.00	394,200
Foreign seamen	22	45.00	353,565	19	45.00	312,900	19	45.00	312,100
Immigration	1	27.00	10,260	1	27.00	9,900	1	27.00	9,900
Div. of Indian Health	14	27.00	144,558	14	27.00	138,300	14	27.00	138,000
Dept. of State-Dependents	..	46.00	3,174	..	46.00	3,200	..	46.00	3,200
Other (including emergency)	26	27.00	256,986	26	27.00	256,900	26	27.00	256,200
Dept. of Defense (Armed Forces)	122	27.00	1,189,917	124	27.00	1,225,400	126	27.00	1,241,700
Dept. of Defense (Dependents)	197	46.00	3,248,635	194 b/	46.00	3,266,200	195 b/	46.00	3,274,100
Coast Guard, U.S. Public Health Service and Environmental Science Services Administration Dependents	67	1.75	43,489	69	1.75	44,200	69	1.75	43,800
CG, USPHS, and ESSA - Officers		1.00	12,028		1.00	14,000		1.00	14,000
Outpatient visits			93,974			100,000			100,000
Miscellaneous			1,387,277			3,405,500 a/			3,185,500
Total - PHS Hospitals	523		7,757,450	530		9,880,000	533		9,679,000
Other inpatient and outpatient care			2,756			3,000			3,000
Subtotal, Operation of hospitals and clinics			7,760,206			9,883,000			9,682,000
Operation of health units			1,551,131			2,467,000			3,589,000
Personnel detailed to other agencies			874,663			1,085,000			1,085,000
Total All Reimbursements			10,186,000			13,435,000			14,356,000

a/ Includes $220,000 reimbursement from Division of Community Health Services for Selective Service Rejectee program in 1968.

b/ This is a weighted estimate on the following individual rates: Obstetrical and maternity services: first five days of stay $60.00, sixth and subsequent days of stay: mother $45.00, infant $10.00; other than obstetrical and maternity service $45.00.

2. Medical care for special groups:
(a) Coast Guard medical services

	1968 estimate		1969 estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
Personnel compensation and benefits.....	144	$1,745,000	148	$1,840,000	+4	$+95,000
Other expenses.....	..	545,000	..	592,000	..	+47,000
Total.....	144	2,290,000	148	2,432,000	+4	+142,000

The budget estimate provides for medical services to Coast Guard personnel aboard their vessels, and at air and other shore stations. Not included are costs funded by the Coast Guard such as space, utilities, medical and dental equipment, mobile dental units, furniture, office appliances, pay allowances and travel of Coast Guard personnel assigned to the program, etc.

Medical facilities at Coast Guard units are classified as infirmaries, dispensaries, or sick bays. The larger shore units have infirmaries staffed with medical and dental officers of the Public Health Service. Dispensaries are facilities at intermediate size shore units at which either or both medical and dental officers are assigned to duty. Sick bays are facilities aboard vessels and at smaller shore units. Sick bays are usually manned by hospital corpsmen, but vessels may have a medical officer assigned.

Full-time medical, dental, and ancillary staff are assigned where there are sufficient concentrations of personnel to make the operation of such facilities more economical to the Government. Small concentrations of personnel are provided medical and dental services by local contract physicians and dentists. Mobile dental units with a Public Health Service dental officer assigned are also used to provide dental services to Coast Guard personnel. The major problem of the Coast Guard medical program is provision of adequate medical and dental care to personnel widely dispersed in numerous small units, many of which are geographically and medically isolated.

The increase of $95,000 in personnel compensation and benefits consists of $33,000 in mandatory costs and $62,000 for program increases.

The four positions and $62,000 requested are in support of the aviation medicine program and dental program. Specifically two positions - one medical and one dental officer - are in support of a newly instituted major aviation training command at the Coast Guard Air Station, Mobile, Alabama. One medical officer position is required to provide flight surgeon training to meet the aviation medicine and dental requirements. One dental officer position is required to provide dental care to Coast Guardsmen located in remote areas in the Midwestern Coast Guard districts where dental facilities are not available.

In addition to the program increases, $33,000 is requested for mandatory items as follows:

(1) Annualization of pay increase costs	$13,000
(2) Increase in incentive pay	15,000
(3) Increase in Social Security contributions	5,000

An increase of $45,000 for supplies is requested for the following:

Annual operation, Viet Nam	15,000
Family Planning	30,000

An increase of $2,000 in other services is also being requested for contract physicians.

2. Medical care for special groups:
(b) Federal employee health services

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
Personnel compensation and benefits	347	$2,258,000	379	$3,007,000	+32	$+749,000
Other expenses		631,000		1,010,000		+379,000
Total	347	$2,889,000	379	4,017,000	+32	+1,128,000
Reimbursable obligations		-2,467,000		-3,589,000		-1,122,000
Direct obligations		422,000		428,000		+6,000

Responsibility for Federal employee health is assigned to the Public Health Service under P.L. 658, August 8, 1946 (5-USC-7901); the President's policy on Federal employee occupational health, and the Bureau of the Budget Executive Circular No. A-72, June 18, 1965.

The services authorized include emergency diagnosis and treatment of injury or illness occurring during working hours; pre-employment examinations; in-service examinations as the department or agency head determines to be necessary; administration of treatments and medications under certain circumstances; preventive services to appraise and report work environment health hazards, health education, and specific disease screening examinations and immunizations; and referral to private physicians, dentists, and other community health resources. The goal specified is the provision of these services for all Federal employees who work in groups of 300 or more.

The Division of Federal Employee Health has established the following objectives:

a. To provide consultation on the organization and establishment of employee health services to any Federal agency requesting advice; to provide standards and criteria for the furnishing of such employee health services; and, when requested, to assist agencies of the Government in the evaluation of such services.

b. To organize, administer, and operate Federal employee health service programs for participating Federal agencies on a reimbursable basis.

c. To organize and implement an improved occupational safety program for the Public Health Service employees.

An increase of 32 positions and $1,122,000 in reimbursable funds will provide occupational health programs in 12 new health units servicing an additional 25,000 Federal employees during 1969. The increase of $6,000 in appropriated funds is for annualization of Pay Act increases.

HEALTH UNIT OPERATIONS AND PROGRAM ESTIMATES
FISCAL YEARS 1968 AND 1969

Health Unit	Location	FISCAL YEAR 1968					FISCAL YEAR 1969				
		No.Agcy Served	No.Emp. Served	Cost of Unit in 000s	Man Years	Notes	No.Agcy Served	No.Emp. Served	Cost of Unit in 000s	Man Years	Notes
Atomic Energy Comm.	Germantown, Md.	4	1,841	$ 50	5		4	1,900	$ 55	5	
A.E.C., Phillips Bldg.	Bethesda, Md.	2	291	12	1		2	300	13	1	
Brown Bldg.	Washington, D.C.	1	1,750	18	2		1	1,800	20	2	
Bureau of Engr.& Prntg.	Washington, D.C.	1	3,125	100	9		1	3,150	110	9	
Centennial Bldg.	Washington, D.C.	3	268	14	2		3	275	15	2	
Coast Guard Bldg.	Washington, D.C.	5	1,087	19	2		5	1,100	21	2	
Crystal Plaza Bldg.	Alexandria, Va.	3	1,218	20	2		3	1,225	22	2	
E Street Bldg.	Washington, D.C.	2	558	15	1		2	575	17	1	
Executive Office Bldg.	Washington, D.C.	12	1,436	20	2		12	1,450	22	2	
Federal Office Bldg.#6	Washington, D.C.	4	2,116	33	3		4	2,125	36	3	
Federal Office Bldg.#8	Washington, D.C.	2	1,110	17	2		2	1,125	19	2	
Franklin Square Bldg.	Washington, D.C.	1	-	3	-	C/ 9-67	-	-	-	-	
General Accounting Off.	Washington, D.C.	10	6,335	92	8		10	6,350	101	8	
General Serv.Adm.(Main)	Washington, D.C.	6	2,744	39	3		6	2,800	43	3	
GSA: (3 Units)R.O.B.#3	Washington, D.C.	7	4,022	80	7		7	4,050	88	7	
Fed. Records Cen.	Alexandria, Va.	2	341	a/	a/		2	350	a/	a/	
Franconia Warehouse	Springfield, Va.	1	159	a/	a/		1	175	a/	a/	
HEW:(2 Units)North Bldg.	Washington, D.C.	9	5,499	85	8		9	5,500	94	8	
South Bldg.	Washington, D.C.	a/	a/	a/	a/		a/	a/	a/	a/	
Imperial Bldg.	Washington, D.C.	1	950	19	2		1	950	21	2	

a/ Included in data line supra.

C/ Closing date

HEALTH UNIT OPERATIONS AND PROGRAM ESTIMATES
FISCAL YEARS 1968 AND 1969

Health Unit	Location	FISCAL YEAR 1968					FISCAL YEAR 1969				
		No.Agcy Served	No.Emp. Served	Cost of Unit in 000s	Man Years	Notes	No.Agcy Served	No.Emp. Served	Cost of Unit in 000s	Man Years	Notes
Internal Rev. Serv.Bldg.	Washington, D.C.	6	3,412	$ 65	6		6	3,425	$ 71	6	
Labor Dept. Bldg.	Washington, D.C.	3	1,660	27	3		3	1,675	30	3	
Lafayette Bldg.	Washington, D.C.	11	2,835	42	3		11	2,850	46	3	
Logan Bldg.	Washington, D.C.	1	550	18	2		1	550	20	2	
Madison Bldg.	Washington, D.C.	1	1,168	19	2		1	1,175	21	2	
Maiatico Bldg.	Washington, D.C.	2	797	15	1		2	800	17	1	
Matomic Bldg.	Washington, D.C.	6	1,638	18	2		6	1,650	20	2	
National Archives Bldg.	Washington, D.C.	1	593	15	1		1	600	17	1	
National Bur.Standards (2 Units)	Gaithersburg, Md.	1	2,805	79	6		1	2,900	87	6	
Sills Bldg.	Springfield, Va.	1	288	a/	a/		1	300	a/	a/	
National Labor Relations Board Bldg.	Washington, D.C.	4	996	19	2		4	1,000	21	2	
Treasury Bldg.(3 Units)	Washington, D.C.	5	3,191	57	5		5	3,200	63	5	
Liberty Loan Bldg.	Washington, D.C.	4	483	a/	a/		4	500	a/	a/	
Public Debt. Bldg.	Washington, D.C.	3	773	a/	a/		3	800	a/	a/	
Universal North Bldg.	Washington, D.C.	7	1,570	24	2		7	1,600	26	2	
Walker Johnson Bldg.	Washington, D.C.	3	1,154	17	2		3	1,200	19	2	
Wallops Isl.(Unit #28)	Wallops Isl.,Va.	1	708	69	4		-	-	-	-	C/7/1/68
Unit #29	Wallops Isl., Va.	1	a/	a/	a/		-	-	-	-	C/7/1/68
Webb & Tower Bldgs.(2 Units)	Arlington, Va.	4	1,321	32	3		4	1,325	35	3	

a/ Included in data line supra.

C/ Closing date

HEALTH UNIT OPERATIONS AND PROGRAM ESTIMATES
FISCAL YEARS 1968 AND 1969

Health Unit	Location	FISCAL YEAR 1968					FISCAL YEAR 1969				
		No.Agcy Served	No.Emp. Served	Cost of Unit in 000s	Man Years	Notes	No.Agcy Served	No.Emp. Served	Cost of Unit in 000s	Man Years	Notes
Willste Bldg.	Silver Spring,Md.	3	966	$ 18	2		3	1,000	$ 20	2	
Fed.Bldg.(450 Gold.Gate)	San Fran., Cal.	32	3,576	72	6		32	3,600	79	6	
Fed.Bldg.(49 4th St.)	San Fran., Cal.	5	2,016	21	1		5	2,025	23	1	
Federal Bldg.	Los Angeles, Cal.	17	2,997	62	5		17	3,000	68	5	
Fed.Bldg.(630 Sansom St)	San Fran., Cal.	13	1,340	23	2		13	1,350	25	2	
Fed.Bldg.(50 Fulton St)	San Fran., Cal.	8	1,355	20	2		8	1,375	22	2	
Federal Ctr. (2 Units)	Denver, Colo.	29	5,558	82	8		29	5,600	90	8	
Fed.Off. & Courthouse	Chicago, Ill.	40	4,115	70	6		40	4,150	77	6	
Post Off. & Courthouse	Boston, Mass.	9	861	17	1		9	900	19	1	
John F. Kennedy Bldg.	Boston, Mass.	24	3,063	70	6		24	3,100	77	6	
Federal Center	Waltham, Mass.	5	932	16	1		5	1,000	18	1	
Fed.Bldg.(1500 E.Bnstr.)	Kan. City, Mo.	4	1,111	18	1		4	1,125	20	1	
Fed.Bldg. (601 E.12th)	Kan. City, Mo.	22	4,418	78	7		22	4,425	86	7	
Fed.Bldg.(Walnut St.)	Kan. City, Mo.	20	803	18	1		20	800	20	1	
Belle Mead Bldg.	Belle Mead, N.J.	2	384	13	1		2	400	14	1	
Church Street Bldg.	New York, N.Y.	2	1,140	28	2		2	1,150	31	2	
Federal Bldg.	Cinn., Ohio	27	2,329	42	4		27	2,350	46	4	
IRS Center	Covington, Ky.	1	2,264	23	2		1	2,300	25	2	
Santa Fe Bldg.	Dallas, Tex.	20	1,651	33	3		20	1,700	36	3	
Fed. Bldg.(Taylor St.)	Ft. Worth, Tex.	26	2,522	49	4		26	2,550	54	4	
Fed. Center(Hemphill St)	Ft. Worth, Tex.	6	338	15	1		6	350	17	1	

HEALTH UNIT OPERATIONS AND PROGRAM ESTIMATES
FISCAL YEARS 1968 AND 1969

Health Unit	Location	FISCAL YEAR 1968					FISCAL YEAR 1969				
		No. Agcy Served	No. Emp. Served	Cost of Unit in 000s	Man Years	Notes	No. Agcy Served	No. Emp. Served	Cost of Unit in 000s	Man Years	Notes
Federal Bldg.	Charltsvle., Va.	2	312	16	1		2	350	18	1	
TOTALS: 62 Health Units						62					62
		458	104,843	1,956	170		455	105,350	2,075	166	
Planned expansion in F.Y. 1968 to open 30 units			45,157	551	70	30		45,157	606	70	30
			150,000	2,507	240	92 Units		150,507	2,681	236	92
Planned expansion in F.Y. 1969 to open 12 units								24,493	948	81	12
								175,000	3,629	317	104 Units

3. Special health services:
(a) Emergency and rehabilitative services

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
Personnel compensation and benefits	54	$606,000	54	$548,000	...	$-58,000
Other expenses	..	767,000	..	1,122,000	...	+355,000
Total	54	1,373,000	54	1,670,000	...	+297,000
Reimbursable obligations		-220,000		...		+220,000
Direct obligations		1,153,000		1,670,000		+517,000
Subactivities:						
Emergency health services	33	537,000	33	945,000	...	+408,000
Rehabilitation medicine	7	166,000	7	164,000	...	-2,000
Poison control	14	450,000	14	561,000	...	+111,000
Health referral	..	220,000	..	...	...	-220,000
Total	54	1,373,000	54	1,670,000	...	+297,000

Emergency health services

As a result of increased support, in 1968 there has been significant expansion in the activities of the Emergency health services. Effective liaison with the Department of Transportation has been developed in the emergency medical service aspects of the highway safety program. Consultation and technical assistance have been provided to State and community agencies, both public and private, as well as professional organizations with responsibilities in emergency care.

Emergency health services personnel participated in the Public Health Services survey of emergency medical services in 77 major cities during the civil disturbances in the summer of 1967. In the critical area of education and training for emergency care, regional forums involving professional and lay participants have been conducted. A contract has been awarded to the National Academy of Sciences to develop guidelines for a national training

manual to be used for training personnel who provide initial emergency care. The development and testing of such a manual will also be supported by the emergency health services program. Other projects, to be supported by contracts, will include surveys of State and community emergency plans, development and testing of a model plan, and research and demonstration projects in emergency care.

A program increase of $403,000 is requested. Of the increase, $80,000 is required for the information clearinghouse activity and to permit field activities and consultation required as a result of our responsibilities to and joint activities with the National Highway Safety Bureau, Department of Transportation. An additional $112,000 is requested to organize and support State-wide workshops, training programs, and other educational efforts. Finally, an additional $211,000 is requested to support local research and demonstration programs in such vital areas of emergency health services as organization, planning, equipment needs, staffing requirements, and other aspects for the improvement of the delivery of such medical services. The remaining $5,000 increase is for annualization of the 1968 pay increases.

Rehabilitation medicine

The rehabilitation medicine program is concerned with the medical aspects of rehabilitation of all of the disabled population, and has three functions: extramural, intramural, and liaison. Medical rehabilitation must precede and complement the vocational and educational rehabilitation of the potentially employable as well as constitute a major component of the comprehensive care of every disabled person.

In addition to contracts in conjunction with the extramural program, studies are conducted through research grants. It is in this element of the program that $3,000 is requested to increase supplemental research grants. In addition, an increase of $1,000 is for annualization of the pay increases. These increases are offset by a non-recurring decrease of $6,000.

Poison control

It is planned to computerize information on approximately 40,000 items containing poisonous substances to permit immediate retrieval in cases of emergency as well as allow rapid updating of the data bank. This information is used to answer the more than 160,000 calls made each year to poison control centers. Improvements in record keeping are contemplated to permit fuller utilization of the massive amount of clinical information collected after each episode of poisoning. For these efforts, $20,000 is requested. An additional $35,000 is requested to permit the establishment of a second specialized regional laboratory facility. This contracted service will provide surrounding States with qualitative and quantitative analytic capabilities not currently available, but necessary for proper diagnosis and treatment. An increase of $45,000 is requested to support several additional research projects directed to establishing better methods of diagnosis and treatment, including evaluative studies of special antidotes. Finally, $10,000 is requested to increase supplemental research grants.

Research Grants

	1968		1969		Change	
	Grants	Amount	Grants	Amount	Grants	Amount
Rehabilitation medicine						
Continuations						
Non-competing	1	$23,000	2	$79,000	1	$56,000
Competing (renewals)	...	...	...	...	...	...
New	1	56,000	...	...	-1	-56,000
Supplemental	...	3,000	...	6,000	...	3,000
Total	2	82,000	2	85,000	...	+3,000
Poison control						
Continuations						
Non-competing	4	111,000	5	212,000	1	101,000
Competing (renewals)	1	15,000	1	33,000	...	18,000
New	2	133,000	1	14,000	-1	-119,000
Supplemental	...	10,000	...	20,000	...	10,000
Total	7	269,000	7	279,000	...	+10,000

3. Special health services:
(b) Payments to Hawaii

	1968 estimate	1969 estimate	Increase or Decrease
Other expenses, total	$1,200,000	$1,200,000	....

Funds under this activity are for payments to the State of Hawaii for care and treatment of persons afflicted with leprosy as authorized and directed by 42 U.S.C. 255.

The table below shows the estimated average daily patient load, patient days, per diem cost, and appropriation requests for 1968 and 1969. It should be noted that reimbursement is based on actual expense so that the requested amount will not be paid out unless it is actually needed.

	1968	1969
Average daily patient load	251	250
Patient days	91,980	91,250
Per diem cost	$17.63	$18.30
Total cost and net requirements	$1,621,512	$1,669,818
Rounded	1,622,000	1,670,000
Appropriation request	1,200,000	1,200,000

4. Personnel detailed to other agencies

	1968 estimate		1969 estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
Personnel compensation and benefits	72	$892,000	72	$892,000	...	....
Other expenses	...	193,000	...	193,000	...	....
Total	72	1,085,000	72	1,085,000	...	....
Reimbursable obligations		1,085,000		1,085,000		....
Direct obligations		....		....		....

This activity is completely reimbursable. The funds provide for Public Health Service personnel detailed to other Federal agencies. Other objects of expense are also provided on a reimbursable basis when authorized by law.

The estimated number of personnel and net cost for all objects of expense by Agency are shown below:

	Actual 1967		Estimate 1968		Estimate 1969	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
Bureau of Employees' Compensation	11	$178,563	11	$177,000	11	$177,000
Maritime Administration	3	45,810	3	47,000	3	47,000
Environmental Science Services Administration	6	38,534	6	60,000	6	60,000
Pan-American Health Organization	1	5,589	-	-	-	-
National Aeronautics and Space Administration	1	17,885	1	20,000	1	20,000
U. S. Coast Guard	2	25,018	3	45,000	3	45,000
Department of Agriculture	1	8,932	1	14,000	1	14,000
Army Corps of Engineers	11	111,500	11	123,000	11	123,000
Federal Appalachian Comm.	1	15,525	1	14,000	1	14,000
Office of Economic Opportunity	6	82,554	6	85,000	6	85,000
AID- Viet Nam Program	29	344,753	29	500,000	29	500,000
Total	72	874,663	72	1,085,000	72	1,085,000

"HOSPITAL CONSTRUCTION ACTIVITIES"

WITNESSES

DR. HARALD M. GRANING, DIRECTOR, DIVISION OF HOSPITAL AND MEDICAL FACILITIES
JOHN J. MOSCATO, ACTING SPECIAL ASSISTANT
DR. CARRUTH J. WAGNER, DIRECTOR, BUREAU OF HEALTH SERVICES
SAUL R. ROSOFF, EXECUTIVE OFFICER, BUREAU OF HEALTH SERVICES
RALPH BAHN, FINANCIAL MANAGEMENT OFFICER, BUREAU OF HEALTH SERVICES
DR. WILLIAM H. STEWART, SURGEON GENERAL
CHARLES MILLER, CHIEF FINANCE OFFICER
JAMES B. CARDWELL, DEPUTY ASSISTANT SECRETARY, BUDGET

OBJECT CLASSIFICATION (IN THOUSANDS OF DOLLARS)

	1967 actual	1968 estimate	1969 estimate
Personnel compensation:			
Permanent positions	2,912	3,199	3,089
Positions other than permanent	69	56	41
Total personnel compensation	2,980	3,255	3,130
Personnel benefits	257	317	305
Travel and transportation of persons	310	309	266
Transportation of things	14	15	14
Rent, communications, and utilities	67	64	57
Printing and reproduction	54	52	49
Other services	188	139	106
Project contracts	1,192	1,500	.....
Payment to "Public Health Service management fund"	100	112	.....
Supplies and materials	26	27	23
Equipment	18	20	18
Grants, subsidies, and contributions	270,905	270,442	290,849
Total obligations	276,109	276,252	294,817

PERSONNEL SUMMARY

Total number of permanent positions	302	312	282
Full-time equivalent of other positions	6	5	3
Average number of all employees	279	288	263
Average GS grade	5.9	6.0	6.1
Average GS salary	$7,065	$7,377	$7,593

PROGRAM AND FINANCING (IN THOUSANDS OF DOLLARS)

Program by activities:			
1. Grants for construction of health facilities:			
(a) Hospitals, public health centers, etc.	131,151	128,498	134,595
(b) Long-term care facilities	54,739	63,010	72,719
(c) Diagnostic or treatment centers	17,200	17,176	20,565
(d) Rehabilitation facilities	12,398	9,626	10,436
(e) Modernization of health facilities	48,681	44,458	52,534
2. Operations and technical services	32,85	3,618	3,968
3. Hospital and medical facilities research	6,930	9,865	
Total program costs, funded [1]	274,404	276,252	294,817
Change in selected resources [2]	1,705		
Total obligations	276,109	276,252	294,817
Financing:			
Comparative transfers to other accounts	37,429	14,308	
Unobligated balance available, start of year	−258,041	−260,414	−239,969
Unobligated balance transferred from other accounts	−3,349		
Unobligated balances transferred to other accounts		23,368	
Unobligated balance available, end of year	260,414	239,969	203,520
Unobligated balance lapsing	963	4	
New obligational authority	313,525	293,487	258,368
New obligational authority:			
Appropriation	313,525	293,357	258,368
Transferred from other accounts		130	
Appropriation (adjusted)	313,525	293,487	258,368
Relation of obligations to expenditures:			
Total obligations	276,109	276,252	294,817
Receipts and other offsets (items 11–17)	37,429	14,308	
Obligations affecting expenditures	313,538	290,560	294,817
Obligated balance, start of year	392,325	496,512	565,059
Obligated balance transferred to other accounts		−13	
Obligated balance, end of year	−496,512	−565,059	−644,876
Adjustments in expired accounts	−1,216		
Expenditures	208,135	222,000	215,000
Expenditures are distributed as follows:			
Out of current authorizations	30,871	15,000	8,000
Out of prior authorizatons	177,264	207,000	207,000

[1] Includes capital outlay as follows: 1967, $18,000; 1968, $20,000; 1969, $18,000.
[2] Selected resources as of June 30 are as follows: Unpaid undelivered orders. 1966, $681,000; (1967 adjustments, −$1,160,000); 1967, $1,226,000; 1968, $1,226,000; 1969, $1,226,000.

BIOGRAPHICAL SKETCH OF PRINCIPAL WITNESS

Name: Harald M. Graning, M.D.
Position: Assistant Surgeon General; Director, Division of Hospital and Medical Facilities.
Birthplace and date: Minneapolis, Minn., February 14, 1912.
Education:
B.S., University of Minnesota.
B.M.–M.D., University of Minnesota.
M.P.H., Johns Hopkins School of Hygiene and Public Health.
Experience:
Director, Division of Hospital and Medical Facilities, Washington, D.C., October 1963 to present.
Regional Health Director for the New York region, 1958–63.
Regional Medical Director, USPHS, Chicago, 1951 to 1958.
Chief, State and Local Health Service, USPHS, Washington, D.C., 1948–50.
Cancer Control Consultant, USPHS, New Orleans, La., 1947–48.
Director, Division of Local Health Service, Georgia Department of Public Health, Atlanta, Ga., 1945–47.
Civil Affairs (Military Government), Princeton University, 1944–45.
USPHS Plague Laboratory, San Francisco, Calif., 1942–43.
Director, Kitsap County Health Department, Bremerton, Washington, 1941.
Hospital Service and Quarantine, San Pedro, Calif., 1938–40.
Association Memberships: American Medical Association, American Hospital Association, the American Association of Military Surgeons, the American College of Preventive Medicine, member of the Governing Council of the American

Public Health Association and the House of Delegates of the American Hospital Association.

Special awards, citations, or publications: In November 1963, he was awarded the Meritorious Service Medal of the Public Health Service Commissioned Corps.

Mr. NATCHER. At this time we take up the hospital construction activities of the Public Health Service. We have before the committee, Dr. Harald M. Graning, the Director of the Division of Hospital and Medical Facilities.

Dr. Graning, do you have a prepared statement?

Dr. GRANING. I do, sir.

Mr. NATCHER. We will be pleased to hear from you at this time.

GENERAL STATEMENT

Dr. GRANING. Mr. Chairman, and members of the committee, as members of the committee are well aware, public concern for adequate health care has been expressed in many ways and for many years.

Federal assistance, particularly in more recent years, has fostered better distribution, design, and operation of health care facilities.

Although substantial progress can be reported as to an increased general awareness of the need for planning on a community basis, it must be said that we have made only a modest beginning in achieving better balance among health facilities and between health facilities and noninstitutional-based services. Some communities have adequate acute-care facilities, yet are in need of long-term-care facilities. Other communities have sufficient acute- and long-term-care facilities, yet insufficient ambulatory-care facilities or home-care services. In other areas, modern community hospitals exist in the rural and suburban areas while the hospitals located in the urban centers are in desperate need of modernization or replacement.

The achievement of balance within an area calls for a full spectrum of beds, facilities, services, and manpower, which are appropriate to patient care. Moreover, and of equal importance, achievement of a health facility balance can have a favorable effect on the cost of medical care. Specifically, the continued pressures upon general hospital bed usage and the concurrent rise in per diem hospital costs are understandable. They serve to emphasize the need for medical-care options that can be provided either in ambulatory-care facilities or in facilities that are less expensive than a general hospital.

The total estimate for 1969 of $271.2 million includes $12.8 million carried over from fiscal year 1968, and is composed of $267.2 million for construction grants and approximately $4 million for operations and technical services.

CONSTRUCTION GRANTS

The $267.2 million would provide $119.3 million for hospitals and public health centers, $66.8 million for long-term-care facilities, $19.1 million for diagnostic and treatment facilities, $9.5 million for rehabilitation facilities, and $52.5 million for the modernization of hospitals and other medical facilities. I would direct particular attention to the request for $52.5 million to be used for the modernization and replacement of the Nation's functionally and physically obsolete health facilities. The need in this area is great and the amount requested

represents another forward step in attacking the problem. In part, the modernization problem can be traced to the fact that many of the Nation's hospitals were built in the 1920's, and are deteriorating physically because of advanced age. In addition, medical-care techniques are progressing so rapidly that many hospitals which are relatively new in terms of years are already functionally obsolete, and consequently must be modernized.

The problem of modernization, essentially a problem of the cities, becomes more critical when one considers that these cities are also the centers of many of the Nation's health teaching and health research facilities.

The amount requested for new construction and expansion of hospitals and public health centers will be primarily directed to two areas of need: Communities experiencing population growth, such as the American suburb, and to rural areas in need of new or expanded facilities. The construction and expansion of public health centers will aid in increasing the average community's ability to provide a frequently neglected element of health care. While much has already been accomplished in these areas, it is necessary that we continue to upgrade the health services presently available by providing or expanding facilities from which acute medical care and preventive health care can be effectively and economically delivered.

The amounts requested for long-term-care facilities, diagnostic and treatment facilities, and rehabilitation facilities will aid in mitigating the pressures on general hospital beds by providing alternate means for the delivery of health care. Long-term-care facilities, which include nursing homes, are less expensive to construct, operate, and maintain, and yet provide adequate and economical skilled nursing care for persons who are ill but do not require the specialized services of the acute general hospital. Similarly, ambulatory-care facilities, such as outpatient departments of hospitals and rehabilitation centers, to the extent that they are appropriate in the management of particular patient-care problems, negate the necessity of constructing additional inpatient facilities and tend to control the cost of delivering medical care.

Equally important, assistance directed to these facilities along with hospitals and public health centers will assist communities in providing a balanced and comprehensive range of health services.

OPERATIONS AND TECHNICAL SERVICES

The $4 million requested for operations and technical services involves no increase in the existing staff and is essential to continuation of the Federal Government's leadership role in planning, designing, and constructing health facilities. This professional and technical staff is engaged in the work of reviewing and approving documents such as State plans and project applications and architectural drawings and specifications. Moreover, and perhaps of equal importance, this staff develops guide material relating to the planning of health services and facilities, and the design and construction of the physical plants from which such services are delivered. Another program element of crucial importance is the technical assistance and consultation provided to the staff of State agencies, project sponsors, and other

members of the hospital community regarding all aspects of program administration.

Gentlemen, I thank you. I would be pleased to answer any questions concerning the Hill-Burton program and this budget request.

EFFECT OF HOUSE JOINT RESOLUTION 888

Mr. NATCHER. Dr. Graning, first tell us just how House Joint Resolution 888 affected this program.

Dr. GRANING. There was a reduction of $12.8 million in the grant allocation that had been appropriated by the Congress, and subject to the concurrence of Congress this will be carried over from 1968 to 1969.

Mr. MILLER. There was also a reduction of $156,000 in personnel and other objects.

SUMMARY OF BUDGET REQUEST

Mr. NATCHER. A comparison of the 1968 appropriation with your 1969 request shows a reduction for 1969 of about $35 million but from there on, Dr. Graning, we are a little confused. For instance, the table on page 272 shows exactly the same total amount for construction in 1969 as in 1968, but on page 274–B you say:

> The estimated obligational level for construction grants in 1968 is $262,768,549 and for 1969, $290,849,000—an increase of $28,080,451 in the program level.

Now, clarify this to the committee, please.

Dr. GRANING. As I understand, the latter refers to the obligations and the former to the appropriations themselves. As a result of the administration's interest in curtailing expenditures in this fiscal year, there was a freeze placed in terms of approval or action on part I applications. This has had the desired effect as far as the administration is concerned in deferring expenditures, thus transferring these to a subsequent year and the obligations would be greater in subsequent years.

Mr. NATCHER. Dr. Graning, do you intend to obligate the $28 million plus in the new fiscal year, the additional amount, or do you intend to operate under the same level as for 1968? Will there be an increase in obligations of $28,080,451 or do you intend to operate at this same level?

Dr. GRANING. As you know, sir, the money appropriated by the Congress is good for 2 years, and because it is good for 2 years, and because of the limitations that were placed in obligating money during this fiscal year which are going to be carried over into the next fiscal year subject to the approval of the Congress, we propose to have as much money available for program support in fiscal 1968 as we do in 1969. The amount of money that is actually obligated in a specific year varies in terms of the ability of the States to get approval and get going on projects. For instance, most of the funds appropriated by the Congress are not obligated in the first year that they are available but in the second year that they are available. This comes about because of the 15- to 18-month lag that always prevails between when part 1 is approved and when the final part 4 is approved. An obligation is

not made by the Federal Government until we have the part 4 document which has the exact cost figures involved.

Mr. NATCHER. Now, Dr. Graning, give us a yes or no answer as to the $28,080,451 in the program level. Is your answer to that yes or no as to the obligation of the additional $28 million in 1969 over 1968.

Dr. GRANING. There will be greater obligation in 1969 than in 1968; yes, sir.

Mr. NATCHER. Then you do intend to obligate the $28 million more in 1969.

Dr. GRANING. Yes, sir.

HOSPITAL AND MEDICAL FACILITIES RESEARCH

Mr. NATCHER. Doctor, explain the reduction of $9,589,000 to zero for hospital and medical facilities research. Explain that to the committee, please.

Dr. GRANING. This item relates to the matter that was discussed before this committee yesterday in the presentation by Dr. Wagner. With the creation of the new National Center for Health Services Research and Development, these positions and this money is transferred out of the appropriation in accordance with the piece of legislation enacted by Congress and is therefore no longer appropriate in our budget presentation.

Dr. STEWART. Mr. Chairman, I would like to clarify section 304 of the Partnership for Health Act, which is the research and demonstrations relating to health facilities and the health services section, was intended to take the existing authorities we had, one of which was section 624 of the Hill-Burton Act for research in hospitals, and to broaden these authorities. The mechanics of carrying this out was to repeal section 624 and pass section 304 of the Partnership for Health Act. The amounts authorized then formed part of the base of the National Center for Research and Development you heard about yesterday.

Mr. NATCHER. Thank you, Dr. Stewart.

CONSTRUCTION GRANTS

How does the 1969 request for each of the categories of construction grants compare with the authorizations, Doctor?

Dr. GRANING. They are consistent with the authorizations and in all instances made in accordance with the authorization and the direction from Congress with reference to the division that must prevail between the modernization category and the support for new construction.

TOTAL FEDERAL, STATE, AND LOCAL FUNDS TO MEET CONSTRUCTION NEEDS

Mr. NATCHER. How much would it take in Federal and State and local funds under the current matching formulas to meet the known construction needs?

Dr. GRANING. State plans reflect a total need in terms of additional beds in the Nation of 75,505 beds. They reflect a total need for modernization of 262,988 general hospital beds and 208,083 long-term care beds.

The appropriation before you will aid in the construction of 11,545 additional hospital beds compared to the needs that I stated of 75,505 and would provide for the modernization of 8,155 general hospital beds and 300 long-term care beds.

Mr. NATCHER. Break that down as far as dollars are concerned. Approximately what would that total, Dr. Graning?

Can you give us some idea as to the amount involved in money?

Dr. GRANING. Yes, sir. The modernization total cost is in the neighborhood of $10 billion, and our cost for new beds, additional beds would be $2,265 million.

Mr. NATCHER. Mr. Laird.

USE OF UNOBLIGATED BALANCES

Mr. LAIRD. I was interested in how this budget provides an increased level of over $28 million for hospital construction in 1969. I understood you to indicate that this is due entirely to the unobligated balance that was put in the reserve for 1968. I find $12,804,000 that was put in that reserve, but your program level has increased by $28 million. How is that $28 million program increase broken down among the various categorical grants?

Dr. GRANING. Sir, I welcome the question. We did discuss it in part. The increased obligational authority that this reflects has come about as a result of having held back this year on new construction starts. As you know, sir, the money is available for 2 years. All money appropriated in the Hill-Burton program is available for 2 years. So, because of the 15 to 16 months' delay between the approval of part 1 and part 4, there will be more money obligated in 1969 than in 1968, but in terms of appropriation levels they would be the same, the same amount of money would be available for authorizing new construction.

Mr. LAIRD. There were no lapses of any money?

Dr. GRANING. No, sir.

RESERVES COUNTED AS SAVINGS

Mr. LAIRD. There is no overall budget saving in connection with the reserve for 1967?

Dr. GRANING. The $12.8 million that has been withheld this year will be, subject to the concurrence of Congress, available for expenditure next year.

Mr. LAIRD. I saw a list of the savings of the Department of Health, Education, and Welfare in fiscal year 1968, and this hospital construction reserve was listed as a saving. I cannot quite follow how you can list hospital construction as a saving because you merely have transferred the obligation to fiscal 1969, have you not?

Dr. GRANING. In the sense that had we been permitted to expend the money that Congress had appropriated for this fiscal year, we would have, of course, had $12.8 million more available for initiating programs this year, and had our next year's request been the same amount as this year's was, fiscal 1968, and appropriated by the Congress, we would in effect have $12.8 million times two. We would have received $12.8 million more in each of the 2 years. And as a result of not doing this, there has been a saving of $25.6 million.

Mr. LAIRD. We are talking about how you are actually going to reflect a saving of $12.8 million. But you are carrying that saving over and you will obligate it in 1969. So there really is no saving here.

There will be a little saving in salary and expenses perhaps but that is the only thing that should show up in the HEW chart.

Mr. CARDWELL. No. The HEW chart depicted reductions and obligations consistent with the requirements of H.R. 888 and $12.8 million will have been reduced this year.

Mr. LAIRD. Reduced this year, but carried forward and used next year.

Mr. CARDWELL. It is available for obligation the succeeding year but as Dr. Graning pointed out in order to obligate the succeeding year we will have to have the concurrence of the Congress. The other point is had we not reduced the obligation in 1968 and had we obligated the $12.8 million, we probably would have proposed an additional comparable amount in 1969.

Mr. LAIRD. So you are really going to end up saving money that has never been appropriated by the Congress. This has been deferred until 1969 when it will be obligated, thereby, according to your theory reducing 1969 appropirations—appropriations that haven't been made.

Mr. CARDWELL. I think the basic fact that we have to stand on is that we reduced obligations in 1968. We deferred appropriations that had been made by Congress and that is the basic fact. What happens with regard to 1969 is speculation.

Mr. LAIRD. It really is kind of a phony savings. You put up the chart and show all of the money you saved. You ought to put a question mark behind this one because really you are going to spend it, you are going to obligate it; isn't that correct.

Mr. CARDWELL. We propose to obligate it in the succeeding year.

Mr. LAIRD. You propose to obligate it and you undoubtedly will obligate it. Are you anticipating that the President will put on another freeze as soon as Congress passes these bills?

Mr. CARDWELL. We do not anticipate that as it might apply to this specific item. I think there is a good chance the Congress itself might make some reductions and there is a good chance that the President might in the final analysis as time progresses make reductions. It all depends.

Mr. LAIRD. This hospital construction funding, I would think, would be difficult to reduce in view of the fact the country has such a deficiency.

Mr. CARDWELL. This is why you will find it is not reduced much in terms of this obligation as much as other programs. As you know, this is a 5-percent reduction whereas other programs have a one-third reduction.

STEVENS POINT, WIS., NURSING HOME

Mr. LAIRD. I am interested in how the surveys are taken of beds available in nursing homes. In order to set their priorities, most States, under a plan that has been approved by you, make a survey to see what percentage of need is taken care of by beds that are available in a given community. Many of the States are using figures that are 3 and 4 years

old. Do you require any review on these figures that are used to establish priorities?

I have a case in Stevens Point, Wis., that has to do with a priority given to a nursing home. The figures they are using are figures that were applicable in 1965 but certainly are not applicable today.

Under the programs of the State, don't you require any updating of those figures?

Dr. GRANING. Yes, sir; we do.

In the situation to which you are making reference, the State agency this year, in terms of the availability of funds to the State of Wisconsin, was able to go only down to funds through priority known as A–14.

Mr. LAIRD. Priority A means less than 50 percent of need cared for.

Dr. GRANING. Yes. There is nothing magic about an A or B priority. For the purpose of discussion, if it is in the A priority, less than 50 percent of its need has been met. The place to which you are making reference in a lineal list of priorities in your State is in 23d place. The State has been able to reach down to fund the one through 14. Everyone recognizes there is no argument whatsoever about the need for building an extended care facility in the community to which you made reference. The problem, sir, is the availability of funds, and there are communities in your State that have a higher priority than the one to which you made reference.

Specifically, there are four communities in your own congressional district that have a higher priority than this particular area.

Mr. LAIRD. But what I am interested in is the position that more than 50 percent of the requirements are taken care of in that community. When I checked it out with the medical profession and others who should know, they say that is not correct. Where does that figure come from? Is that from the State survey?

Dr. GRANING. Yes.

Mr. LAIRD. Is that the 1965 survey they are using?

Dr. GRANING. They are supposed to update this every year, sir. I cannot say with specificity as to whether Wisconsin has updated the data from that area, but we would be happy to look into it. They should have; it is supposed to be updated every year.

Mr. LAIRD. That is what I want to know. You think this has been updated?

Dr. GRANING. I don't know, but I would be glad to look into it. They are supposed to update it every year.

Mr. LAIRD. Thank you.

Mr. NATCHER. Mr. Hull, do you have questions?

Mr. HULL. I just have one question on this, Mr. Chairman.

CRITERIA USED FOR NEW PROJECTS

Dr. Graning, you stated:

> The amount requested for new construction and expansion of hospitals and public health centers will be primarily directed to two areas of need: Communities experiencing population growth, such as the American suburb, and to rural areas in need of new or expanded facilities.

What is the criteria you use? Are these funds for new projects?

Dr. GRANING. This would be for additional beds that could either

be added to an existing hospital where there was a need for same, or for building a completely new hospital.

Mr. HULL. Was the criteria for building a new hospital in these two areas the same as you mentioned in your statement?

Dr. GRANING. Each State has to develop a State plan document that reflects a 5-year population projection. They are given the 5-year population projection from the Bureau of the Census. The State has the responsibility for working with State planning commissions or anyone who has data on population distribution and allocating this population change to specific geographic areas. Then, on the basis of information that is obtained on bed utilization, the extent to which these beds are utilized, and total patient-days in the area, you then compute how many beds would be needed 5 years hence if you figured an 80-percent occupancy rate in beds.

In other words, we know this to be true, that you cannot plan to have a bed available for people who need it if you are operating at much higher than an 80-percent occupancy figure. On the basis of this information, the State then sets up a priority list for communities—this State plan is a public document.

Mr. HULL. The communities come to you?

Dr. GRANING. Yes, sir. This is a public document. All communities know where they stand, they know the methodology involved in setting up the priority schedule and, in terms of the amount of money that is made available to the State, they go from one community to the other in terms of whether that community is interested in building the additional beds that year or wants to defer it a year.

Mr. NATCHER. Dr. Graning, we want to thank you and the members of your staff for appearing before our committee at this time in behalf of your budget request for fiscal year 1969. You have made a good representation.

Dr. GRANING. Thank you, Mr. Chairman.

JUSTIFICATION MATERIAL

PUBLIC HEALTH SERVICE

Hospital Construction Activities

Amounts Available for Obligation

	1968	1969
Appropriation	$293,357,000	$258,368,000
Transfer from "Health manpower education and utilization"	130,000	....
1968 reserve to be available in subsequent years	-12,800,000	12,800,000
Total	280,687,000	271,168,000

Obligations by Activity 1/

Page Ref.		1968 Estimate Pos	1968 Estimate Amount	1969 Estimate Pos	1969 Estimate Amount	Increase or Decrease Pos	Increase or Decrease Amount
	1. Grants for construction of health facilities:						
279	(a) Hospitals, public health centers, etc.		$124,055,000		$119,285,000		-$4,770,000
279	(b) Long-term care facilities		66,800,000		66,800,000		....
279	(c) Diagnostic or treatment centers		19,085,000		19,085,000		....
279	(d) Rehabilitation facilities		9,545,000		9,545,000		....
279	(e) Modernization of health facilities		47,715,000		52,485,000		+4,770,000
	2. Hospital and medical facilities research	30	9,589,000 2/		....	-30	-9,589,000 2/
281	3. Operations and technical services	282	3,894,000	282	3,968,000	...	+74,000
	Total obligations	312	280,683,000	282	271,168,000	-30	-9,515,000
	Unobligated balance, reserve	10	4,000	..	....	-10	-4,000
	Total, obligations and balances	322 3/	280,687,000	282	271,168,000	-40	-9,519,000

1/ Hospital construction grants are on an allocation basis.

2/ Of $10,000,000 and 60 positions authorized in 1968 appropriation: 10 positions and a net of $4,000 eliminated in cost reduction program; 30 positions and $9,589,000 assigned to National Center for Health Services Research and Development as provided in section 304 of PHS Act; and 20 positions and $407,000 included with "operations and technical services" activity.

3/ Includes 9 positions transferred from "Health manpower education and utilization".

PUBLIC HEALTH SERVICE

Hospital Construction Activities

Amounts Available for Obligation
(New Obligational Authority Basis)

	1968	1969
Appropriation	$293,357,000	$258,368,000
Transfer from "Health manpower education and utilization"	130,000	....
Total	293,487,000	258,368,000

Obligations by Activity 1/

Page Ref.		1968 Estimate Pos	1968 Estimate Amount	1969 Estimate Pos	1969 Estimate Amount	Increase or Decrease Pos	Increase or Decrease Amount
	1. Grants for construction of health facilities:						
279	(a) Hospitals, public health centers, etc...		$124,055,000		$112,800,000		-$11,255,000
279	(b) Long-term care facilities		66,800,000		65,000,000		-1,800,000
279	(c) Diagnostic or treatment centers		19,085,000		18,000,000		-1,085,000
279	(d) Rehabilitation facilities		9,545,000		9,000,000		-545,000
279	(e) Modernization of health facilities		47,715,000		49,600,000		+1,885,000
	2. Hospital and medical facilities research	30	9,589,000 2/		....	-30	-9,589,000 2/
281	3. Operations and technical services	282	3,894,000	282	3,968,000	...	+74,000
	Total obligations	312	280,683,000	282	258,368,000	-30	-22,315,000
	Unobligated balance, reserve	10	12,804,000	..	....	-10	-12,804,000
	Total, obligations and balances 3/	322	293,487,000	282	258,368,000	-40	-35,119,000

1/ Hospital construction grants are on an allocation basis.
2/ Of $10,000,000 and 60 positions authorized in 1968 appropriation: 10 positions and a net of $4,000 eliminated in cost reduction program; 30 positions and $9,589,000 assigned to National Center for Health Services Research and Development as provided in section 304 of PHS Act; and 20 positions and $407,000 included with "operations and technical services" activity.
3/ Includes 9 positions transferred from "Health manpower education and utilization".

Obligations by Object

	1968 Estimate	1969 Estimate	Increase or Decrease
Total number of permanent positions	312	282	-30
Full-time equivalent of all other positions	5	3	-2
Average number of all employees	288	263	-25
11 Personnel compensation:			
Permanent positions	$3,199,000	$3,089,000	-$110,000
Positions other than permanent	56,000	41,000	-15,000
Total personnel compensation	3,255,000	3,130,000	-125,000
12 Personnel benefits	317,000	305,000	-12,000
21 Travel and transportation of persons ..	309,000	266,000	-43,000
22 Transportation of things	15,000	14,000	-1,000
23 Rent, communications and utilities	64,000	57,000	-7,000
24 Printing and reproduction	52,000	49,000	-3,000
25 Other services	139,000	106,000	-33,000
Project contracts	1,500,000	....	-1,500,000
Payment to: "Public Health Service management fund"	112,000	....	-112,000
26 Supplies and materials	27,000	23,000	-4,000
31 Equipment	20,000	18,000	-2,000
41 Grants, subsidies, and contributions ..	270,441,549	290,849,000	+20,407,451
Total obligations by object 1/	276,251,549	294,817,000	+18,565,451

1/ Includes funds carried over for obligational purposes from prior years for Hill-Burton construction grants.

Summary of Changes

1968 enacted appropriation	$293,357,000
Transfer from "Health manpower education and utilization"	130,000
Unobligated balance, reserve	-12,804,000
1968 total estimated obligations	280,683,000
1969 estimated obligations (includes 1968 reserve of $12,800,000 available in 1969)	271,168,000
Total change	-9,515,000

Increases

	Base		Changes from Base	
	Positions	Amount	Positions	Amount
A. Built-in				
1. Annualization of pay act increases	....	....	....	$36,000
2. Annualization of 4 new positions in 1968 transferred from Health Manpower	....	....	....	25,000
3. One extra day's pay in 1969 (260 days in 1968; 261 days in 1969)	....	....	....	10,000
4. Net additional cost of within grades ($74,000) and reclassifications ($41,000)	....	....	....	115,000
Decreases				
A. Transfer of hospital and medical facilities research program to "Community health services"	....	....	-30	-9,589,000
B. Public Health Service management fund	....	....	....	-112,000
Total decreases	....	....	-30	-9,701,000
Total net changes requested	....	....	-30	-9,515,000

Summary of Changes
(New Obligational Authority Basis)

1968 enacted appropriation	$293,357,000
Transfer from "Health manpower education and utilization"	130,000
Unobligated balance, reserve	-12,804,000
1968 total estimated obligations	280,683,000
1969 estimated obligations	258,368,000
Total change	-22,315,000

Increases

	Base Positions	Base Amount	Changes from Base Positions	Changes from Base Amount
A. Built-in				
1. Annualization of pay act increases	....	....	....	$36,000
2. Annualization of 4 new positions in 1968, transferred from Health manpower	....	....	....	25,000
3. One extra day's pay in 1969 (260 days in 1968; 261 days in 1969)	....	....	....	10,000
4. Net additional cost of within grades ($74,000) and reclassifications ($41,000)	....	....	....	115,000
Decreases				
A. Transfer of hospital and medical facilities research program to "Community Health Services"	....	....	-30	-9,589,000
B. Public Health Service management fund	....	....	....	-112,000
C. Decrease in grants for construction of health facilities	....	....	....	-12,800,000
Total decreases	....	....	-30	-22,501,000
Total net changes requested	....	....	-30	-22,315,000

Explanation of Changes

Decrease of 30 positions and $9,589,000 is for transfer to the National Center for Health Services Research and Development as provided for in section 304 of the PHS Act.

The reduction of $12,800,000 in grants for construction of health facilities is described as follows: Of the $280,000,000 appropriated in 1968, $12,800,000 was reserved as a part of the cost reduction program to be obligated in 1969. A comparable amount is reflected as a reduction in 1969. The estimated obligational level for construction grants in 1968 is $262,768,549 and for 1969, $290,849,000, an increase of $28,080,451 in the program level.

Authorizing Legislation

Legislation	1969 Authorization
Public Health Service Act.	
Section 601--Authorization of Appropriations for Construction Grants	$280,000,000

PUBLIC HEALTH SERVICE ACT

Title VI--Assistance for Construction and Modernization of Hospitals and Other Medical Facilities

Part A--Grants and Loans for Construction and Modernization of Hospitals and Other Medical Facilities

Appropriation

"Sec. 601, In order to assist the States in carrying out the purpose of section 600, there are authorized to be appropriated--

"(a) for the fiscal year ending June 30, 1965, and each of the next four fiscal years--

"(1) $70,000,000 for grants for the construction of public or other nonprofit facilities for long-term care;

"(2) $20,000,000 for grants for the construction of public or other nonprofit diagnostic or treatment centers;

"(3) $10,000,000 for grants for the construction of public or other nonprofit rehabilitation facilities;

"(b) for grants for the construction of public or other nonprofit hospitals and public health centers and for grants for modernization of such facilities and the facilities referred to in paragraph (a), $150,000,000 for the fiscal year ending June 30, 1965, $160,000,000 for the fiscal year ending June 30,1966, $160,000,000 for the fiscal year ending June 30, 1966, $170,000,000 for the fiscal year ending June 30, 1967, and $180,000,000 each for the next two fiscal years.

"Sec 602. (a)(1)***As used in this paragraph, the new hospital portion of sums appropriated pursuant to section 601 (b) (which portion shall be available for grants for the construction of public or other nonprofit hospitals and public health centers) is 100 per centum of such sums in the case of the fiscal year ending June 30, 1965, seven-eighths thereof in the case of the first fiscal year thereafter, twenty-seven thirty-fourths thereof in the case of the second fiscal year thereafter, thirteen eighteenths thereof in the case of the third fiscal year thereafter, twenty-five thirty-sixths thereof in the case of the fourth fiscal year thereafter.

Explanation of Transfers

	1968 Estimate	1969 Estimate	Purpose
Transfer from:			
"Health manpower education and utilization"	$130,000	....	To provide for regional office architectural, engineering, and related program services as required by Bureau of Health Manpower in the actual construction phase of projects.

Justification

Hospital Construction Activities

	1968 estimate		1969 estimate		Increase or Decrease	
	Pos	Amount	Pos	Amount	Pos	Amount
Personnel compensation and benefits	312	$3,572,000	282	$3,435,000	-30	-$137,000
Other expenses	...	277,111,000	...	267,733,000	...	-9,378,000
Total	312	280,683,000	282	271,168,000	-30	-9,515,000

A request for $258,368,000 is submitted for 1969. This amount provides $254,400,000 for the Hill-Burton construction program, and $3,968,000 for operations and technical services.

Construction under Title VI of the Public Health Service Act (Hill-Burton)

	1968 estimate	1969 estimate	Increase or Decrease
Grants, subsidies, and contributions	$267,200,000	$267,200,000	....

In 1968 the construction level of $267,200,000 is 95% of the amount authorized in the appropriation act. The 5% reduction related to the government-wide cost reduction program, was less severe in this program than in other construction programs because of the recognition of the critical need for hospital facilities.

The $267,200,000 available for 1969 for construction under Title VI of the Public Health Service Act will provide $171,770,000 for grants or loans to assist in (a) the construction of hospitals, public health centers, and related facilities and (b) the modernization of hospitals and other health facilities; $66,800,000 for long-term care facilities; $19,085,000 for diagnostic or treatment centers; and $9,545,000 for rehabilitation facilities.

Considerable progress has been made in providing additional general hospital beds and facilities. However, the need and demand for construction of these types of facilities continue at a high level. The need for long-term care and ambulatory facilities is also acute and the interest of communities in constructing these relatively low cost facilities in lieu of expensive general hospital beds continues. Increases in our population and the enactment of Medicare further contribute to the need for additional beds and facilities.

The rate at which existing facilities are becoming structurally and functionally obsolete and require replacement or modernization is the most serious problem in the health facilities field today. State agencies have now identified the modernization needs, and many cities and communities are seeking assistance under this program to modernize or replace these obsolete facilities.

1. Hospitals, public health centers, etc.--The amount of $119,285,000 is for the construction of new and expanded hospitals and public health centers out of the $171,770,000 available pursuant to Section 601(b). Hill-Burton State plans show a need to add 75,726 general beds and modernize 261,840 general beds for a total of 337,566 beds. The plans also show that 1,200 health centers should be added and 800 modernized for a total of 2,000 centers in all. The amount of $119,285,000 will produce an estimated 11,545 general hospital beds and 42 public health center projects. Annually about 12,000 new or modernized general hospital beds are constructed outside the Hill-Burton program.

2. Modernization of health facilities--An amount of $52,485,000 is for the modernization of hospitals and other health facilities out of the $171,770,000 available pursuant to the provisions of Section 601(b).

   While the Hill-Burton program has achieved notable results in bringing needed health facilities to many areas, an additional serious and growing problem has emerged. Many hospitals and other health facilities - particularly those quality care general hospitals located in our more densely populated areas--are functionally or structurally obsolete and are becoming increasingly inefficient or unsafe to operate. Yet these are the hospitals which provide for highly specialized hospital services, conduct research, put into practice the latest advances in medical science, and help train future physicians, nurses, and other health specialists.

   This modernization problem is one of the more urgent needs in the hospital field today. The latest Hill-Burton State plans show the need for modernizing or replacing 261,840 general hospital beds and 208,083 long-term care beds. It is estimated that the $52,485,000 will modernize 8,155 general hospital beds and 300 long-term beds.

3. Long-term care facilities--The need for chronic disease and nursing home beds continues to grow with the increase in our aging population. State agencies report that 357,496 long-term care beds must be constructed, modernized, or replaced. Providing more long-term care beds will not only permit more economical care of patients requiring this type of service, but in addition, will tend to lessen the pressures for additional general hospital beds in some communities. The $66,800,000 for 1969 will produce an estimated 10,880 new or modernized nursing home and chronic disease hospital beds.

4. Diagnostic or treatment centers and rehabilitation facilities--The construction of these outpatient facilities will provide a means of lessening the pressure for construction of additional expensive in-patient facilities and reducing the cost of health care to patients whose needs may be met through facilities providing outpatient care.

According to Hill-Burton State plans, a total of 770 outpatient departments should be added and 1,231 modernized. The $19,085,000 for diagnostic or treatment centers will produce an estimated 80 projects. The State plans also show that 306 rehabilitation facilities need to be added and 192 modernized. The $9,545,000 requested for this purpose will provide for an estimated 34 projects.

Projects and Beds Produced by Funds Requested--The funds available will produce the following projects and beds for 1969. Comparative data are included for 1967 and 1968.

Type of Project	Number of Projects			Beds Provided		
	1967	1968	1969	1967	1968	1969
Hospitals, public health centers, etc:						
General hospitals	201	186	167	14,491	12,912	11,250
Mental hospitals	11	9	5	373	361	295
Public health centers and laboratories	40	42	42	0	0	0
Subtotal	252	237	214	14,864	13,273	11,545
Long-term care facilities ..	218	191	191	11,780	11,243	10,880
Diagnostic or treatment centers	83	80	80	0	0	0
Rehabilitation facilities ..	38	34	34	0	0	0
Subtotal	339	305	305	11,780	11,243	10,880
Modernization	56	77	118	4,000	5,325	8,455
Grand total	647	619	637	30,644	29,841	30,880

Operations and Technical Services

	1968 estimate		1969 estimate		Increase or Decrease	
	Pos	Amount	Pos	Amount	Pos	Amount
Personnel compensation and benefits	282	$3,249,000	282	$3,435,000	...	+$186,000
Other expenses	...	645,000	...	533,000	...	-112,000
Total	282	3,894,000	282	3,968,000	...	+74,000

The 1968 estimate is made up as follows:

	Operations and Technical Services		Hospital and Medical Facilities Research		Total	
	Pos	Amount	Pos	Amount	Pos	Amount
Appropriated	253	$3,357,000	60	$10,000,000	313	$13,357,000
Transfer from Manpower	9	130,000	..	....	9	130,000
Cut-back	..	....	-10	-156,000	-10	-156,000
Pay costs	..	131,000	..	21,000	..	152,000
Transfer to Community Health Services for the National Center for Research and Development	..	....	-30	-9,589,000	-30	-9,589,000
Net	262	3,618,000	20	276,000	282	3,894,000

As in all grant-aided construction programs, Hill-Burton must identify organizational and operational problems which interfer with the most efficient, effective and economical use of facilities built with Federal aid and (a) subject such problems to the research and development process, or (b) adapt innovative concepts and metholodogies relating to the design, staffing, organization, and operation of health facilities for use by health facilities throughout the country. While there are many problems requiring significantly expanded research, other meritorious techniques and concepts which have immediate implications for more efficient, effective, and economical use of health facilities are already known and require only wide-spread implementation. Promoting implementation will be a priority concern of the Hill-Burton program.

The estimate of $3,968,000 and the 282 positions requested for 1969 are necessary to continue the Federal Government's role of providing national leadership in the planning, design, and construction of all types of facilities essential to the care and treatment of the sick and disabled.

The funds requested will support the staff necessary to provide technical assistance and consultation to sponsors and State agencies regarding all aspects of program administration; develop and revise minimum standards of design, construction, and equipment; review and approve basic documents, such as State plans, applications, and architectural drawings and specifications; compile and analyze data realting to problems in hospital and medical facility planning for the purpose of reflecting health facility needs and developing or projecting a base for a balanced program approach; maintain surveillance over bid awards and the construction of facilities; and develop regulations, procedures, and policies for operation of the program.

The operation of this program requires a large variety of specialized and highly technical skills relating to the planning, design, and construction of all types of hospital and medical facilities. For the most part these employees are in the professional or technical field of medicine, nursing, hospital administration, architecture, engineering, and equipment consultation.

A net increase of $74,000 is requested to cover mandatory items.

HOSPITAL CONSTRUCTION ACTIVITIES EXHIBIT I

ALLOCATIONS TO STATES

For Construction of Hospital and Medical Facilities

	Fiscal Year		
	1967	1968	1969
Totals	$270,000,000	$267,200,000*	$267,200,000**
Alabama	7,531,936	7,063,184	6,997,357
Alaska	750,000	750,000	750,000
Arizona	2,477,104	2,476,266	2,464,626
Arkansas	4,379,755	3,936,590	3,887,332
California	14,390,467	14,809,164	14,761,205
Colorado	2,541,105	2,664,467	2,679,489
Connecticut	2,170,924	2,555,933	2,606,823
Delaware	750,000	750,000	750,000
District of Columbia	782,182	761,430	753,135
Florida	9,264,822	8,989,589	8,935,370
Georgia	8,331,482	7,758,539	7,676,792
Hawaii	1,026,624	933,070	917,905
Idaho	1,337,186	1,193,352	1,175,532
Illinois	9,112,630	9,562,343	9,611,538
Indiana	6,462,739	6,310,955	6,331,763
Iowa	4,257,154	4,109,909	4,135,461
Kansas	3,354,793	3,192,644	3,204,879
Kentucky	6,270,427	5,853,033	5,796,408
Louisiana	6,991,881	6,477,947	6,400,687
Maine	1,772,862	1,718,937	1,718,493
Maryland	3,519,935	3,807,032	3,803,729
Massachusetts	5,706,612	6,308,575	6,409,850
Michigan	10,487,643	9,718,647	9,763,508
Minnesota	5,127,094	4,953,541	4,959,606
Mississippi	5,883,459	5,282,484	5,209,101
Missouri	5,850,465	6,493,701	6,514,444
Montana	1,197,821	1,198,513	1,206,603
Nebraska	2,134,648	2,120,204	2,127,120
Nevada	750,000	750,000	750,000
New Hampshire	1,081,513	1,044,212	1,026,156
New Jersey	6,275,499	6,679,711	6,770,725
New Mexico	1,886,436	1,659,927	1,626,308
New York	14,671,937	16,095,997	16,247,558
North Carolina	9,898,683	9,627,630	9,579,109
North Dakota	1,246,384	1,173,213	1,161,244

HOSPITAL CONSTRUCTION ACTIVITIES

EXHIBIT I
Page 2

ALLOCATIONS TO STATES - Continued

For Construction of Hospital and Medical Facilities

	Fiscal Year		
	1967	1968	1969
Ohio	12,688,579	12,477,364	12,466,955
Oklahoma	4,324,947	4,096,174	4,065,897
Oregon	2,356,250	2,438,661	2,432,645
Pennsylvania	15,624,370	15,857,418	15,972,828
Rhode Island	1,234,958	1,122,678	1,105,559
South Carolina	5,696,789	5,434,661	5,382,984
South Dakota	1,333,921	1,293,844	1,292,941
Tennessee	8,020,510	7,784,138	7,765,304
Texas	17,263,024	17,117,926	17,020,862
Utah	1,627,003	1,533,010	1,523,316
Vermont	884,327	885,785	872,611
Virginia	7,615,722	7,092,049	7,068,996
Washington	3,680,051	3,549,805	3,558,854
West Virginia	3,587,162	3,637,577	3,635,517
Wisconsin	5,533,879	5,361,806	5,346,850
Wyoming	765,069	753,874	750,000
American Samoa	57,145	66,031	375,000
Guam	387,251	380,034	375,913
Puerto Rico	7,269,841	7,161,426	7,102,112
Virgin Islands	375,000	375,000	375,000

*Excludes $12,800,000 reserve for obligations to be incurred in subsequent years.

**Includes 1968 reserve of $12,800,000.

EXHIBIT

ALLOCATIONS TO STATES
FOR CONSTRUCTION AND MODERNIZATION OF HOSPITALS AND RELATED HEALTH FACILITIES
For Fiscal Year 1967
as of July 1, 1966

State	Total	Moderni-zation	Hospitals and Public Health Centers	Long-Term Care Facilities	Diagnostic or Treatment Centers	Rehabili-tation Facilities
Total	$270,000,000	$35,000,000	$135,000,000	$70,000,000	$20,000,000	$10,000,000
Alabama	7,531,936	549,363	4,036,715	2,075,756	580,069	290,034
Alaska	750,000	200,000	200,000	200,000	100,000	50,000
Arizona	2,477,104	254,550	1,284,887	660,713	184,636	92,318
Arkansas	4,379,755	317,158	2,348,638	1,207,716	337,495	168,748
California	14,390,467	1,627,158	7,378,634	3,794,234	1,060,294	530,147
Colorado	2,541,105	428,105	1,221,552	628,146	175,535	87,767
Connecticut	2,170,924	607,793	903,666	464,682	129,855	64,928
Delaware	750,000	200,000	200,000	200,000	100,000	50,000
Dist. of Col.	782,182	200,000	232,182	200,000	100,000	50,000
Florida	9,264,822	859,443	4,859,258	2,498,723	698,265	349,133
Georgia	8,331,482	549,630	4,498,789	2,313,363	646,467	323,233
Hawaii	1,026,624	200,000	446,847	229,777	100,000	50,000
Idaho	1,337,186	200,000	651,944	335,242	100,000	50,000
Illinois	9,112,630	1,503,967	4,398,666	2,261,878	632,079	316,040
Indiana	6,462,739	938,404	3,193,689	1,642,256	458,927	229,463
Iowa	4,257,154	682,188	2,066,734	1,062,754	296,985	148,493
Kansas	3,354,793	487,034	1,657,888	852,518	238,235	119,118
Kentucky	6,270,427	443,070	3,368,870	1,732,337	484,100	242,050
Louisiana	6,991,881	448,692	3,782,702	1,945,138	543,566	271,783
Maine	1,772,862	222,319	896,389	460,940	128,809	64,405
Maryland	3,519,935	463,836	1,766,770	908,507	253,881	126,941
Massachusetts	5,706,612	1,491,801	2,436,636	1,252,965	350,140	175,070
Michigan	10,487,643	1,528,432	5,179,435	2,663,365	744,274	372,137
Minnesota	5,127,094	680,821	2,570,448	1,321,773	369,368	184,684
Mississippi	5,883,459	395,022	3,172,936	1,631,585	455,944	227,972

Missouri	5,850,465	938,004	2,839,957	1,460,360	408,096	204,048
Montana	1,197,821	200,000	559,906	287,915	100,000	50,000
Nebraska	2,134,648	316,046	1,051,357	540,628	151,078	75,539
Nevada	750,000	200,000	200,000	200,000	100,000	50,000
New Hampshire	1,081,513	200,000	483,096	248,417	100,000	50,000
New Jersey	6,275,499	1,391,941	2,823,248	1,451,768	405,695	202,847
New Mexico	1,886,436	200,000	974,951	501,338	140,098	70,049
New York	14,671,937	2,833,778	6,843,792	3,519,209	983,439	491,719
North Carolina	9,898,683	975,602	5,158,548	2,652,624	741,273	370,636
North Dakota	1,246,384	200,000	591,978	304,406	100,000	50,000
Ohio	12,688,579	1,556,463	6,435,620	3,309,318	924,785	462,393
Oklahoma	4,324,947	364,209	2,289,754	1,177,435	329,033	164,516
Oregon	2,356,250	277,748	1,201,609	617,890	172,669	86,334
Pennsylvania	15,624,370	2,705,820	7,468,380	3,840,384	1,073,191	536,595
Rhode Island	1,234,958	200,000	584,432	300,526	100,000	50,000
South Carolina	5,696,789	414,872	3,053,544	1,570,191	438,788	219,394
South Dakota	1,333,921	200,000	649,788	334,133	100,000	50,000
Tennessee	8,020,510	906,240	4,112,851	2,114,907	591,008	295,504
Texas	17,263,024	1,664,356	9,017,791	4,637,120	1,295,838	647,919
Utah	1,627,003	200,000	824,969	424,215	118,546	59,273
Vermont	884,327	200,000	334,327	200,000	100,000	50,000
Virginia	7,615,722	798,647	3,941,039	2,026,557	566,319	283,160
Washington	3,680,051	513,232	1,830,779	941,421	263,079	131,540
West Virginia	3,587,162	459,736	1,808,005	929,711	259,807	129,903
Wisconsin	5,533,879	614,192	2,844,135	1,462,508	408,696	204,348
Wyoming	765,069	200,000	215,069	200,000	100,000	50,000
American Samoa	57,145	2,834	31,398	16,145	4,512	2,256
Guam	387,251	100,000	112,251	100,000	50,000	25,000
Puerto Rico	7,269,841	587,494	3,863,151	1,986,506	555,127	277,563
Virgin Islands	375,000	100,000	100,000	100,000	50,000	25,000

Basis of Allocations, per statutory Formula:

a. Total population, as estimated by the Bureau of the Census: (1) Provisional Estimates of the United States, July 1, 1965 (Series P-25, No. 324, January 20, 1966): American Samoa, Guam, Puerto Rico, and Virgin Islands Provisional Estimates as of July 1, 1965, (Series P-25, No. 336, April 26, 1966).

b. Allocation percentage for fiscal years 1966 and 1967, as determined by the Surgeon General, September 17, 1964.

EXHIBIT

ADJUSTED ALLOCATIONS TO STATES
FOR CONSTRUCTION AND MODERNIZATION OF HOSPITALS AND RELATED HEALTH FACILITIES
Fiscal Year 1967

as of June 30, 1967

State	Total	Moderni-zation	Hospitals and Public Health Centers	Long-Term Care Facilities	Diagnostic or Treatment Centers	Rehabili tation Facilities	Adminis-tration Funds
Total	$270,000,000	$47,141,251	$131,293,779	$59,567,254	$19,038,800	$11,394,128	$1,564,788
Alabama	7,531,936	2,435,119	4,036,715	175,000	545,068	290,034	50,000
Alaska	750,000	300,000	200,000	200,000	....	35,000	15,000
Arizona	2,477,104	896,522	802,937	468,066	184,636	92,318	32,625
Arkansas	4,379,755	557,150	2,348,638	1,098,216	181,823	168,748	25,180
California	14,390,467	3,224,661	7,378,634	559,052	986,668	2,191,452	50,000
Colorado	2,541,105	495,299	1,154,358	579,928	175,535	87,767	48,218
Connecticut	2,170,924	602,237	886,178	455,696	127,347	63,674	35,792
Delaware	750,000	200,000	200,000	200,000	100,000	50,000	....
Dist. of Col.	782,182	154,255	232,182	200,000	100,000	95,745	....
Florida	9,264,822	859,443	4,859,258	2,448,723	698,265	349,133	50,000
Georgia	8,331,482	549,630	4,498,789	2,263,363	646,467	323,233	50,000
Hawaii	1,026,624	670,943	....	227,167	78,514	33,262	16,738
Idaho	1,337,186	848,498	177,871	260,817	....	27,646	22,354
Illinois	9,112,630	1,503,967	4,398,666	2,399,287	494,670	311,040	5,000
Indiana	6,462,739	938,404	3,193,689	1,642,256	458,927	179,463	50,000
Iowa	4,257,154	682,188	2,066,734	1,062,754	296,985	123,493	25,000
Kansas	3,354,793	487,034	1,657,888	1,075,753	....	114,118	20,000
Kentucky	6,270,427	443,070	3,368,870	1,732,337	484,100	192,050	50,000
Louisiana	6,991,881	2,086,000	3,974,702	400,000	259,396	246,783	25,000
Maine	1,772,862	150,711	967,937	367,523	128,809	157,822	....
Maryland	3,519,935	463,836	1,766,770	908,507	253,881	126,941	....
Massachusetts	5,706,612	1,491,801	2,402,136	1,243,965	345,640	173,070	50,000
Michigan	10,487,643	1,528,432	5,179,435	2,663,365	744,274	322,137	50,000
Minnesota	5,127,094	701,761	2,570,448	1,321,773	298,428	184,684	50,000
Mississippi	5,883,459	395,022	3,172,936	1,631,585	455,944	227,972	....

Missouri	5,850,465	938,004	2,839,957	1,410,360	408,096	204,048	50,000
Montana	1,197,821	200,000	559,906	287,915	100,000	26,797	23,203
Nebraska	2,134,648	425,000	1,167,403	361,937	76,078	75,539	28,691
Nevada	750,000	597,353	102,647	....	....	43,500	6,500
New Hampshire	1,081,513	178,370	483,096	248,417	100,000	50,000	21,630
New Jersey	6,275,499	1,384,991	2,798,348	1,438,968	402,145	201,047	50,000
New Mexico	1,886,436	458,195	720,256	497,838	140,098	55,616	14,433
New York	14,671,937	2,833,778	6,843,792	3,519,209	983,439	491,719	....
North Carolina	9,898,683	970,602	5,134,548	2,640,624	736,273	366,636	50,000
North Dakota	1,246,384	200,000	585,278	404,406	....	50,000	6,700
Ohio	12,688,579	1,556,463	6,385,620	3,309,318	924,785	462,393	50,000
Oklahoma	4,324,947	364,209	2,289,754	1,177,435	329,033	139,606	24,910
Oregon	2,356,250	1,357,072	308,050	385,000	172,669	86,334	47,125
Pennsylvania	15,624,370	2,705,820	7,468,380	3,840,384	1,023,191	536,595	50,000
Rhode Island	1,234,958	200,000	584,432	300,526	100,000	27,289	22,711
South Carolina	5,696,789	414,872	3,053,544	1,404,913	554,016	219,394	50,000
South Dakota	1,333,921	300,000	649,788	307,455	....	50,000	26,678
Tennessee	8,020,510	906,240	4,112,851	2,114,907	575,508	295,504	15,500
Texas	17,263,024	3,650,950	9,017,791	1,936,700	1,959,664	647,919	50,000
Utah	1,627,003	200,000	824,969	424,215	118,546	38,261	21,012
Vermont	884,327	200,000	334,327	200,000	100,000	47,500	2,500
Virginia	7,615,722	798,647	3,911,039	2,011,557	566,319	283,160	45,000
Washington	3,680,051	1,342,480	1,445,488	281,935	352,544	207,604	50,000
West Virginia	3,587,162	712,763	967,882	1,776,614	....	93,887	36,016
Wisconsin	5,533,879	614,192	2,844,135	1,419,208	408,696	204,348	43,300
Wyoming	765,069	217,737	215,069	79,629	202,634	41,964	8,036
American Samoa	57,145	2,834	31,398	16,145	4,512	2,256	....
Guam	387,251	100,000	112,251	100,000	50,000	25,000	....
Puerto Rico	7,269,841	587,494	3,863,151	1,986,506	555,127	227,627	49,936
Virgin Islands	375,000	57,142	142,858	100,000	50,000	25,000	....

NOTE: This exhibit is prepared especially to show the adjusted amount of construction money remaining in the various categories and the amount used for State administration purposes.

ALLOCATIONS TO STATES
FOR CONSTRUCTION AND MODERNIZATION OF HOSPITALS AND RELATED HEALTH FACILITIES
For Fiscal Year 1968

EXHIBIT IV

State	Total	Modernization	Hospitals and Public Health Centers	Long-Term Care Facilities	Diagnostic or Treatment Centers	Rehabilitation Facilities
Total	$267,200,000	$47,715,000	$124,055,000	$66,800,000	$19,085,000	$9,545,000
Alabama	7,063,184	766,714	3,583,895	1,913,379	532,747	266,449
Alaska	750,000	200,000	200,000	200,000	100,000	50,000
Arizona	2,476,266	359,381	1,204,912	643,831	179,111	89,381
Arkansas	3,936,390	327,788	2,054,098	1,096,647	305,343	152,714
California	14,009,164	2,320,674	7,104,338	3,795,017	1,056,537	528,673
Colorado	2,664,467	604,813	1,172,337	625,800	174,269	87,158
Connecticut	2,555,933	869,040	960,164	512,615	142,729	71,385
Delaware	750,000	200,000	200,000	200,000	100,000	50,000
Dist. of Col.	761,430	200,000	211,430	200,000	100,000	50,000
Florida	3,989,589	1,209,906	4,428,127	2,364,099	658,243	329,214
Georgia	7,758,539	767,465	3,979,258	2,124,456	591,518	295,842
Hawaii	933,070	200,000	380,127	202,943	100,000	50,000
Idaho	1,193,352	200,000	549,315	293,537	100,000	50,000
Illinois	9,562,343	2,133,226	4,228,588	2,257,569	628,581	314,379
Indiana	5,310,955	1,315,559	2,843,336	1,518,007	422,662	211,391
Iowa	4,009,909	951,772	1,797,583	959,698	267,212	133,644
Kansas	3,192,644	679,060	1,420,709	763,831	212,676	106,368
Kentucky	5,853,033	618,922	2,979,210	1,590,548	442,860	221,493
Louisiana	6,477,947	569,470	3,363,053	1,795,475	499,919	250,030
Maine	1,718,937	309,930	801,995	428,171	119,216	59,625
Maryland	3,307,032	663,045	1,786,883	953,879	265,591	132,834
Massachusetts	6,308,575	1,952,293	2,479,558	1,323,792	368,587	184,345
Michigan	9,718,647	2,127,413	4,320,854	2,306,311	642,293	321,239
Minnesota	4,953,541	951,203	2,273,033	1,214,205	338,631	169,364
Mississippi	5,232,484	395,062	2,731,900	1,485,203	413,530	206,824

Missouri	6,493,701	1,348,372	2,928,676	1,563,568	435,349	217,736
Montana	1,198,513	273,556	505,726	269,731	100,000	50,000
Nebraska	2,120,204	441,363	955,581	510,168	142,068	71,064
Nevada	750,000	200,000	200,000	200,000	100,000	50,000
New Hampshire	1,044,212	200,000	452,585	241,627	100,000	50,000
New Jersey	6,679,711	1,938,699	2,698,542	1,440,705	401,139	200,626
New Mexico	1,659,927	200,000	830,978	443,644	123,525	61,780
New York	16,095,997	4,135,205	6,807,977	3,634,660	1,012,006	506,147
North Carolina	9,627,630	1,371,386	4,692,330	2,508,917	698,565	349,381
North Dakota	1,173,213	200,000	536,656	286,527	100,000	50,000
Ohio	12,477,364	2,192,802	5,853,882	3,125,305	870,181	435,214
Oklahoma	4,096,174	507,174	2,042,827	1,090,629	303,667	151,877
Oregon	2,438,661	397,068	1,162,057	620,402	172,740	86,354
Pennsylvania	15,857,418	3,805,448	6,859,875	3,662,367	1,019,723	510,005
Rhode Island	1,122,678	200,000	503,740	268,936	100,000	50,000
South Carolina	5,434,661	581,798	2,762,207	1,474,694	410,603	205,359
South Dakota	1,293,844	223,166	600,227	320,451	100,000	50,000
Tennessee	7,784,138	1,270,279	3,707,632	1,979,439	551,140	275,648
Texas	17,117,926	2,352,829	8,404,164	4,486,835	1,249,281	624,817
Utah	1,533,010	202,776	757,157	404,233	112,552	56,292
Vermont	885,785	200,000	335,785	200,000	100,000	50,000
Virginia	7,092,049	1,110,674	3,404,546	1,817,628	506,086	253,115
Washington	3,549,805	718,950	1,611,298	860,243	239,520	119,794
West Virginia	3,637,577	646,999	1,702,711	908,760	253,034	126,553
Wisconsin	5,361,806	859,250	2,562,792	1,368,230	380,960	190,534
Wyoming	753,874	200,000	203,874	200,000	100,000	50,000
American Samoa	66,031	3,141	35,796	19,111	5,321	2,662
Guam	380,034	100,000	105,034	100,000	50,000	25,000
Puerto Rico	7,161,426	836,229	3,600,246	1,922,108	535,178	267,665
Virgin Islands	375,000	100,000	100,000	100,000	50,000	25,000

Basis of Allocations, per Statutory Formula:

a. Total population, as estimated by the Bureau of the Census: (1) Provisional Estimates of the United States, and Puerto Rico, July 1, 1967 (Series P-25, No. 373, September 6, 1967); American Samoa, Guam, and Virgin Islands, Provisional Estimates as of July 1, 1966, (Series P-25, No. 358, January 18, 1967).

b. Allotment percentages for fiscal years 1968 and 1969, as determined by the Surgeon General, September 30, 1966.

EXHIBIT V

TENTATIVE ALLOCATIONS TO STATES
FOR CONSTRUCTION AND MODERNIZATION OF HOSPITALS AND RELATED HEALTH FACILITIES
For Fiscal Year 1969

State	Total	Moderni-zation	Hospitals and Public Health Centers	Long-Term Care Facilities	Diagnostic or Treatment Centers	Rehabili-tation Facilities
Total	$267,200,000	$52,485,000	$119,285,000	$66,800,000	$19,085,000	$9,545,000
Alabama	6,997,357	845,885	3,443,284	1,911,012	531,400	265,776
Alaska	750,000	200,000	200,000	200,000	100,000	50,000
Arizona	2,464,626	396,490	1,157,639	642,485	178,658	89,354
Arkansas	3,887,332	361,636	1,973,507	1,095,290	304,571	152,328
California	14,761,205	2,560,306	6,829,448	3,790,322	1,053,986	527,143
Colorado	2,679,489	667,265	1,126,342	625,116	173,828	86,938
Connecticut	2,606,823	958,777	922,493	511,981	142,368	71,204
Delaware	750,000	200,000	200,000	200,000	100,000	50,000
Dist. of Col.	753,135	200,000	203,135	200,000	100,000	50,000
Florida	8,935,370	1,334,841	4,254,393	2,361,175	656,579	328,382
Georgia	7,676,792	846,712	3,823,134	2,121,828	590,023	295,095
Hawaii	917,905	200,000	365,213	202,692	100,000	50,000
Idaho	1,175,532	204,115	528,244	293,173	100,000	50,000
Illinois	9,611,538	2,353,501	4,062,683	2,254,776	626,993	313,585
Indiana	6,331,763	1,451,404	2,731,779	1,516,129	421,594	210,857
Iowa	4,135,461	1,050,052	1,727,057	958,510	266,536	133,306
Kansas	3,204,879	749,180	1,374,576	762,886	212,138	106,099
Kentucky	5,796,408	682,831	2,862,323	1,588,580	441,741	220,933
Louisiana	6,400,687	628,272	3,231,106	1,793,254	498,656	249,399
Maine	1,718,493	341,933	770,529	427,641	118,915	59,475
Maryland	3,803,729	737,027	1,716,585	952,699	264,920	132,498
Massachusetts	6,409,850	2,153,886	2,382,274	1,322,154	367,656	183,880
Michigan	9,763,508	2,347,089	4,151,338	2,303,979	640,674	320,428
Minnesota	4,959,606	1,049,534	2,188,661	1,214,700	337,775	168,936
Mississippi	5,209,101	434,190	2,672,755	1,483,370	412,485	206,301

Missouri	6,514,444	1,487,604	2,813,771	1,561,634	434,249	217,186
Montana	1,206,603	301,802	485,404	269,397	100,000	50,000
Nebraska	2,127,120	486,939	918,090	509,537	141,689	70,865
Nevada	750,000	200,000	200,000	200,000	100,000	50,000
New Hampshire	1,026,156	200,000	434,828	241,328	100,000	50,000
New Jersey	6,770,725	2,138,889	2,592,667	1,438,923	400,126	200,120
New Mexico	1,626,308	200,000	798,375	443,096	123,213	61,624
New York	16,247,558	4,562,204	6,540,872	3,630,163	1,009,451	504,868
North Carolina	9,579,109	1,512,995	4,515,004	2,505,813	696,799	348,498
North Dakota	1,161,244	209,441	515,630	286,173	100,000	50,000
Ohio	12,466,955	2,419,230	5,624,210	3,121,419	867,982	434,114
Oklahoma	4,065,897	559,545	1,962,679	1,089,280	302,900	151,493
Oregon	2,432,645	438,068	1,116,464	619,634	172,303	86,176
Pennsylvania	15,972,828	4,198,397	6,590,733	3,657,835	1,017,146	508,717
Rhode Island	1,105,559	202,978	483,976	268,605	100,000	50,000
South Carolina	5,382,984	641,874	2,653,834	1,472,869	409,566	204,841
South Dakota	1,292,941	246,210	576,677	320,054	100,000	50,000
Tennessee	7,765,304	1,401,448	3,562,166	1,976,990	549,748	274,952
Texas	17,020,862	2,595,782	8,074,434	4,481,284	1,246,124	623,238
Utah	1,523,316	223,714	727,451	403,733	112,268	56,150
Vermont	872,611	200,000	322,611	200,000	100,000	50,000
Virginia	7,068,996	1,225,362	3,270,972	1,815,379	504,808	252,475
Washington	3,558,854	793,189	1,548,080	859,179	238,915	119,491
West Virginia	3,635,517	713,807	1,635,426	907,656	252,395	126,233
Wisconsin	5,346,850	948,020	2,462,243	1,366,537	379,997	190,053
Wyoming	750,000	200,000	200,000	200,000	100,000	50,000
American Samoa	375,000	100,000	100,000	100,000	50,000	25,000
Guam	375,913	100,000	100,913	100,000	50,000	25,000
Puerto Rico	7,102,112	922,576	3,458,992	1,919,730	533,825	266,989
Virgin Islands	375,000	100,000	100,000	100,000	50,000	25,000

Basis of Allocations, per Statutory Formula:

a. Total population, as estimated by the Bureau of the Census: (1) Provisional Estimates of the United States, and Puerto Rico, July 1, 1967 (Series P-25, No. 373, September 6, 1967); American Samoa, Guam, and Virgin Islands, Provisional Estimates as of July 1, 1966, (Series P-25, No. 358, January 18, 1967).

b. Allotment percentages for fiscal years 1968 and 1969, as determined by the Surgeon General, September 30, 1966.

February 2, 1968

WEDNESDAY, MARCH 13, 1968.

NATIONAL INSTITUTE OF MENTAL HEALTH

WITNESSES

DR. STANLEY F. YOLLES, DIRECTOR
DR. BERTRAM S. BROWN, DEPUTY DIRECTOR
DR. PHILLIP L. SIROTKIN, ASSOCIATE DIRECTOR FOR PROGRAM COORDINATION
DR. SHERMAN N. KIEFFER, ASSOCIATE DIRECTOR FOR PATIENT CARE
JAMES D. ISBISTER, EXECUTIVE OFFICER
JAMES D. LAWRENCE, FINANCIAL MANAGEMENT OFFICER
DR. WILLIAM H. STEWART, SURGEON GENERAL
CHARLES MILLER II, CHIEF FINANCE OFFICER
JAMES B. CARDWELL, DEPUTY ASSISTANT SECRETARY, BUDGET

MENTAL HEALTH RESEARCH AND SERVICES

OBJECT CLASSIFICATION (IN THOUSANDS OF DOLLARS)

	1967 actual	1968 estimate	1969 estimate
PUBLIC HEALTH SERVICE			
Personnel compensation:			
Permanent positions	18,485	21,985	23,053
Positions other than permanent	871	877	877
Other personnel compensation	408	426	426
Total personnel compensation	19,764	23,288	24,356
Personnel benefits	1,519	2,170	2,276
Travel and transportation of persons	1,035	1,331	1,395
Transportation of things	128	168	178
Rent, communications, and utilities	764	795	903
Printing and reproduction	269	517	522
Other services	6,532	11,384	11,007
Payment to National Institutes of Health management fund	6,722	6,760	6,760
Supplies and materials	1,965	2,413	2,468
Equipment	1,508	2,762	3,045
Grants, subsidies, and contributions	177,000	196,116	225,956
Subtotal	217,206	247,704	278,866
Quarters and subsistence charges	−35	−35	−35
Total obligations, Public Health Service	217,171	247,669	278,831
ALLOCATION TO ST. ELIZABETHS HOSPITAL			
Personnel compensation:			
Permanent positions	92	90	----
Other personnel compensation	15	15	----
Total personnel compensation	107	105	----
Personnel benefits	7	8	----
Transportation of things	1	----	----
Rent, communications, and utilities	22	24	----
Other services	----	1	----
Supplies and materials	1	2	----
Total obligations, St. Elizabeths Hospital	138	140	----
Total obligations	217,309	247,809	278,831

PERSONNEL SUMMARY

	1967 actual	1968 estimate	1969 estimate
PUBLIC HEALTH SERVICE			
Total number of permanent positions	2,683	2,726	2,818
Full-time equivalent of other positions	102	99	100
Average number of all employees	2,250	2,601	2,679
Average GS grade	7.5	7.6	7.6
Average GS salary	$8,340	$8,711	$8,853
ALLOCATION TO ST. ELIZABETHS HOSPITAL			
Total number of permanent positions	14	14	----
Average number of all employees	13	13	----
Average GS grade	6.2	6.3	----
Average GS salary	$7,439	$7,732	----

PROGRAM AND FINANCING (IN THOUSANDS OF DOLLARS)

Program by activities:			
1. Grants:			
(a) Research	68,441	74,589	81,159
(b) Hospital improvement	8,990	10,610	10,610
(c) Training	90,422	100,762	109,046
(d) Fellowships	9,124	10,155	10,641
(e) Early child care demonstrations			14,500
Total, grants	176,977	196,116	225,956
2. Direct operations:			
(a) Planning, development and administration of extramural research programs	1,834	2,550	2,569
(b) Intramural research	13,827	16,014	17,325
(c) Manpower and training	1,199	1,710	1,727
(d) Mental health services	698	1,552	1,641
(e) Special mental health programs	2,977	3,548	4,205
(f) Regional and field activities	2,773	7,205	7,302
(g) Fort Worth and Lexington clinical centers	8,961	11,536	10,580
(h) Scientific communication and public education	1,038	2,542	2,551
(i) Program management and services	3,814	5,036	4,975
Total, direct operations	37,121	51,693	52,875
Total program costs, funded [1]	214,098	247,809	278,831
Change in selected resources [2]	3,211	----	----
Total obligations	217,309	247,809	278,831
Financing:			
Receipts and reimbursements from:			
Federal funds	−1,533	−1,717	−1,178
Non-Federal sources [3]	−16	−14	−14
Comparative transfers to other accounts	41,752	----	----
Unobligated balance available, start of year	----	−1,479	----
Unobligated balance available, end of year	1,479	----	----
Unobligated balance lapsing	6,113	1,104	----
New obligational authority	265,104	245,703	277,639
New obligational authority:			
Appropriation	264,119	246,741	277,639
Supplemental appropriation	1,500	----	----
Transferred to other accounts	−515	−58	----
Appropriation (adjusted)	265,104	246,683	277,639
Proposed transfer to other accounts for pay increases	----	−980	----
Relation of obligations to expenditures:			
Total obligations	217,309	247,809	278,831
Receipts and other offsets (items 11-17)	40,203	−1,731	−1,192
Obligations affecting expenditures	257,512	246,078	277,639
Obligated balance, start of year	176,599	224,199	252,577
Obligated balance, end of year	−224,199	−252,577	−305,216
Adjustments in expired accounts	−6,123	----	----
Expenditures	203,789	217,700	225,000
Expenditures are distributed as follows:			
Out of current authorizations	68,233	72,108	75,000
Out of prior authorizations	135,556	145,592	150,000

[1] Includes capital outlay as follows: 1967, $1,076,000; 1968, $2,762,000; 1969 $3,010,000.
[2] Selected resources as of June 30 are as follows: Unpaid undelivered orders, $3,386,000; 1967, $6,597,000; 1968, $6,597,000; 1969, $6,597,000.
[3] Non-Federal sources include sponsored travel; voluntary payment for hospital care (narcotic addict patients) (42 U.S.C. 221).

Community Mental Health Resource Support

PROGRAM AND FINANCING (IN THOUSANDS OF DOLLARS)

	1967 actual	1968 estimate	1969 estimate
Program by activities:			
1. Grants for construction of community mental health centers	44,313	45,380	60,000
2. Grants for staffing of community mental health centers	33,947	51,168	64,300
3. Construction and operation of narcotic addict rehabilitation facilities		4,000	8,000
Total obligations (object class 41.0)	78,260	100,548	132,300
Financing:			
Comparative transfers from other accounts	−33,947		
Unobligated balance, available, start of year	−43,092	−45,380	−45,000
Unobligated balance transferred to other accounts	3,349		
Unobligated balance available, end of year	45,380	45,000	
Unobligated balance, lapsing	50		
New obligational authority (appropriation)	50,000	100,168	87,300
Relation of obligations to expenditures:			
Total obligations	78,260	100,548	132,300
Receipts and other offsets (items 11-17)	−33,947		
Obligations affecting expenditures	44,313	100,548	132,300
Obligated balance, start of year	39,043	78,828	139,376
Obligated balance, end of year	−78,828	−139,376	−221,676
Adjustments in expired accounts	−223		
Expenditures	4,305	40,000	50,000
Expenditures are distributed as follows: Out of prior authorizations	4,305	40,000	50,000

Mr. Natcher. At this time we take up the National Institute of Mental Health, Mental Health Research and Services. We have before the committee Dr. Stanley F. Yolles, the Director.

Dr. Yolles, we are delighted to have you appear at this time together with members of your staff.

At this point in the record we will insert the biographical sketch of Dr. Stanley F. Yolles.

BIOGRAPHICAL SKETCH OF PRINCIPAL WITNESS

(The biographical sketch follows:)

Department of Health, Education, and Welfare Public Health Service
National Institute of Mental Health

BIOGRAPHICAL SKETCH

Name: Dr. Stanley F. Yolles.
Position: Director, National Institute of Mental Health.
Birthplace and date: New York, N.Y., April 19, 1919.
Education:
1939—A.B.: Brooklyn College.
1940—A.M.: Harvard University.
1950—M.D.: New York University, Bellevue Medical Center.
1950–51: Internship, U.S. Public Health Service hospital, Staten Island, New York.
1951–54: Resident in psychiatry, U.S. Public Health Service hospital, Lexington, Ky.
1957—M.P.H.: Johns Hopkins University.
1959: Certified in psychiatry by American Board of Psychiatry and Neurology.
Experience:
December 18, 1964–Present: Director, National Institute of Mental Health.
October 1964–December 18, 1964: Acting Director, National Institute of Mental Health.
August 1963–October 1, 1964: Deputy Director, National Institute of Mental Health.

August 1960–July 1963: Associate Director for Extramural Programs, NIMH.

July 1957–July 1960: Associate Director and Director, Mental Health Study Center, Community Services Branch, NIMH.

January 1955–July 1957: Associate Director, Mental Health Study Center, Community Services Branch, NIMH.

July 1954–December 1954: Staff psychiatrist, Mental Health Study Center, Community Services Branch, NIMH.

July 1, 1950: Commissioned in Public Health Service.

November 1947–January 1948: Guest lecturer in tropical medicine, New York University College of Medicine.

November 1945–April 1946: Commanding officer, Sector Epidemiological Laboratory, British West Indies.

January 1943–November 1945: Associate Director, Sector Epidemiological Laboratory.

November 1942–January 1943: Parasitologist, Sector Epidemiological Laboratory.

July 1941–November 1941: Parasitologist, U.S. Engineer Department, U.S. Army, British Guiana, South America.

October 1940–July 1941: Parasitologist, Army Medical School.

Association memberships:

American Association for Advancement of Science.
American Medical Association.
American Psychiatric Association—Fellow.
American Psychopathological Association.
American Public Health Association—Fellow.
American Society of Parasitologists.
American Society of Tropical Medicine and Hygiene.
Group for the Advancement of Psychiatry.
Maryland Public Health Association.
New York Academy of Sciences.
Pan American Medical Association.
Washington Psychiatric Society.
World Federation for Mental Health.

Other professional affiliations:

August 1962: Chairman, Public Health Service Interbureau Committee on Narcotic Drug Addiction.

September 1960: Executive Secretary, Mental Health Career Development Program in Psychiatry.

1964: American Medical Association, Mental Health Council, liaison officer.

1964: Interdepartmental Committee on Narcotics, member.

1964: Veterans' Administration, Advisory Committee, Psychiatry, Neurology, and Psychology Service, member.

1965: Member, board of editors, Psychiatry Digest.

1965: Associate clinical professor psychiatry, George Washington University.

Publications:

Municipal Government and Community Mental Health, Public Management, April 1965.

Community Appraisal of Mental Health Practices, American Journal of Public Health, December 1964.

Local Government Role in Mental Health Programing, Public Management, April 1965.

The Psychoanalyst and Community Psychiatry, Science and Psychoanalysis, vol. 8, 1965.

Community Mental Health: Issues and Policies, American Journal of Psychiatry, March 1966.

The U.S. Community Mental Health Center Program, Comprehensive Textbook of Psychiatry, 1966.

The Government's Stake in Psychiatric Drug Research, Psychiatric Drugs, 1966.

The Role of the Psychologist in Community Mental Health Centers: The National Institute of Mental Health View, American Psychology, January 1966.

Mr. NATCHER. You have a statement to present to the committee, Doctor? How would you like to handle this?

Dr. YOLLES. If I may, sir, I would like to present both the mental health research and services opening statement and the one on community mental health resources support.

Mr. NATCHER. Doctor, you may proceed.

GENERAL STATEMENT ON MENTAL HEALTH RESEARCH AND SERVICES

Dr. YOLLES. Mr. Chairman and members of the committee, I am gratified to be able again to describe progress in the national mental health programs.

The challenge of mental illness in America today can be defined in various ways—for instance, with statistical data. I can tell you that over 40 percent of the Nation's hospital beds are occupied by the mentally ill; that 60,000 Americans are today playing havoc with their brains and bodies by addiction to narcotics and many other drugs; that alcohol rules the lives of at least 5 million of our citizens; that a third of our people suffer symptoms of depression, and that probably over 50,000 will kill themselves this year.

But such statistics—staggering as they may be—are impersonal, and we quickly become insensitive to their meaning. Consider, instead, the mental health status of one community. There is, of course, no one average community that represents an accurate cross section of the country. But let us assume, nevertheless, a hypothetical community of 150,000 citizens—just the size of those within which our community health centers are now being established. And, assume further that reflected here—in miniature—are the characteristics of the entire U.S. population.

What is the nature of such a community?

Three thousand children will be born in the community during the year. Among them, at least 600 will require some form of mental health service during their lifetime—240 of them in mental hospitals.

In the course of a year, 225 illegitimate children are born into the community.

Among those 107,000 residents above 14 years of age, over 30,000 have no more than an eighth-grade education; less than half as many have been to college.

Among the community's children in high school, 6 percent will drop out next year.

Of the 1,200 draftees screened last year for military duty, 450—nearly 40 percent—were rejected, a third of these because they are mentally and emotionally unfit.

Each year, within the community, over 2,000 serious crimes—an average of six per day—are handled by the police, including eight murders, 17 forcible rapes, 160 assaults, 376 auto thefts, and 908 burglaries. And, nearly 1,000 youngsters 10 to 17 years of age are brought before the juvenile courts annually.

The number of sleeping pills consumed in a year is enough to supply one each night for every man, woman, and child.

During the last 12 months, nearly 150 citizens in the community attempted suicide, and 20 succeeded; in the same period, nearly 800 persons were admitted to inpatient psychiatric facilities.

There are, then living in our average community 600 schizophrenics; tens of thousands suffering depression; nearly 4,000 alcoholics, 3,000 homosexuals, 50 narcotic addicts, and over 1,000 college students who have used marihuana or LSD; and, 400 mentally ill children—nearly 100 of them in mental hospitals. Before this year has ended, 2,000 citizens will be the victims of serious crimes, and 1,000 children will be marked as juvenile delinquents; 150 residents will attempt suicide; 225 illegitimate children will be born; over 600 students will drop out of high school; and 140 draftees will be rejected for military service because of mental or emotional disorders.

This is the profile of an average American community served by our efforts. The challenges posed by its citizens are real and pervasive.

How are we serving that community?

MAJOR MENTAL ILLNESSES

To start: What, for example, can its mentally ill patients and their families expect from their Government's efforts?

The conquest of the major mental illnesses—the most devastating among them, schizophrenia—remains a major objective of the NIMH program. More than half the beds in our country's mental hospitals continue to be occupied by those suffering from one or another form of schizophrenia, most of them between 15 and 45 years of age. The solution to this devastating problem—like the achievement of all our goals—requires the convergence of a number of interrelated activities: Creative research, the development of effective service programs, the provision of new and improved facilities, and the production of skilled manpower. All of these are necessary—in concert—if we are to launch meaningful control and prevention programs.

Biological research in schizophrenia continues to center around the possibility that at least some forms of the disease arise from an abnormality in the body's biochemical and neurological functions.

I might interpolate at this point to point out we have just had published the second volume of our mental health program reports, which I would like to make available to the committee. It summarizes much of our research in popular form. It is available to the general public as well as to professionals.

Mr. NATCHER. Thank you, Doctor.

One compound found in the urine of schizophrenic patients, for example, bears a close chemical resemblance to drugs which evoke psychotic experiences in normal people; and an abnormal protein factor isolated in the blood of schizophrenics has been used to differentiate accurately between twins, one of them schizophrenic and the other normal. Recent developments in computer technology have made possible more detailed explorations of the electrical activity of the brain; data are now, for example, beginning to suggest discernible differences in brain wave patterns between psychotics and normal individuals.

Scientists continue also to elaborate the role of environmental conditions in the genesis and course of schizophrenia—interpersonal relationships, or social conditions, or cultural factors. Unique patterns

of parental behavior and of communication among family members have been identified in the environment of the mentally ill, and long-range studies have exposed social and economic conditions as factors to be reckoned with. From painstaking studies of the relative incidence of schizophrenia in identical and fraternal twin populations, it would seem that hereditary factors play a weightier role in mental illness than we have heretofore suspected.

Ultimately the enigmas that surround the major mental illnesses will be solved—but, meanwhile, the patient and his family in our community confronted with schizophrenia, for example, pose one overriding question: Is there any effective treatment?

Just 15 years ago, psychiatry possessed no clearly useful drug treatment—either for schizophrenia or any other form of mental illness. Today, in large measure through the Institute's efforts, the treatment arsenal of the clinical psychiatrist is a powerful one. Collaborative hospital studies—widely hailed as models of clinical research—have helped define the relative value of specific drugs. Drugs have shortened the patient's hospital stay, and they have allowed treatment and rehabilitation in the community of an increasing number of the mentally ill without serious disruption of family relationships and work.

Our attention continues to be focused also on improving the conditions around those patients who reside in mental hospitals. In one hospital, for example, a family guidance program reduced the patient's average stay from a half-year to less than 1 month. In another, patients were moved to a newly renovated residential unit designed to simulate family living conditions, and a third of the patients responded with marked improvement—11 percent sufficiently to be discharged. Still another hospital introduced a comprehensive program of vocational rehabilitation for a group of 800 patients, most of whom had previously been hospitalized continuously for more than 2 years; 13 percent were discharged.

It is now 4 years since our hospital improvement and staff development programs were begun, and over a half of the 302 eligible hospitals have participated; virtually every State has received at least one grant—21 States for all of their eligible institutions. Improvements in therapeutic services have now reached a quarter of a million hospital patients, and 60,000 hospital staff members have been helped to translate existing knowledge into more effective service.

Such improvements of traditional facilities—important as they are—do not, however, define our ultimate goal. As the mentally ill patient is helped away from chronic hospitalization, we must insure that his community is ready to receive him. We must look for new and dynamic community facilities—and for the manpower to serve in them. The ready availability of a wide range of community-based diagnostic, treatment, aftercare and rehabilitation resources is likely to reduce considerably the personal, social, and economic cost of mental illness.

Our global approach in schizophrenia applies equally well to our attack on other conditions—on depression, for example, on psychosomatic problems and on the whole range of mental and emotional maladies.

The worth of such a unified program is evident from the shrinking mental hospital population: For 12 consecutive years the resident

mental hospital population has decreased. At the end of last year, resident patients numbered 426,000—a decline of 26,000, or 5.8 percent, from the end of 1966. There are today in our mental hospitals over 133,000 fewer patients than in 1955 when the downward trend began.

If the old pattern had continued uninterrupted, there would now be over 717,000 patients in our mental hospitals—291,000 more than is actually the case. This would have required vastly increased expenditures by the States for patient care, and for the construction of hospital beds. The savings represented here have allowed the States to use these funds for other essential State activities.

RESEARCH

Our conviction is that such steady advances could not have been realized without a varied research effort, ranging from the most basic laboratory studies to the evaluation of new prevention and treatment programs. The Institute's research today encompasses the increasingly wide spectrum of approaches and subject matter necessary to continue such advances and to attack an ever-expanding universe of mental health issues.

In the behavioral sciences, the Institute continues, as it has from its inception, to provide leadership, with studies exploring facets of human behavior shaped by biological, psychological, social, and cultural factors. Innovative methods arising from basic research are yielding dividends. For example, as a result of conditioned learning techniques developed with NIMH support in America's psychology laboratories, the so-called teaching machine has become a valued tool in retraining schizophrenics, in rehabilitating brain-injured patients, and in raising the intellectual level of the retarded. New techniques of electrical and chemical stimulation of the specific brain areas, for example, are enriching our knowledge of the way in which emotions are evoked by a particular segment of the brain—and how such behavior might be modified.

In the clinical area, we continue to survey the efficacy of various treatment programs. Investigators report encouraging results, for example, from the use of behavioral therapies with autistic children (i.e., schizophrenic children), and from family therapy and vocational counseling programs with disturbed adults. Of special importance is the use of epidemiologic studies as a vehicle for assessing program effectiveness. In one such effort, a substantial decline was observed in the incidence of chronic, severe disorders in a rural population—providing the first evaluation of the impact on a community of a community mental health center.

In clinical research also, new approaches offer promise. Sleep researchers, for example, have begun to identify what deteriorated sleep patterns look like, and when they portend a serious condition. It appears now that certain periods of sleep—our dream periods and stages of deep sleep—are severely diminished during the onset of mental illness, and that they are then made up as the patient recovers.

In the crucial area of applied research, the techniques of systems analysis are being applied to gage the relative cost and effectiveness of the delivery of mental health services. One experiment dealing with a variety of community treatment approaches for delinquents revealed

that rehabilitation in the community is twice as effective, at one half the cost, as traditional institutional treatment programs. A hospital study showed that when psychiatric aides are given appropriate responsibility for carying out treatment in a ward of chronic patients, the result is a sharply reduced readmission rate. And, for the first time in the United States, a complete cost analysis for a mental hospital has been obtained—one that will serve as a basis for more efficient and economical planning of services.

TRAINING

Our training programs, too, must capitalize on new and revolutionary approaches. No matter how successful our scientific efforts, how inventive our service programs, or how well designed and constructed our new facilities, the American community's mental health needs will not be served without an adequate supply of well-trained manpower.

The Institute's manpower efforts are directed not only toward developing clinical skills, but also toward preparing the mental health research personnel our country needs in the medical, biological, and social sciences. Another recent effort stresses the introduction of mental health training in a new setting—the community junior college—where students not previously engaged in mental health activities may be lured into the ranks of effective workers in the field.

SPECIAL PROGRAM AREAS

The advances in our various programs are gratifying—but we are aware that they remain empty unless, in some form, they ultimately reach our target: the citizen in his community who stands in need of mental health services. It is for this reason that we are focusing our activities increasingly at specific target groups, using all of the administrative mechanisms at our disposal.

Though only recently begun, the Institute's suicide prevention program has already made great strides. There are already over 60 suicide prevention programs in 21 States. A sharply increased number of projects are being supported in a variety of institutions to deal with special areas of suicide prevention: for physicians, nurses, and other community workers intended to increase their awareness of the risks of suicide and possible interventions; research programs designed to probe the personality dynamics of those who attempt suicide; and studies of suicide in high-risk populations—including adolescents and college students. Of special importance are our new programs initiated to provide a growing nucleus of professionals in the new field of suicidology, to be made up of those skilled in dealing with suicidal cases.

Our resources are being directed, too, at helping those in our community with problems related to alcohol use. Significant advances have occurred in professional and public acceptance of alcoholism as a disease rather than as a defect in moral character, and in altering the stance taken by the courts toward the alcoholic. University-based multidisciplinary research centers for the study of alcoholism problems have been initiated, and are growing at a rapid rate. In the clinical

area, investigators have shown that the general hospital can successfully meet the alcoholic's needs for help. Programs are underway to train medical students, physicians, behavioral and social scientists, and educators. And, in research, scientists are probing into crucial areas—for example, the basis of differences in ability to metabolize alcohol, and the role of physiological factors and stress in alcohol addiction.

The growing number of drug abusers must also command our attention. Preliminary reports from college surveys, for example, indicate that approximately 20 percent of college students have used marihuana one or more times, and that roughly 8 percent have used other hallucinogenic drugs; furthermore, the growing dependence on sleeping pills and stimulants poses an increasing threat. Researchers, using animal models, are clarifying effects of opiates on the central nervous system, and their investigations of physical dependence and tolerance are paving the way for productive clinical studies. Such studies are already underway, and they are measuring the effectiveness of methadone and cyclazocine maintenance, for example, in arresting the dependence on heroin. The Institute is also continuing its support of comprehensive treatment programs for opiate addicts—in part through the work of the Clinical Research Centers at Lexington and Fort Worth. As part of this effort, too, our researchers are alert to the potential utility of various drugs in the treatment of addiction—for example, naloxone, a promising narcotic antagonist.

Mental health problems of the poor are receiving special attention. Findings from studies in the Institute's laboratories show that the negative effects on attitude and behavior of poverty and cultural deprivation are even more devastating than we have suspected. The denial to the poor of full access to the fruits of our society is nowhere clearer than in the availability of mental health services—until recently the preserve only of those who could afford them.

Our efforts are now directed toward the goal of providing an appropriate distribution of mental health services, unrelated to economic status. Progress is being made in reaching the working-class client, for example, through the use of neighborhood and union facilities. In slum areas, counseling centers and emergency walk-in services have been established in abandoned stores or basements. In some poor neighborhoods, young indigenous workers now serve as a bridge between the professional and those in need of help; citizens have been successfully recruited and trained to work with professionals to provide a variety of important services.

SPECIAL POPULATIONS

These, then, are the approaches we have taken to the solution of some of the special problems faced by citizens in the community. We recognize, of course, the diversity of communities across the country—that programs suited to urban needs, for example, will not meet the requirements of rural populations.

In urban areas, the threat of mental illness rises with social ills—unemployment, discrimination, undereducation, inadequate housing. Furthermore, many of the public programs undertaken to alleviate the urban condition—for example, urban renewal, public housing, industrial decentralization—necessarily produce dislocation and stress,

for which the people most affected are often unprepared. The Institute is, therefore, directing special attention toward resolving mental health problems typically found among those living in metropolitan areas. A demonstration is being made, for example, of how the training of city planning personnel can be invested with mental health considerations; a study of the social and personal dynamics of homelessness is providing new insights into the care and rehabilitation of those without firm social roots; and, as one more example, special attention is being directed at the complex and expanding problems of mass violence—from basic research dealing with aggression, hostility, and conflict, to applied studies undertaken in cities, designed to provide concrete data regarding the dynamics and attitudes involved in social eruptions.

Rural America constitutes 30 percent of the total population, but it enjoys only a small fraction of our mental health resources. Only 10 percent of the country's outpatient clinics are located in rural counties, and only 7 percent of the 2,200 rural counties have general hospitals with inpatient psychiatric services. And, of 16,500 psychiatrists recently surveyed, only 500 were working in rural counties. The result of these glaring inadequacies is reflected in the fact that although a third of the population lives in rural counties, only 7 percent of the psychiatric discharges are from hospitals in these areas.

In meeting the challenge we acknowledge that there is presently available more knowledge than is being brought to bear on the rural problem, and that training more professionals will avail little unless we manage a better geographical distribution of services. In one rural area, a closed-circuit television system has been instituted between an isolated State hospital and an urban psychiatric institute; the medium will provide teaching and consultation to professional staffs, and contacts with relatives. In another area, we have demonstrated how plane travel can accomplish economies in the use of scarce personnel—some of them from outside the area; in still another, we have developed carefully engineered aftercare services for a rural population, thus reducing the number of hospital readmissions.

PREVENTION

Most of the efforts I have described emphasize therapeutic and ameliorative interventions. Important as these are, our ultimate goal must be the prevention of mental health problems.

A sizable segment of our research program, for example, continues to be devoted to the needs of children. Researchers have shown that the very early years—from age 1 to 3—are even more critical than we have thought in the child's intellectual and emotional development—that, for example, stimulation of the infant is essential if he is later to function successfully in the educational system and in society. Such work is not simply technical or theoretical: The purpose is to develop instruments for identifying and measuring deviations—to develop the means to avert or arrest the pathological process as the earliest possible stage.

The 1969 estimate includes $15 million for a new program of grants to demonstrate and evaluate various methods of improving early, healthy child development, to prevent mental illness and the tragic

emotional and intellectual disabilities stemming from cultural impoverishment. The goal of this program of preventive, preschool education is to develop effective and economical methods for fostering the intellectual development and the emotional well-being of the child. To determine what constitutes the most effective preschool intervention programs, compensation, systematic and centrally coordinated evaluation of the various approaches will be undertaken.

Equally important, the Institute's training program, in its efforts to broaden the manpower base, is providing mental health knowledge and methods to those who deal with troubled and disturbed people at the earliest stages of their difficulties—to the clergy, medical practitioners, judges, or school personnel. We consider, too, as an integral part of our prevention programs, the activities of the Institute in the information field. By bringing the latest information on mental health to both scientists and laymen, we are advancing the utilization of our efforts in prevention and control programs.

We reach out, too, as consultants to a variety of professional organizations and citizens groups in order to implant the benefits of our advances when and where they count most. In recent months, the staff of NIMH has served as consultants or in a staff capacity with a variety of governmentwide groups charged with the study of major problem areas in American society—among these groups the President's Commissions on Law Enforcement and the Administration of Justice, on Manpower Development and on Employment of the Handicapped; the Cooperative Commission on the Study of Alcoholism; and the National Advisory Commission on Civil Disorders.

Our aim is to participate in building the kind of society in which mental and emotional illness can develop only with difficulty—and in which all those in need can find in their own communities help of the highest quality. The task that remains is formidable, but we take pride in our successes to date, and inspiration from the importance of our activity.

In conclusion, Mr. Chairman, the request for mental health research and services is $278,831,000 for 1969 as compared with an operating level of $247,809,000 in 1968, an increase of $31,022,000. Of the requested increase $15,340,000 will be allocated for extramural research and training grants and $14,500,000 for the new program of early child care demonstration grants. The remaining $1,182,000 will be allocated for direct operations, principally for intramural research and administration of the new child care program mentioned above.

Now I would like to turn to the second appropriation, Mental Health Resource Support.

Mr. NATCHER. All right, Doctor. You go right ahead.

GENERAL STATEMENT, MENTAL HEALTH RESOURCE SUPPORT

Dr. YOLLES. Mr. Chairman and members of the committee, just a year ago, when I reported to you on the status of the Community Mental Health Centers program, I noted that 21 million Americans were the potential beneficiaries of the Centers projects then underway. That number has since doubled: Today, the country's growing network of Community Mental Health Centers is directed at improving mental health services available to 40 million Americans. Many of our citizens

are already utilizing these services—some of them in Centers completely new in their design and construction.

IMPACT OF PROGRAM

Since its inception only 5 years ago, the Community Mental Health Centers program has been the vehicle by which dramatic changes in both the delivery of mental health services and in the development of new professional and citizen attitudes toward the Nation's mental health problems have taken place. At the end of 1967, 265 Centers had received Federal support either for construction or staffing activities—or both.

I might point out that as of March 1 that number has increased to 271.

These Centers are located in 48 States, the District of Columbia, and Puerto Rico—in congested core cities, in sprawling suburbs, and in sparsely populated rural areas. Their services are becoming available in equal measure to all segments of the population—the aging and the youthful, the farmer and the factory worker, the welfare recipient and the fee-for-service patient.

The geographic and demographic breadth of the Centers' network is paralleled by the diversity of institutions participating in the program. More than 1,000 organizations—universities, social service agencies, clinics, community and State hospitals—have channeled their energies and resources into the development of the Centers now taking shape across the land. This remarkable pooling of public and private interests has assured the dynamic development of a once-neglected segment of health care for Americans.

DEVELOPMENT OF CENTERS

Many communities have elected to develop their Centers programs according to tailor-made timetables reflecting the evolution of resources within their particular areas. For example, 50 percent of the Centers have asked for construction funds only; 22 percent for both construction and staffing; and 28 percent for staffing funds alone. Indications are, however, that as their service programs unfold and grow, 9 out of 10 of the Centers now being supported only through construction grants will require staffing support, and that two-thirds of those with staffing grants alone will develop plans for construction. Our capacity to support communities in their alternative pathways to the development of Community Mental Health Centers is a major determinant of the continued success of the program.

As a growing number of Centers begin operation, it is increasingly apparent that we are succeeding in one of our major goals—that of modifying an outdated, rigid, and inequitable system for delivery of services into one that is flexible, accessible, and geared to the contemporary mental health needs of the American community.

The concept of local assessment and definition of requirements and priorities has been a dominant theme in the Centers program from its earliest planning phases—and it continues today. Planning and responsibility are visible, for example, in the way centers' staffs are

molding their programs to reflect the characteristics and problems of the specific populations to be served.

The enthusiastic acceptance by the American community of its responsibilities is nowhere better reflected than in the degree to which States, municipalities, public and private institutions, and citizens have met their share of the financial obligations required by the program. To date, 30 States have adopted Community Mental Health Service Acts, and many counties are using local tax funds to support mental health services. An analysis of expenditures for centers construction reveals that 53 percent of the funds have come from the applicants' own resources, 17 percent from the States, and 30 percent from the Federal Government. Similarly, estimates of centers' operating costs show a sharing of revenue sources: 35 percent by the Federal Government; 32 percent by the State; 8 percent by local or county sources; 13 percent by patient payments; 5 percent by private philanthropy; and 7 percent by third-party payments. The trend toward liberalization of psychiatric benefits provided by insurance programs will further contribute to the development of a sound, local fiscal base.

RANGE OF PROGRAMS

Pioneering Community Mental Health Centers programs reflect a determination to deal with today's social and environmental problems—problems associated, for example, with poverty, automation, overpopulation, the challenge of making our cities livable, and of injecting new energies and resources into our rural areas.

On the east coast, for example, Philadelphia's Temple University is developing a program for 200,000 residents of an area bearing the deep scars of poverty. Although basic service elements are to be located primarily in the area of the Temple Medical Center, the programs will have an impact extending well beyond the confines of the university; the center's consultation and education units, for example, are conducting intensive, in-service training programs for police, public health nurses, and poverty program representatives in 40 distinct neighborhood areas. Research activities—an integral part of the center's operation—have been designed to provide followup evaluation studies to identify strengths and weaknesses of the entire effort. The overall program illustrates how a community mental health program can enlist the power of a large medical center and channel its resources into both high quality services and the production of new, patient-centered knowledge.

The difficult terrain and environment of Appalachia dictate quite a different approach to the utilization of the very thin resources available in the area. In Pikesville, Ky., the Methodist Hospital has used staffing and construction funds for the development of a center encompassing four counties—among them two of the poorest counties in the United States. To supplement the more intensive treatment available, three scattered general hospitals supply emergency and short-term hospitalization services; each hospital uses a direct telephone line—manned 24 hours a day by professional consultants—to a branch of the center. In addition, two groups of professionals make weekly visits to outlying areas and to preenlisted, strategically located service teams—including a social worker, psychiatric nurse,

and local physician. So-called family houses—staffed by volunteers and only a phone call away from more skilled help—will serve as rehabilitation centers for county residents heretofore placed in the alien environment of a State hospital.

As one more example, the Golden State Community Mental Health Center in Los Angeles County serves 165,000 citizens in four contiguous but very different communities—communities embracing rural and urban living styles, the affluent and the impoverished, and including both Mexican-American and Negro populations. This center, which has enlisted active support from all mental health related organizations within its service area, had its origins in a child guidance clinic; today, its affiliates include a county hospital, a private hospital, two health department clinics, and a number of voluntary aftercare and rehabilitation services. This remarkable fusion of resources will now be augmented by the establishment of a community college where school dropouts, among others, will be trained in health and welfare service skills.

These examples illustrate the breadth of approach taken in the organization of centers programs. No less varied are the specific mental health problems presented by those in need of help. Centers staffs are beginning to provide increasingly specialized services. More than half of the centers funded to date are developing or expanding special programs to deal with specific community mental health problems involving, for example, children and adolescents, the aging, alcoholics, drug abusers, or suicide risks.

RELATED PROGRAMS

The Community Mental Health Centers program in the NIMH does not stand alone; it is one component of a larger effort. Indeed, the program has served as a spur to our own total effort, stimulating work in a number of areas. Medical and other mental health related graduate schools, for examples, are reorganizing their curriculums to prepare students for more productive community roles. The successful use of nonpofessional and neighborhood workers has resulted in the growth of community college and agency mental health training programs. Research units have instituted long-range epidemiological studies to help evaluate program benefits, and automated data facilities are being designed to standardize clinical and statistical information, thereby opening up possibilties for much-needed interstate research programs.

I am pleased to report that the fundamental purpose of the centers program continues to be realized—the establishment of high-quality mental health services, available within the boundaries of the individual's community. But our mission cannot be fully realized until every citizen enjoys the benefits of our efforts. The centers program was originated to serve as a first line of defense against mental illness and as a vehicle for developing comprehensive community treatment programs. This was the basic promise made to the Nation—a promise that must be fulfilled.

NARCOTIC ADDICT REHABILITATION

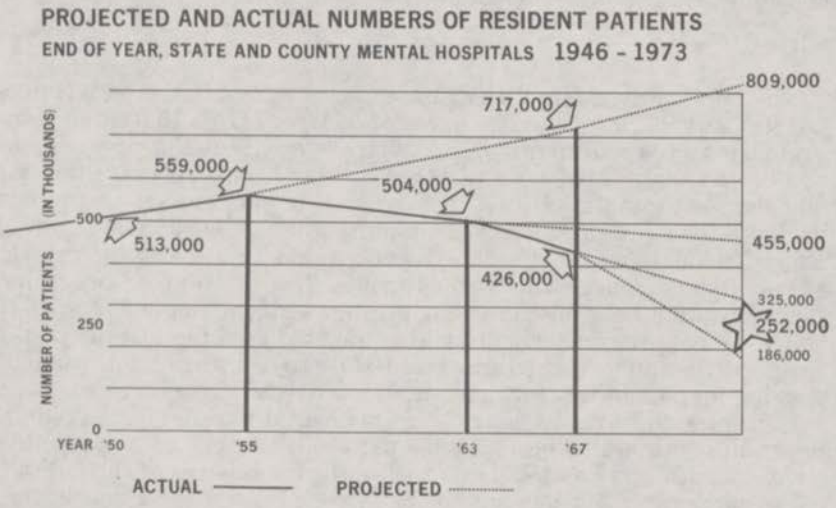
Implementation of the programs authorized by title IV of the Narcotic Addict Rehabilitation Act of 1966 has begun. Funds first became

available for this program in 1968. Major emphasis is being given to the development of model community-based comprehensive treatment programs for narcotic addicts. Four or five such programs will receive grant support this year. These community-based programs are urgently needed to provide comprehensive treatment for addicts in their local communities.

The 1969 request for $8 million for narcotic addict rehabilitation programs will be used to continue the four or five centers established in 1968 and extend support to an additional four to five community-based programs. We will also support continued specialized training for multidisciplinary professional and paraprofessional personnel, including in-service training and research utilization conferences, to provide some of the personnel the new community-based narcotic addict rehabilitation programs require. Grants will be made for epidemiologic and evaluation studies directed toward careful, objective evaluation of the treatment and rehabilitation programs.

In conclusion, Mr. Chairman, the request for Community Mental Health Resource Support, in terms of total obligational authority, is $132,300,000 for 1969. This is an increase of $31,752,181 over 1968. Of the increase requested, $27,752,181 will be allocated for construction and staffing of community mental health centers and $4,000,000 for construction and operation of narcotic addict rehabilitation facilities.

Mr. Chairman, if you will allow me, I would like to review briefly some charts on these programs.



STATUS OF RESIDENT PATIENTS IN MENTAL HOSPITALS

Dr. YOLLES. Mr. Chairman, I would like to start by reviewing the status of resident patients in mental hospitals at the end of the year. Each year we do this and report on the reduction in numbers. As you will recall from previous years, in the 10-year period preceding 1955 there was a straight line increase in the number of resident patients in mental hospitals at the end of each year. This number rose to 559,000 in 1955, at which time there was a change in the trend with the introduction of the psychoactive drugs and the new approach to the care of the menatlly ill. This resulted in a downward trend so that at the end of this last calendar year we had 426,000 resident patients in mental hos-

pitals, a reduction of about 133,000 when compared with last year. If that pre-1955 trend had continued as it had for 10 years, and perhaps more than that, we would presently have 717,000 resident patients in mental hospitals in the United States.

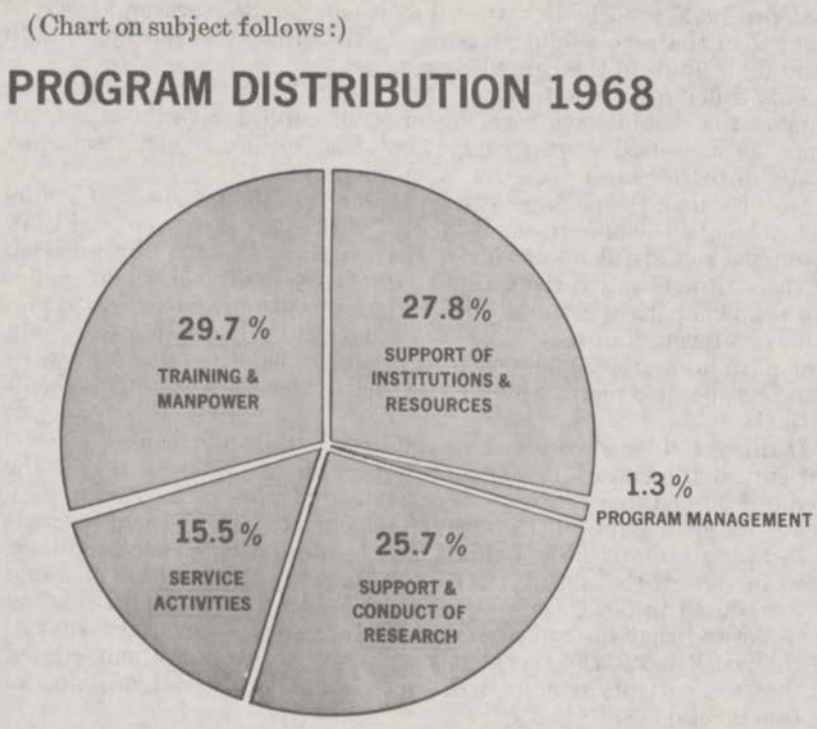
This difference between the number actually in hospitals and the number that could have been, in terms of capital investment, represents, as measured a year ago, about $4.5 million which remained available to the States to use for other purposes.

In 1963, with the passage of the Community Mental Health Centers Act, we had 504,000 patients at the end of the year. We predicted that, given the successful operation of the program and the continuation of the attitude toward the mentally ill then present, we would reduce the resident patient population by roughly 50 percent by 1973, and achieve a target figure of 255,000. At that rate of reduction we would now have been at 455,000 patients, but since that time the downward trend has become more rapid and presently there are 426,000 resident patients.

If this trend between 1963 and 1967 continues, we will have 325,000 patients at the end of 1973, about 89 percent of our goal. But if the trend of accelerated decrease in patients continues each year, we can revise our goal, and by 1973 we will have only 186,000 resident patients in mental hospitals. This, I think, will be quite a remarkable achievement in view of the continuing upward trend until 1955, which would have resulted in 809,000 patients by 1973. Concomitant with that we have noticed that instead of repeated admissions to mental hospitals in the last 2 years, the repeated admissions are to outpatient clinics, so that the patients remain with their families rather than going to distant mental hospitals.

PROGRAM DISTRIBUTION 1968

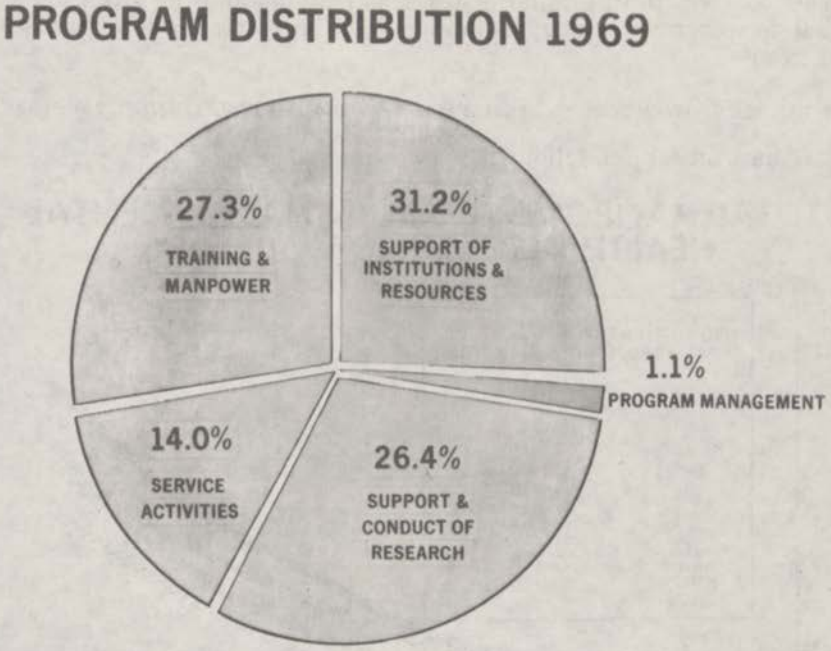
(Chart on subject follows:)



Dr. YOLLES. This chart demonstrates the program distribution in 1968 to show our major interests, with the program almost evenly divided between training and manpower, support of institutions and resources, and the conduct of research.

PROGRAM DISTRIBUTION 1969

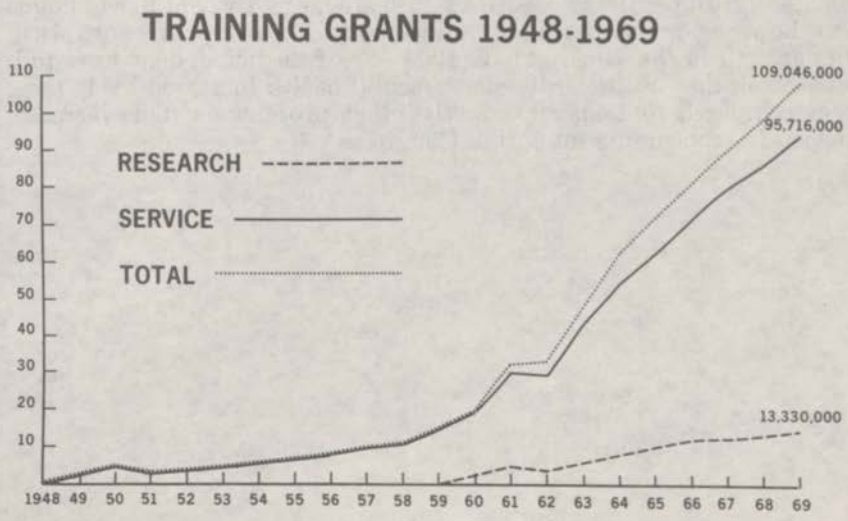
(Chart on subject follows:)



Dr. YOLLES. This chart shows the distribution for 1969, again almost evenly distributed between research, support of institutions and resources, and the training of manpower.

TRAINING GRANTS 1948–1969

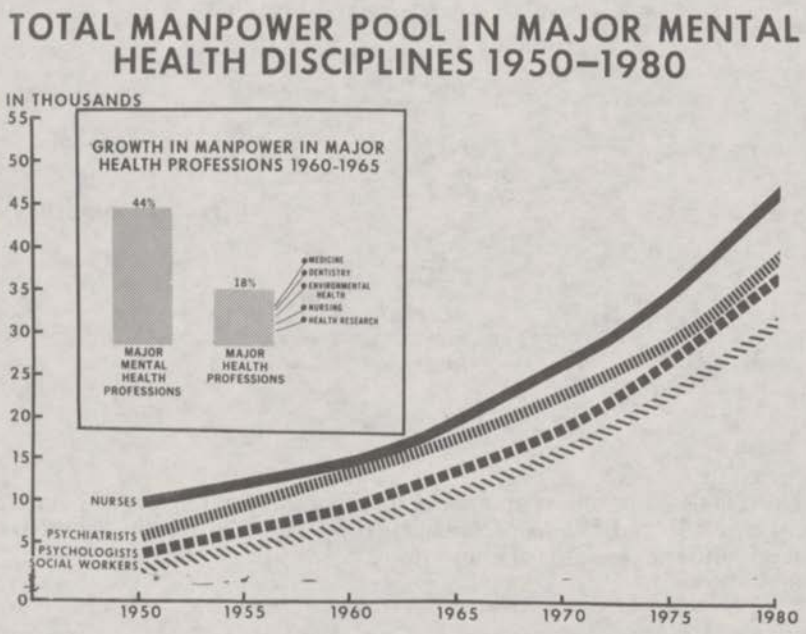
(Chart on subject follows:)



Dr. YOLLES. This chart represents the growth in training grants related to the preparation for the community mental health centers and improving our supply of mental health manpower. This line represents the growth of grants for research training and the green line is that for service training; the orange line represents the total number of grants.

TOTAL MANPOWER POOL IN MAJOR MENTAL HEALTH DISCIPLINES 1950–1980

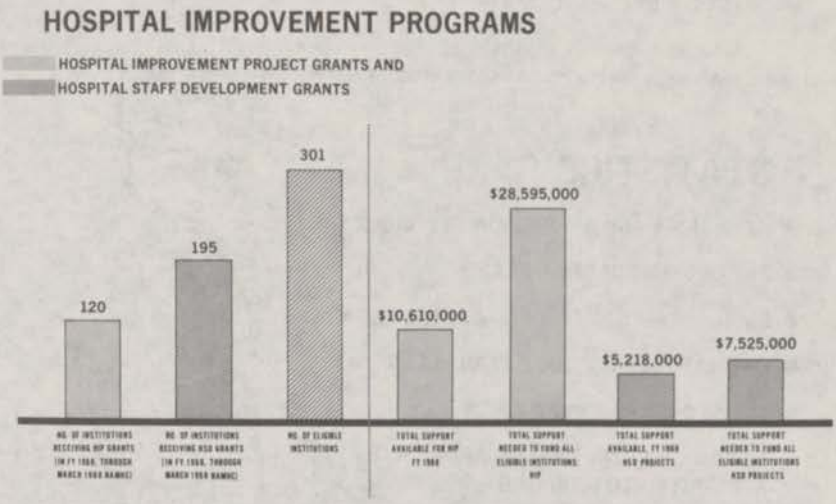
(Chart on subject follows:)



Dr. YOLLES. I present this chart to indicate that the numbers of mental health personnel needed by 1980 are large. I would like to point out, however, in comparing the major mental health professions with the growth in the same period (1960–65) of medicine, dentistry, and the three other health professions, mental health increased by 44 percent compared to 18 percent in the other professions. This increase reflects the continuing support of Congress.

HOSPITAL IMPROVEMENT PROGRAMS

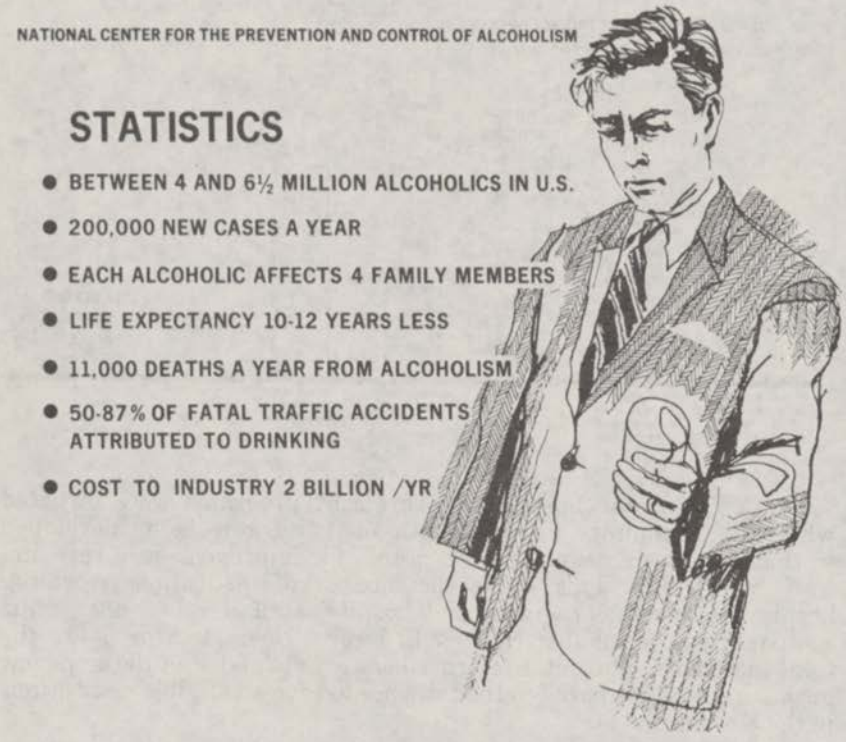
(Chart on subject follows:)



Dr. YOLLES. Our hospital improvement programs were initiated while the community mental health facilities were being developed so that there were demonstration grants for improvement of care and staff functioning. This shows the number of institutions receiving hospital improvement grants and hospital staff development grants compared to the number that could receive them. It also shows the total received for hospital improvement grants and staff development grants in 1968, compared to the total needed for all eligible institutions in the United States.

NATIONAL CENTER FOR THE PREVENTION AND CONTROL OF ALCOHOLISM
STATISTICS

(Chart on subject follows:)



Dr. YOLLES. Now I would like very briefly to report on the achievements of three centers which we inaugurated, beginning with a report on the National Center for Prevention and Control of Alcoholism.

The statistics show there are between 4 and 6.5 million alcoholics in the United States. There are 200,000 new case each year.

Mr. FLOOD. This chart depicts a male, but I take it it represents both sexes?

Dr. YOLLES. Yes, sir.

ALCOHOLISM

Mr. FLOOD. Have you heard it said that there is a surprisingly large percentage of females in recent years who have become afflicted with this?

Dr. YOLLES. There is an increasing number of females. Alcoholism used to be largely a phenomenon of males, the ratio for a long time was about 4½ men to 1 woman.

Mr. FLOOD. I understand the females are generally married and perhaps middle aged.

Dr. YOLLES. Again, you are quite right. It is believed to relate to a phenomen variously called mild depression or "unhappiness" of women in their middle years whose children have grown up or are away at school and who have no other interest in life and take to drinking.

Mr. FLOOD. And is it so this generally occurs in the so-called suburban areas?

Dr. YOLLES. It is a middle-class phenomenon at the present time. Most female drinkers used to be in the lower economic classes and now they are found in the middle and upper classes. It is estimated that each alcoholic affects four family members in some way.

Mr. FLOOD. It is expensive, too.

Dr. YOLLES. Alcoholics have a life expectancy of 10 to 12 years less than the average. There are about 11,000 deaths a year from alcoholism.

Mr. FLOOD. Why would their life expectancy be affected?

Dr. YOLLES. Because alcoholics seem to be subject to more accidents and intervening illnesses, as well as the largest cause being cirrhosis of the liver.

Mr. FLOOD. I have heard it said—and I understand this is debatable—that cirrhosis of the liver is not actually caused by alcohol. It is rather the failure of the alcoholic to have a proper intake of food that causes cirrhosis of the liver. What do you think?

Dr. YOLLES. I think both factors are involved, as do most observers. As you pointed out, there is still considerable debate. Alcoholic bouts do have an effect on the liver causing swelling and inflammation. It is equally true that chronic alcoholics lack certain nutrients and chemical substances. There may be no one single cause. We may find that alcoholic cirrhosis, as it is called, may not occur without both phenomena being present at the same time.

Mr. FLOOD. I had a very distinguished doctor in a very distinguished institution in this city talk to me about that. I raised the question and, unknown to me, he had been conducting extensive research on it on his own for some time. He pointed out to me another side of the argument. He said he had made a statistical survey in France. There, of course, there is heavy alcoholic consumption among lower middle class males. He found that while the consumption of alcohol was very high it was accompanied by a high intake of food, and nevertheless the incidents of cirrhosis was extremely high.

Dr. YOLLES. In the last few years the French have reported increased rates of alcoholism and cirrhosis.

It is difficult to explain all the phenomena as yet.

The primary goals of the Center are the prevention of alcoholism; giving professional assistance to States and localities; and increasing alcohol education. The Center has published a pamphlet, "Alcohol and Alcoholism"; 50,000 of copies of this pamphlet have been distributed.

Mr. FLOOD. Distributed to whom?

Dr. YOLLES. To the schools, to the public, and to professional health workers.

Mr. FLOOD. Is alcoholism in the United States due to drinking whisky? Do people who just drink beer become alcoholics?

Dr. YOLLES. They can. Some people who become alcoholics do it on beer or wine. However most alcoholics use hard liquors.

DISCRIMINATION AGAINST ALCOHOLICS IN HOSPITALS

The fourth goal of the Center is to raise the standards of hospitals to take care of the alcoholics. Hospitals have discriminated against alcoholics and some of the medical insurance plans are reluctant to insure people treated for alcoholism.

Mr. FLOOD. I have the impression the Veterans' Administration either cannot or will not take in alcoholics. Are you aware of that?

Dr. YOLLES. I am not aware of any rule like that.

Dr. KIEFFER. We do have alcoholics who are Veterans' Administration patients admitted as psychiatric problems to the Fort Worth hospital.

Mr. FLOOD. I understand in the courts alcoholism is being treated as an illness rather than a crime.

Dr. YOLLES. Yes, sir; to an increasing extent. I think this is so in the District of Columbia, Maryland, Virginia, the Carolinas, and West Virginia.

Mr. FLOOD. What do you think?

Dr. YOLLES. We in the medical profession have been campaigning for many years to have alcoholism treated as a disease.

Mr. FLOOD. As a disease?

Dr. YOLLES. Yes, sir.

Mr. FLOOD. It happens the disease is psychiatric?

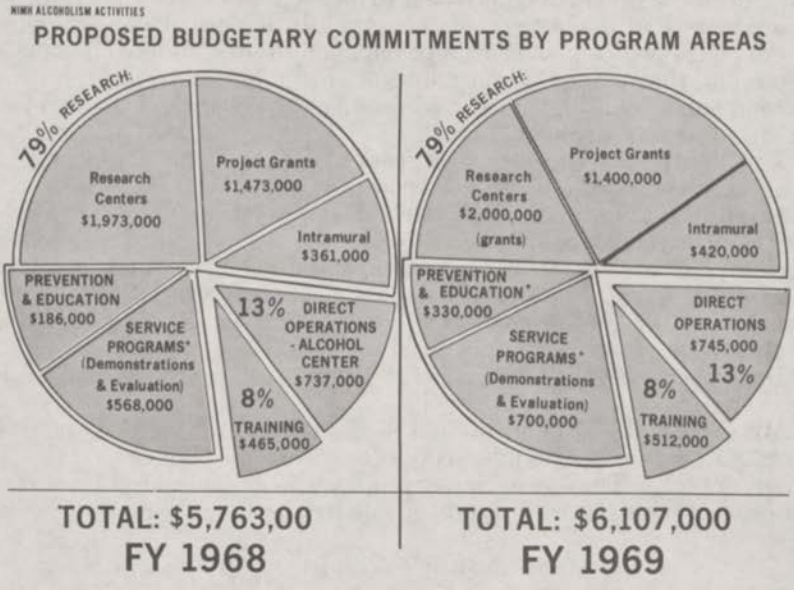
Dr. YOLLES. Yes, and as such they should be treated as patients. At times they are not very nice patients.

Mr. FLOOD. That could apply to any psychiatric patients?

Mr. YOLLES. Some are more unpleasant than others. Consequently, even psychiatric hospitals have discriminated against alcoholics.

NIMH ALCOHOLISM ACTIVITIES: PREPARED BUDGETARY COMMITMENTS BY PROGRAM AREAS

(Chart on subject follows:)



Dr. YOLLES. This chart shows the proposed budgetary commitments for 1969 by program areas in the field of alcoholism, with 79 percent going to research because we do need to know more of the basic facts about alcoholism. How does alcohol work in the body? How does a person become an alcoholic? What are the effects on the tissues?

DEFINITION OF ALCOHOLIC

Mr. SHRIVER. What do you mean by an alcoholic?

Dr. YOLLES. An individual who cannot control his intake of alcohol.

Mr. SHRIVER. People differ on this, of course. What would be the normal definition?

Dr. YOLLES. I think the simplest answer, and the one accepted by most people working in the field, is that an alcoholic is one who cannot control his intake of alcohol. Whether this is due to a psychological change or to a physiological change in the body which makes it mandatory for the body to have it. But it is true an alcoholic has no control over his intake. This is in distinction to the individual who may be a periodic drinker and drinks heavily for a while and then stops, or one who has two or three martinis at lunchtime.

Mr. FLOOD. What about people who have two or three martinis for lunch every day and go back to their office and do a day's work? What kind of a drinker is that?

Dr. YOLLES. He may be a heavy drinker. The person is not intoxicated; he has developed an increased tolerance.

Mr. FLOOD. The French take about 3 hours for lunch. The Americans don't take that long, but some of them are taking 2 or 2½ hours.

Dr. YOLLES. But some of these fellows go on to become alcoholics.

Mr. FLOOD. These are young men.

Dr. YOLLES. Yes, young men. Some go on to become alcoholics and some do not. Some change their habits, reduce their intake, and never become alcoholics. This is one of the things we are researching, why it is that one individual who drinks a lot becomes an alcoholic and others do not.

Mr. FLOOD. Mr. Shriver, did you get your answer?

Mr. SHRIVER. You used the figure of 6.5 million alcoholics, and I wondered what was included in your definition of an alcoholic. Some doctors may be alcoholics?

Dr. YOLLES. Yes, and they can't stop.

Mr. FLOOD. Do they know that?

Dr. YOLLES. Yes, they do. One of the early signs of alcoholism is early morning drinking.

Mr. SHRIVER. When they want one in the morning?

Dr. YOLLES. Yes.

Mr. SHRIVER. Where do you get the 6.5-million figure?

Dr. YOLLES. The figure comes from surveys and estimates by organizations that work in the field of alcoholism.

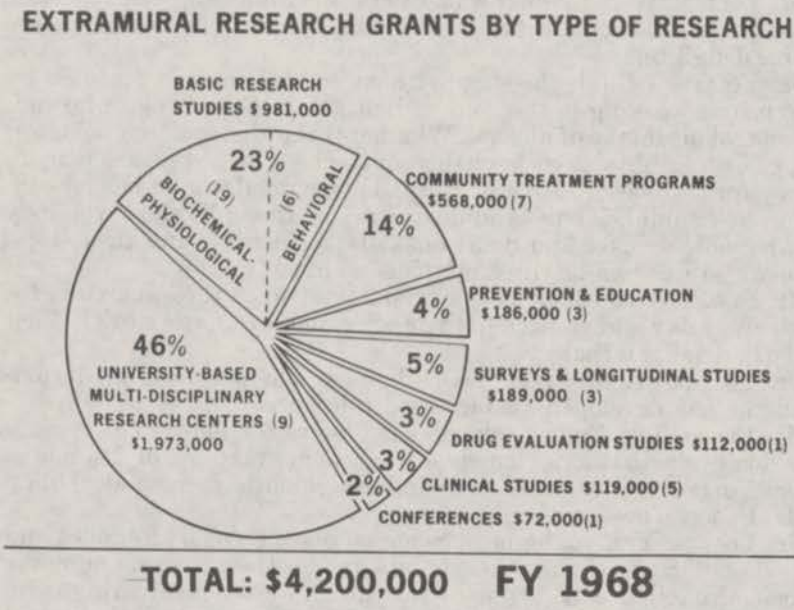
Mr. SHRIVER. And it is based on the definition of uncontrolled drinking?

Dr. YOLLES. Yes.

You will note the greatest percentage of our budgetary funds is in the area of research, with service programs taking about 20 percent and training and prevention and education being funded at a level of $330,000.

EXTRAMURAL RESEARCH GRANTS BY TYPE OF RESEARCH (ALCOHOLISM)

(Chart on subject follows:)



Dr. YOLLES. This chart merely represents the kinds of research being supported. The community treatment programs experiment with various types of treatment to find the best treatment. There is research in prevention, and longitudinal studies to follow the history of an alcoholic.

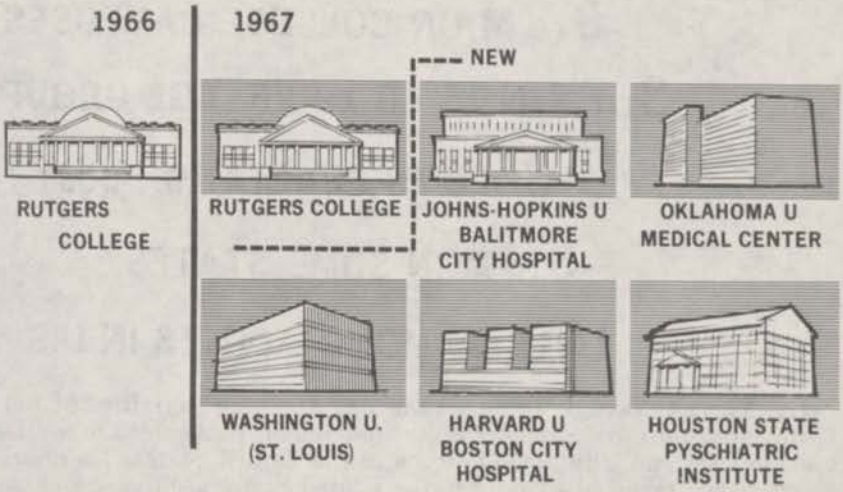
There are drug evaluation studies, clinical studies, and conferences.

ESTABLISHMENT OF INTERDISCIPLINARY, UNIVERSITY-BASED RESEARCH AND TRAINING CENTERS

(Chart on subject follows:)

NATIONAL CENTER FOR THE PREVENTION AND CONTROL OF ALCOHOLISM

ESTABLISHMENT OF INTERDISCIPLINARY UNIVERSITY-BASED RESEARCH AND TRAINING CENTERS.



Dr. YOLLES. During 1967, five new multidisciplinary, university-based centers on alcoholism were established. For many years only Rutgers University did research in this field and we felt more research was needed and hence the support of these new centers.

Mr. FLOOD. These centers are not devoted exclusively to alcoholism, are they? I notice the Houston Psychiatric Institute.

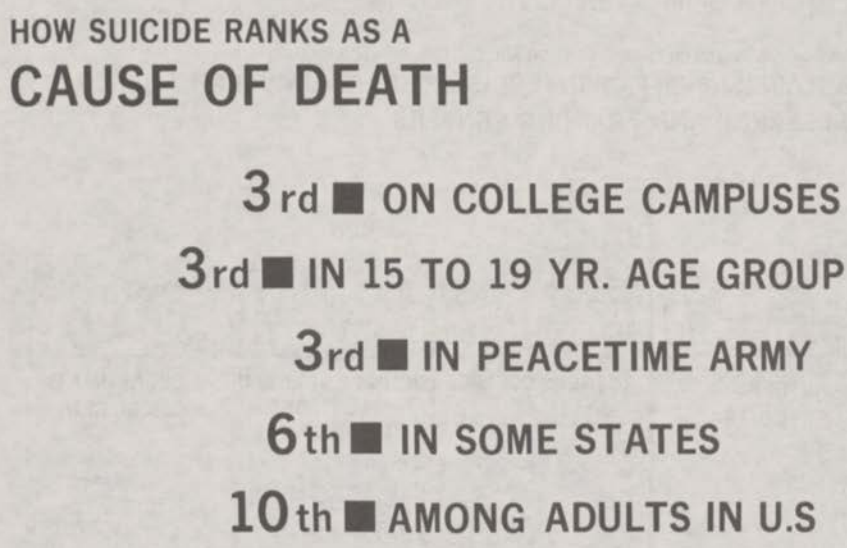
Dr. YOLLES. In the Houston Psychiatric Institute they have established a center on alcoholism.

Mr. FLOOD. This is true of the other institutions on your chart?

Dr. YOLLES. Yes; all of them.

HOW SUICIDE RANKS AS A CAUSE OF DEATH

(Chart on subject follows:)



Dr. YOLLES. Next, I would like to describe some activities of our Center for Studies of Suicide Prevention. Suicide ranks third in deaths on campuses and 10th among adults in the United States. There are about 20,000 reported suicides in the United States each year and, as you know, most suicides are not properly recorded or reported. We estimate there may be three to five times the number reported.

Mr. FLOOD. Why wouldn't they be reported?

Dr. YOLLES. Because of the stigma.

Mr. FLOOD. The family does not want to report it and the doctor goes along with them?

Dr. YOLLES. Yes. It might be reported as an accidental death while cleaning a gun.

Mr. FLOOD. Is that high? Is that alarming?

Dr. YOLLES. There are more suicides in some of the Scandinavian countries than in the United States. In the United States the number of suicides increases as you go west.

Mr. FLOOD. I understand the consumption of alcohol in Scandinavia is very high.

Dr. YOLLES. It is high; yes.

Mr. FLOOD. Hard liquor?

Dr. YOLLES. Yes. There is not adequate reporting of suicides, but we know the rate increases as you go west and that California and the Western States have a higher rate than on the east coast. As a matter of fact, suicides are higher among males generally, but on the west coast slightly more females than males commit suicide.

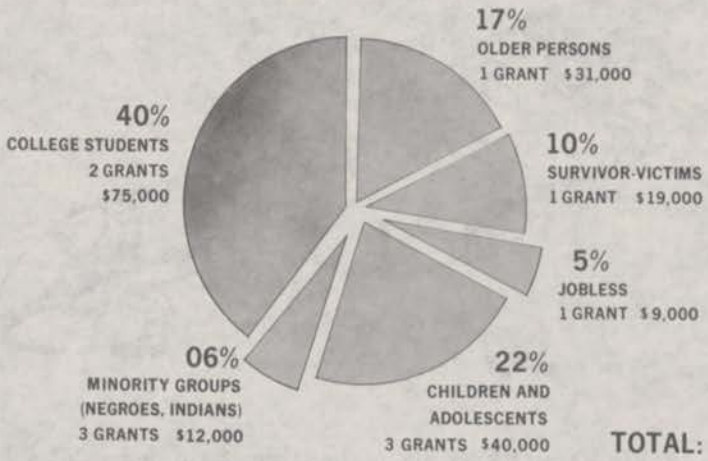
SUICIDE AND SPECIAL HIGH RISK POPULATIONS

(Chart on subject follows:)

NIMH CENTER FOR STUDIES OF SUICIDE PREVENTION

SUICIDE AND SPECIAL HIGH RISK POPULATIONS

F.Y. 1967-1968 FUNDS (GRANTS AND CONTRACTS)



TOTAL: $186,000

Dr. YOLLES. We try to direct some of these efforts at the high-risk populations and we have studies of college students that we know are a high-risk group.

Mr. FLOOD. Will you give us two reasons why the incidence among college students is so high, if you know?

Dr. YOLLES. I wish I knew. This is one of the things we are studying. Often it occurs as small epidemics. It starts with one or two and soon you have a small epidemic of 12 or 15 suicides on a campus. This is one of the things we are investigating now.

In addition we are looking at some of the minority groups. There is a high suicide rate among young Indians, and one of our staff has been doing special research in this area.

Mr. FLOOD. Does the economic factor produce a depressive influence on young Indians?

Dr. YOLLES. There seem to be a number of factors. One is lack of family life. Another related factor seems to be long absences while away at school. There are many factors.

(Chart on subject follows:)

THE STIGMATIZING EFFECT OF SUICIDE



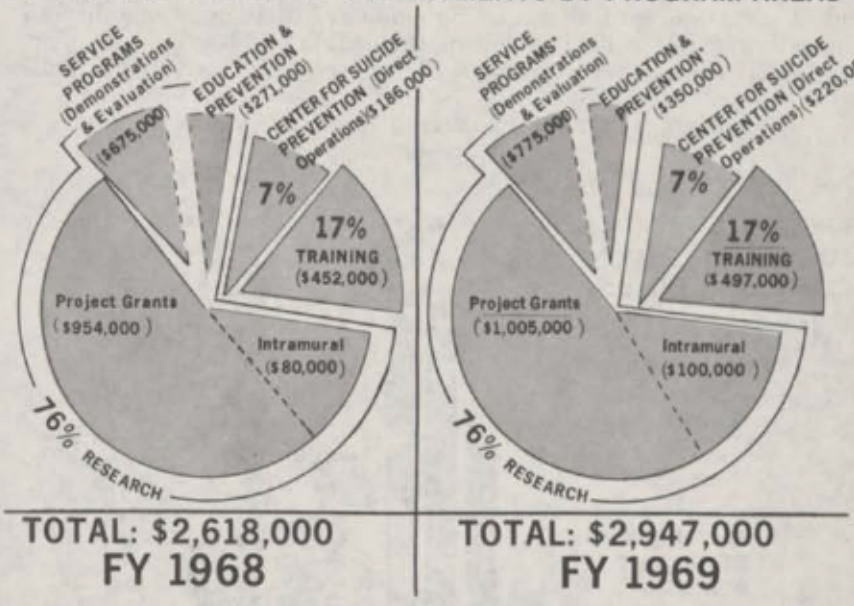
Dr. YOLLES. We were talking about the stigmatizing effect of suicides on friends, families, and relatives. One of the sayings in the field is that the suicide "leaves his psychological skeleton in the survivors' closet," because when he dies he leaves a legacy of shame and guilt in the family and with friends and relatives.

PROPOSED BUDGETARY COMMITMENTS BY PROGRAM AREAS, A 10-POINT PROGRAM

(Charts on subject follow:)

NIMH SUICIDE PREVENTION ACTIVITIES

PROPOSED BUDGETARY COMMITMENTS BY PROGRAM AREAS



NIMH CENTER FOR STUDIES OF SUICIDE PREVENTION

A TEN POINT PROGRAM

PREVENTION

1. REDEFINITION AND REFINEMENT OF STATISTICS RELATING TO SUICIDE.
2. EDUCATION FOR THE "GATE-KEEPERS" ESPECIALLY PHYSICIANS.
3. PROGRAMS IN MASSIVE PUBLIC EDUCATION.
4. DEVELOPMENT OF A CADRE OF TRAINED PROFESSIONALS.

INTERVENTION

5. SELECTIVE RESEARCH GRANTS RELATING TO SUICIDAL CHARACTERISTICS, TREATMENT PROCEDURES, etc.
6. STUDIES OF SPECIAL GROUPS (CHILDREN, AGED, etc.)
7. SELECTION AND TRAINING OF VOLUNTEERS.

POST-VENTION

8. FOLLOW-UP OF SUICIDE ATTEMPTERS.
9. FOLLOW-UP PROGRAMS FOR FAMILY MEMBERS.
10. EVALUATION OF EFFECTIVENESS OF SUICIDE PREVENTION ACTIVITIES.

Dr. YOLLES. We are particularly interested in following the families of suicides to see how many become suicides and how many become mentally ill. The Center for Suicide Prevention has a 10-point program involving prevention, intervention, and postvention.

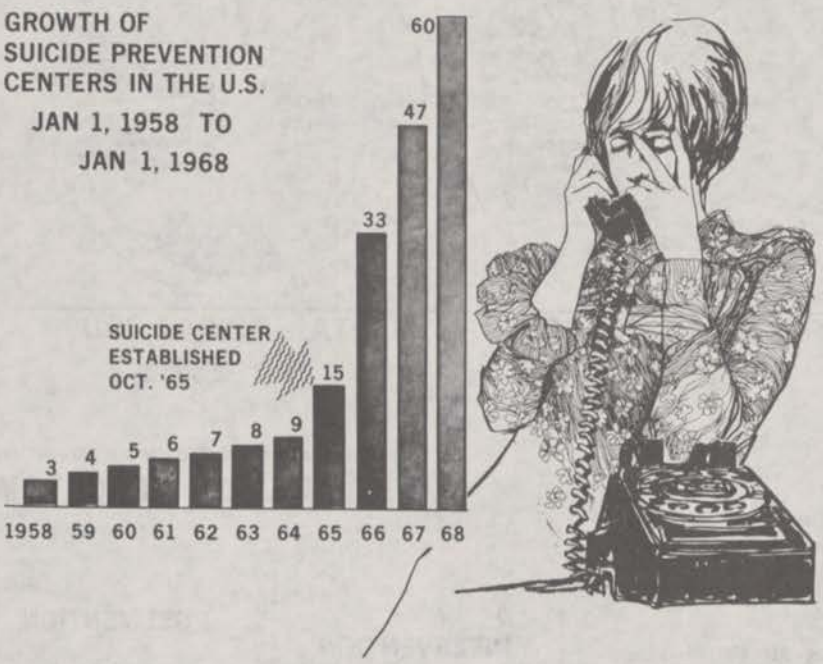
Mr. FLOOD. Postvention? What kind of gobbledygook is that?

Dr. YOLLES. That is a fancy name for followup.

We have published as one of the documents of the Center for Suicide Prevention, a "Bulletin of Suicidology," that pulls together all the activities in the field of suicide prevention and has been circulating widely throughout the country. This Center was activated in 1965.

GROWTH OF SUICIDE PREVENTION CENTERS IN THE U.S.

(Chart on subject follows:)



Dr. YOLLES. This shows the number of suicide prevention centers in the United States leading up to this.

Mr. FLOOD. What is a suicide prevention center?

Dr. YOLLES. It is a facility devoted to intervening to prevent suicides.

Mr. FLOOD. Is this similar to the Alcoholics Anonymous Centers?

Dr. YOLLES. In part. Some have special telephone numbers to call.

Mr. FLOOD. Have these people at these centers at some time tried to commit suicide?

Dr. YOLLES. No; not necessarily, though they may have a personal interest. There has been a rather remarkable growth in the number of centers in the past few years.

Mr. FLOOD. What do they do?

Dr. YOLLES. They intervene to prevent the individual from commiting suicide. They may send staff to stay with him. They may urge him to go into treatment.

Mr. FLOOD. You show on the chart a female speaking on the telephone. What is that?

Dr. YOLLES. This is the best known prevention device and it stems from the telephone prevention service first started in Los Angeles. If you are depressed and are contemplating suicide, there is a special number to call.

Mr. FLOOD. Where would you get the number?

Dr. YOLLES. It is published in all the newspapers and is listed in most directories. One of the facts we do know is that no individual who intends to commit suicide intends to do it wholeheartedly. He wishes to commit suicide and at the same time he wishes to be prevented from commiting suicide. Scientists have found that almost every one of these individuals has given a covert message to someone around him, whether a relative or a professional, asking to be prevented from doing this. This "cry for help" is one of the things we are trying to use to prevent suicides. We are trying to educate professionals who come in contact with such people—lawyers, clergy, doctors, et cetera—to teach them the various ways this cry for help is enunciated.

The telephone answering service was first made available in Los Angeles. People called, and the center sent investigators out to talk to the individuals wherever they could.

ACCOMPLISHMENTS IN THE FIRST YEAR

(Chart on subject follows:)

NIMH CENTER FOR STUDIES OF SUICIDE PREVENTION

ACCOMPLISHMENTS IN THE FIRST YEAR

- GROWTH IN NUMBERS OF SUICIDE PREVENTION CENTERS.
- ESTABLISHMENT OF AN INTERDISCIPLINARY UNIVERSITY-BASED RESEARCH AND TRAINING CENTER.
- CREATION OF A BULLETIN OF SUICIDOLOGY AND PUBLIC SERVICE PAMPHLETS ON SUICIDE PREVENTION.
- CREATION OF A NEW PROFESSION; SUICIDOLOGY.

Dr. YOLLES. Among the accomplishments of the Center in the first year have been: The establishment of a university-based training center at Johns Hopkins; the publication of pamphlets and other literature on how to prevent suicide; the making of recordings of individuals who contemplate attempting suicide for dissemination to professionals for educational purposes; and finally, the publication of the new Bulletin of Suiciodology, a quarterly journal.

CENTER FOR STUDIES OF NARCOTIC AND DRUG ABUSE GOALS

(Chart on subject follows:)

CENTER FOR STUDIES OF NARCOTIC AND DRUG ABUSE

GOALS

- CONTINUED RESEARCH ON ABUSE OF NEW AND DANGEROUS DRUGS.
- PREVENTION OF DANGEROUS DRUG ABUSE THROUGH EDUCATION IN SCHOOLS AND EDUCATION OF DOCTORS AND OTHERS.
- TO DEVELOP MODELS OF TREATMENT INTERVENTION :
  - a. FOR MULTIPLE DRUG USE
  - b. VARIOUS TYPOLOGIES OF DRUG USERS
- TO DEVELOP THESE MODELS OF TREATMENT WITHIN THE MEDICAL NETWORK IN ORDER TO AVOID DEVELOPMENT OF ISOLATED TREATMENT PROGRAMS.
- ABANDON SIMPLE INCARCERATION AS A METHOD OF TREATMENT.

Mr. FLOOD. Is there any relationship between the alcoholic and the person addicted to drugs?

Dr. YOLLES. It is difficult to give an absolute answer. If I were to generalize, I would say they rarely occur together. But we know that many morphine users have started using morphine to recover from an alcoholic episode. Usually when they become addicted to narcotics, they no longer use alcohol.

Mr. FLOOD. Did I understand you to say that some people who have become addicted to drugs started taking the drugs to get over a hangover?

Dr. YOLLES. Yes. That is especially true of physicians who have been imbibing heavily.

Mr. FLOOD. That is because they have access to it, proximity.

Dr. YOLLES. Some of these individuals have come to physicians talking about their nervousness after an alcoholic episode and the physician has given them a shot of morphine or other narcotic as a sedative.

Mr. FLOOD. A shot of morphine?

Dr. YOLLES. That is not so common today, but it used to be fairly common.

Mr. FLOOD. Do you include in narcotics the so-called pep pills?

Dr. YOLLES. The amphetamines? No, we talk about them under the heading of drug abuse. At the Center for Studies of Narcotic and Drug Abuse we are interested in learning how to intervene in drug addiction, to relieve addiction.

Mr. FLOOD. You say alcoholism is a disease. Is addiction to narcotics a disease?

Dr. YOLLES. Yes. We in the medical profession believe it is.

Mr. FLOOD. Do you think the courts would so look at it?

Dr. YOLLES. Yes. The passage of the Narcotic Addict Rehabilitation Act of 1966 made reference to the fact narcotic addiction should be treated as a disease and it provides for the civil commitment of addicts to the care of the Surgeon General or to the Attorney General.

Mr. FLOOD. Do you consider alcoholism and/or drug addiction a proper defense to a murder charge? The defendant is an alcoholic or a drug addict and he is indicted for murder. Is either of these a proper defense without more?

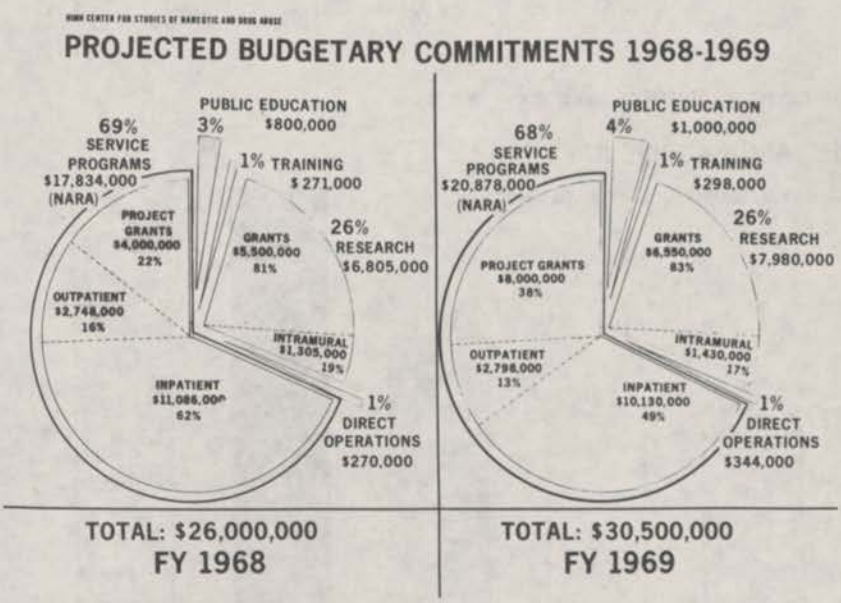
Dr. YOLLES. I cannot answer the question as to whether it is a proper defense, but I think it would be incumbent on the defense attorney to point out whether or not the defendant had lost control of his senses because of an intake of alcohol at the time of the crime. Whether or not it is a legal defense is outside of my province.

If an individual is a chronic alcoholic and cannot keep from drinking, then we classify his problem as a disease, but if it is merely intoxication at one point in time, it is not considered to be a disease.

Lastly, we recommend the abandonment of simple incarceration for addicts.

PROJECTED BUDGETARY COMMITMENTS, 1968-69

(Chart on subject follows:)



Dr. YOLLES. In the area of narcotic and drug abuse, our budgetary commitments in 1969 include the care of resident patients at the Lexington and Fort Worth Clinical Research Centers and grants for research, as well as carrying on our own in-house research.

Mr. FLOOD. Doctor, we will place your remaining charts in the record at this point. I don't think the committee has overdone asking you questions on these subjects, because they are of tremendous interest.

(The charts follow:)

NIMH NARCOTIC & DRUG ABUSE RESEARCH STUDIES

ACTIVE DURING F.Y. 1968

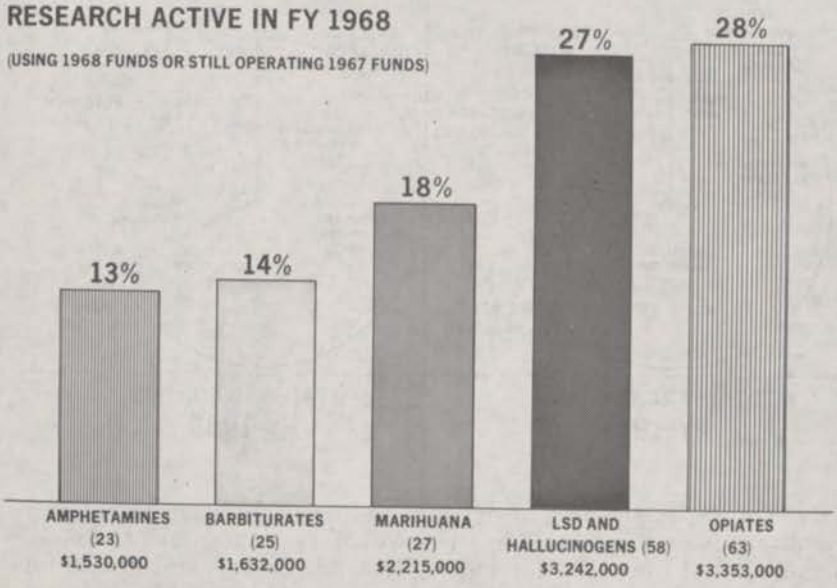
BY TYPE OF RESEARCH

	Total Studies	Grants, Contracts Intramural Program Funds	Addiction Research Center Funds	Ft. Worth & Lexington Hospitals	Total Funds
EXP. PSYCHOPHARMACOLOGICAL	35	$1,519,000	340,000	----	$1,859,000
BIOCHEMICAL	31	1,264,000	90,000	----	1,354,000
CLINICAL RESEARCH - HOSPITALIZED ADDICTS	24	----	----	450,000	450,000
EXPERIMENTAL TREATMENT	19	1,665,000	90,000	----	1,755,000
PSYCHOSOCIAL	14	249,000	260,000	----	509,000
SURVEYS & EPIDEMIOLOGIC STUDIES	11	1,107,000	----	----	1,107,000
TOTAL	134	$5,804,000	$780,000	$450,000	$7,034,000

NIMH CENTER FOR STUDIES OF NARCOTIC AND DRUG ABUSE

RESEARCH ACTIVE IN FY 1968

(USING 1968 FUNDS OR STILL OPERATING 1967 FUNDS)

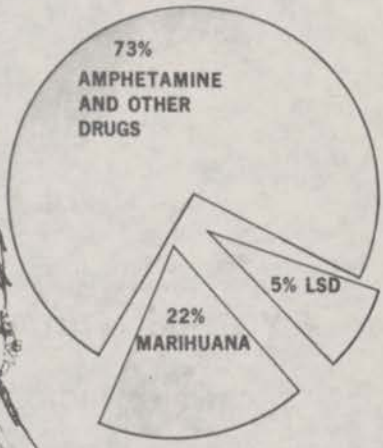


COLLEGE STUDENT DRUG USERS

BETWEEN 35% AND 40% HAVE USED AT LEAST ONE DRUG ILLEGALLY



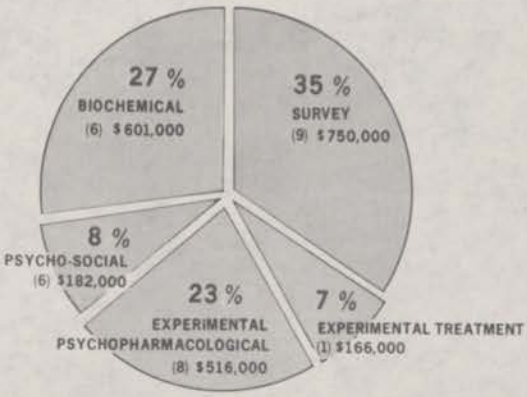
OF STUDENTS WHO USE DRUGS ILLEGALLY



Recent data collected by the National Institute of Mental Health indicates that between 35% and 40% of the total college student population has used at least one drug illegally.

NIMH CENTER FOR STUDIES OF NARCOTIC AND DRUG ABUSE

RESEARCH IN MARIHUANA

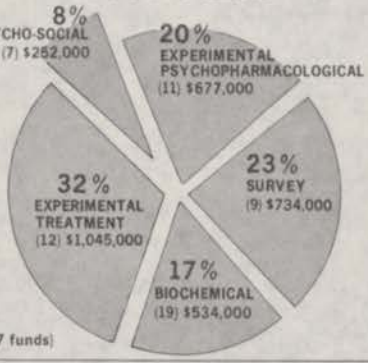


RESEARCH ACTIVE IN F Y 1968
(Using 1968 funds or still operating on 1967 funds)

FY 1968 TOTAL: $2,215,000

NIMH CENTER FOR STUDIES OF NARCOTIC AND DRUG ABUSE

RESEARCH IN LSD AND HALLUCINOGENS



RESEARCH ACTIVE IN FY 1968
(Using 1968 funds or still operating on 1967 funds)

F.Y. 1968 TOTAL: $3,242,000

CITIES OF HIGH ADDICT POPULATION THAT...

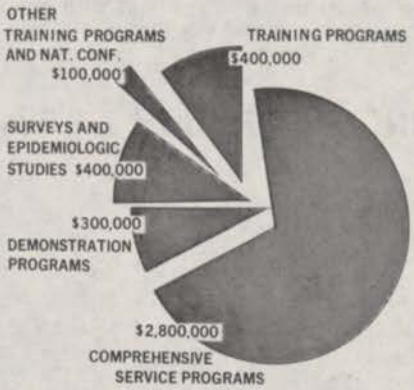
■ HAVE LITTLE OR NO TREATMENT FACILITIES.

● HAVE FUNCTIONING PROGRAM.
(But not large enough to fill existing needs)

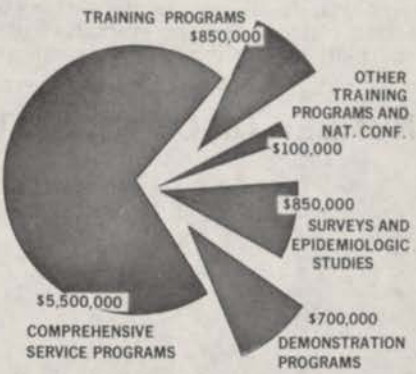


NARCOTIC ADDICT REHABILITATION ACT

ESTIMATED DISTRIBUTION APPROPRIATION 1968-'69

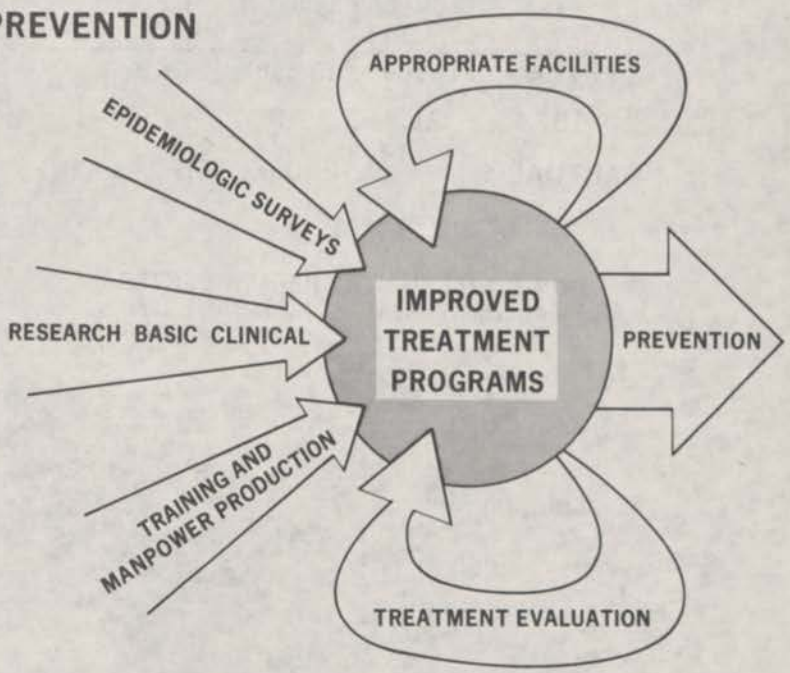


1968
TOTAL: 4 MILLION DOLLARS

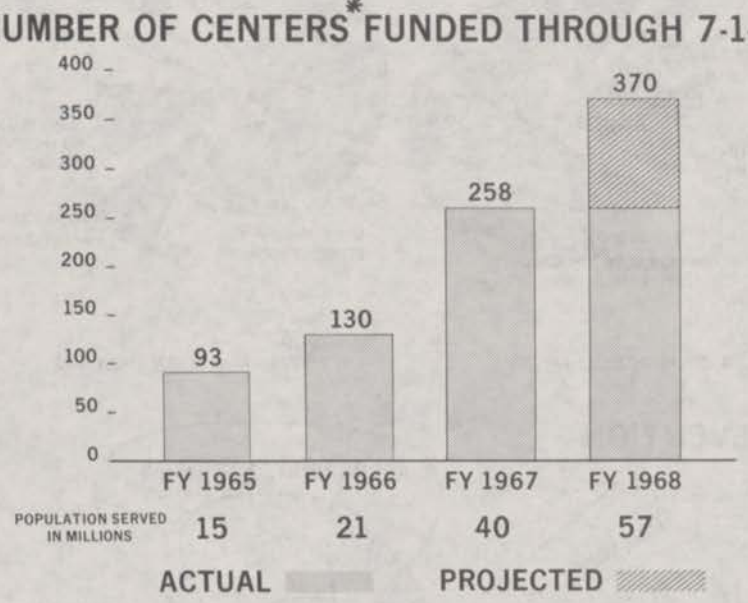


1969
TOTAL: 8 MILLION DOLLARS

PREVENTION



Prevention is the ultimate goal of the NIMH programs in narcotic and drug abuse. Effective prevention measures can only grow out of improved treatment programs, which require epidemiologic surveys, basic research, clinical research, and the production of new and improved manpower resources. But improved treatment alone is not enough. It must be accompanied by the provision of appropriate facilities and the performance of continuing evaluation, with particular emphasis on the evaluation of treatment programs in terms of their contribution to more effective prevention of drug abuse.





Nevada, Kentucky, Colorado and District of Columbia have the largest percentage of their population benefiting from services provided by community mental health centers.

COMMUNITY MENTAL HEALTH CENTER PROGRAM CONSTRUCTION FUNDS

(IN MILLIONS OF DOLLARS)

FISCAL YEAR-	1966	1967	1968	1969
AUTHORIZATION	50	65	50	60
AMOUNTS AVAILABLE FOR OBLIGATION-				
• APPROPRIATION FOR FISCAL YEAR	50 (7 OBLIG.)	50 (5 OBLIG.)	0 (NO OBLIG.)	15 (10 OBLIG.)
• CARRY-OVER FROM PREVIOUS YEAR	35	43	45	45
TOTAL AVAILABLE FOR OBLIGATION	85	93	45	60
ALLOTMENTS TO STATES	50	50	30	15 +15 30

Funds for construction of community mental health centers remain available for obligation for 1 additional year after the year in which they are appropriated. This principle of 2-year availability was established in the basic legislation for the program, and contributes greatly to making it responsive to the requirements of State planning and programing activities, which generally require considerable leadtime. This table indicates that 1968 will be an unusual year in two respects, as a result of cost reduction measures. It will be the first year in which all funds appropriated are not allotted to the States; $15 million will be deferred until 1969 for allotment. It will also be the first year in which all obligations will be met with funds carried over from the previous year; no 1968 appropriated funds are available for obligation until 1969.

Mental Health Research and Services

SUMMARY OF BUDGET REQUEST

Mr. Flood. This year you have $247,669,000 for mental health research and services available for obligations, and if you get your request for 1969 you will have $278,831,000. That is an increase of $31,162,000. Even you would not classify this as austere, would you?

Dr. Yolles. I think this will allow us to have needed increases in the principal areas of the program, but not in all areas.

Mr. Flood. Does this budget reflect full appreciation of the existing fiscal circumstances?

Dr. Yolles. This request represents the considered judgment of both the staff of the National Institute of Mental Health and the Department for a budget, keeping in mind all the exigencies of the budgetary situation, as well as the enormous mental health problems involved.

RESEARCH PROJECT INCREASE

Mr. FLOOD. The first increase is $4,478,000 which the justifications say will provide modest increases for research projects in various categories.

What if the Congress decided to provide the same amount as last year for these types of research grants? Would the heavens fall?

Dr. YOLLES. No, I suspect not, but most of the new funds requested will be used for what we call noncompeting projects; that is, projects funded in 1968 and which we must continue to fund in 1969.

Mr. FLOOD. What is a noncompeting project?

Dr. YOLLES. Research projects are funded year by year. However, they are continued over 3, 4, or 5 years before the research is completed. Those projects started in 1968, in order to complete the research, have to be continued in 1969. A large part of the increase in this area is for the continuation of research started in previous years.

TRAINING PROGRAM

Mr. FLOOD. You are asking to increase the funding for your training program $8,284,000, from $100,762,000 in 1968 to $109,046,000 in 1969.

Dr. YOLLES. Yes, sir.

Mr. FLOOD. I can assure you there will be some people in the Congress who will think $100 million for next year would be sufficient. Give the committee two good reasons why they are wrong and you are right.

Dr. YOLLES. I have to go back to 1963 and review the status of the mental health program in the United States. At that point in time a number of measures were taken by the Federal Government and the Congress to ameliorate the condition of the mentally ill and to provide treatment centers for them closer to home.

One of our concerns at the time was this: if we do invest in the facilities which are needed throughout the United States, will we have an adequate number of personnel to staff hospitals to perform research, to teach, and to do all the other things necessary to maintain the establishment for treating the mentally ill of the United States? This question was looked into in great detail and we made a series of manpower projections at that time. We were concerned whether we would have an adequate number of psychiatrists, for example, and we looked at the graduates from medical schools to see how many would enter psychiatric training. We had to consider an increased share from the medical schools if we were to have sufficient psychiatrists to deal with the number of cases. Prior to that time, the mentally ill were treated as "out-of-sight, out-of-mind," with understaffed hospitals and barely enough personnel to take care of their minimum needs.

We looked into this closely, as did the Bureau of the Budget, and the White House. As a result, it was decided in 1962 that the backwardness of the conditions for treating the mentally ill and of mental health generally as compared with other specialized areas of medicine, justified an increased share of medical school graduate. Projections of needed manpower were prepared for each year through 1980. It was estimated that an annual increase of $15 million in appropriations for training grants would be needed to enable the necessary growth in manpower to reach our projected goals needed for 1980 to take care of

the 2,200 community mental health centers, the needs of research, the needs of hospitals, the needs for teaching and even the needs for the private practice of psychiatry as well as other mental health specialities.

Last year at the request of this committee we submitted a full report on our assessment of the requirements for mental health personnel. The need for such personnel is still very great. Among psychologists the ratio of positions offered to situations wanted is 23 to 1. One out of five budgeted positions for nurses remains unfilled. Only 6 percent of all physicians and only 3 percent of all nurses have had some psychiatric training or experience. In the face of these vast needs we must develop and continue to develop and expand a very active, ongoing program for the development of mental health manpower.

In the report on manpower submitted last year we pointed out that the mental health manpower pool must increase over the next 5 years from almost 68,000 psychiatrists, psychologists, social workers and nurses, to over 99,000 by 1972.

With the support of the Congress, progress has been made in the past. In the past 20 years we have supported the training of over 34,000 mental health professionals. In addition an estimated 12,000 nonpsychiatric physicians will have received postgraduate training courses in the last 10 years. Training in psychiatry has become an important part of the medical school curriculum.

With the necessary support we can, through the availability of mental health manpower, significantly improve the mental health of the people of the United States. I would like therefore to include here the concluding paragraphs of our manpower assessment report to the Congress.

(The information follows:)

MANPOWER REQUIREMENTS

In the original long-range projections made in 1963 when the community mental health center legislation was passed, the entire mental health program budget was developed through 1973. As one part of that long-range budget plan, estimates were made as to funds needed in training programs to meet the manpower requirements for the total mental health program from 1963 through 1973. Those estimates indicated annual increases averaging approximately $15 million per year. Thus, the funds for training were to increase from a level of $50 million in 1963 to $185 million in 1972. In actual fact, with the exception of the allocation for 1964, the increases to date have not averaged the projected levels. In 1967, the appropriation indicated a level of $94,448,000 for training. Since the original projections called for almost $114 million this means that in the 4 years since the initial estimates, the actual level has fallen almost $20 million below the projections. The full impact of this difference has not yet been felt, since the graduates of these programs do not get into the manpower pool until 3 to 4 years after they commence graduate training.

In order to return the rate of growth to the original projections, levels of annual budget for the training program have been developed, beginning with the 1968 allocation and extending through 1972, as shown in table 11. It will be noted that the most rapid rates of increase are in the continuing education and the experimental and special training programs. Research training and undergraduate programs are the next in order of relative emphasis. The importance of these areas of training has already been emphasized in the previous narrative. At the same time, substantial annual increases are needed in the basic graduate training programs to obtain the bulk of the needed manpower.

A special allocation is made for funds to provide for dependency allowances for persons receiving trainee stipends. The mental health training program is the only NIH program which does not provide such dependency allowances. The

continuing effort to make stipends in all PHS training programs reasonably comparable necessitates such an adjustment in the mental health program.

Because of the size of the program such an adjustment cannot be absorbed within the regular increases. It is estimated that the overall average number of dependents is slightly less than one. Translated into dollars and based on the usual $500 per dependent, it would require an average of about $400 for each of the estimated 10,000 trainees in 1968. The total funds required would be $4 million in 1968.

TABLE 11.—TRAINING PROGRAM BUDGET NEEDS, 1968-72

[In thousands of dollars]

Major program areas	1967 allocation	Projected needs				
		1968	1969	1970	1971	1972
Undergraduate	8,500	9,500	11,000	12,500	13,500	14,500
Graduate	76,148	90,000	104,000	118,000	131,500	145,000
Research	(10,500)	(12,500)	(14,000)	(15,500)	(17,000)	(18,500)
General practitioner	(10,000)	(10,500)	(11,000)	(11,500)	(12,000)	(12,400)
Psychiatry, psychology, social work, and nursing	(49,848)	(59,000)	(69,000)	(79,000)	(89,000)	(99,000)
Experimental and special	(5,800)	(8,000)	(10,000)	(12,000)	(13,500)	(15,000)
Inservice	[1] 6,850	5,218	5,500	6,000	6,500	6,500
Continuing education	2,800	5,500	8,000	10,500	13,000	15,000
Scientific evaluation	150	194	200	250	250	250
Dependency allowances		4,000	4,500	5,000	5,500	6,000
Total	[1] 94,448	114,412	133,200	152,250	170,250	187,250

[1] Includes $2,182,000 comparative transfer of funds for inservice training in mental retardation.

SCARCITY OF PSYCHIATRISTS

Mr. FLOOD. Let me tell you the experience I had in Pennsylvania. We have a number of psychiatrists in the State of Pennsylvania, but they are all centered in Philadelphia and Pittsburgh, and Pennsylvania is a big State with a big population. Out in the provinces, psychiatrists are pretty hard to find. In my own district of 500,000 people, we had a psychiatrist who specialized in child psychiatry but nevertheless practiced as a psychiatrist generally. He was killed in a motor accident. That left one psychiatrist serving half a million people and he simply could not meet the situation. I had to ask the Veterans' Administration to permit the VA psychiatrist in the area, on his own time after Government hours, to continue to practice as a psychiatrist.

I am sure this situation isn't peculiar to my district.

Dr. YOLLES. No; it is not.

As you know, we have been working with the State of Pennsylvania in this area, and one of the phenomena we have met, and this is especially true in rural areas as I mention in my opening statement, is the problem of getting physicians, especially psychiatrists.

Mr. FLOOD. I am not talking about rural areas. I am talking about the middle cities population.

Dr. YOLLES. We have found that community mental health centers providing the five essential services have not had difficulty recruiting even in remote rural areas. So far, we have not felt the pinch, if you will, of a dearth of personel to staff these centers. It is true in isolated facilities that you may have difficulty recruiting, but in the centers so far we have not.

Mr. FLOOD. What are the prospect for my area?

Dr. YOLLES. As a matter of fact, we have been working with the local communities in Luzerne County and the State authorities.

Mr. FLOOD. Yes, I know.

Dr. YOLLES. And if the community mental health center which is envisaged goes through, I think you will be able to recruit psychiatrists.

Mr. FLOOD. I hope so.

SOCIAL WORK TRAINING

You are spending $13,400,000 and you are budgeting $14,980,000 for 1969 for training in the field of what you call social work. How is that important for mental health, all of that money in social work?

Dr. YOLLES. There are four core disciplines, as we call them, in the field of mental health. Mental health professionals, differing from some of the other specialties in medicine, have worked as multidisciplinary teams for a number of years. The psychiatrist works usually with a psychiatric social worker, a psychologist, and mental health nurse. Experience in the field of mental health since 1946 indicates that some of these people have interchanged their functions. The psychiatric social worker is the one who relates the individual primarily to his environment—how you deal with his mental illness or mental incapacity or disturbance using all of the support of the environment around him. This is a specialized ability of the psychiatric social worker, who is a social worker first and then has specialized training in the field of psychiatry which can be applied to individuals with mental disturbances. He is a very key member of the mental health team.

EARLY CHILD CARE DEMONSTRATIONS AND EVALUATIONS

Mr. FLOOD. You are proposing to start a new program, "Early child care demonstrations and evaluations." For this new program you are asking $14,500,000 in grant funds and $500,000 for 40 jobs. I repeat, for the purpose of emphasis, this is certainly not the year to start anything new unless it has an extraordinary high priority. Does this?

Dr. YOLLES. Yes; it does.

Mr. FLOOD. You understand I don't mean Congress is against what you want to do. My guess would be they certainly are in favor of it, but there is the overbearing fiscal problem this year.

Dr. YOLLES. Yes, sir. One of the key approaches that we must develop in mental health and human development is to work in the area of prevention, rather than working constantly to treat individuals to try to undo what has already been done.

For many years this was pie in the sky, so to speak, just a gleam in the eye, because we did not have enough facts at our command to apply preventive measures. We have been accumulating, especially in the area of early childhood development, over the past few years, a considerable number of facts, a payoff from the research we have been doing which when applied will, we hope, allow individuals to develop faster with fewer emotional problems and less mental illness. We plan to set up, especially with economically disadvantaged families, demonstrations of improved care which not only will intervene early, as early as the first year of life, with these children and lead to better intellectual and social development, but equally important will also lead to better emotional development.

We have shown in our own labs at the National Institute of Mental Health that working with such families, working with the parents and

the families, that you can increase the IQ of the child by at least 10 points, plus have a happier and healthier child as far as we can see.

COMPARISON OF CHILD CARE DEMONSTRATION PROGRAM AND HEADSTART

Mr. FLOOD. What about this: On page 51 of your justifications you say:

The goal of this program of preschool education is to develop effective and economical methods for fostering the intellectual development and social competence of a child.

It is beautiful language, anyhow.

About 5 or 6 months ago the OEO people sat in that chair that you are sitting in, and they told us what they were doing. They were describing the Headstart program that became extremely popular in Congress and the Nation, and it is exactly what you are talking about. Why both of you?

Dr. YOLLES. In a sense the NIMH is an intellectual grandparent of Headstart. As early as 1950, the midfifties, we were supporting research in the intellectual and emotional development of children. Some of these projects gave rise to some of the thinking which went into the Headstart program.

Now, the difference between Headstart and the child care demonstration we propose is this: The Headstart program dealt with children immediately preschool. We intend to go back to the first and second year and early years of life. Secondly, the Headstart program dealt with summer schools primarily and children about the age of 5. We intend to work throughout the year with these and younger children.

Mr. FLOOD. Headstart started out as you say but caught on with such nationwide approval we are advised that they have proposed to do it all year long.

Dr. YOLLES. They have not extended quite that far.

Mr. FLOOD. I will bet you a hat that when they are here, in about a month, they are going to want this for the full year. I am going to read them what you are saying now.

Dr. YOLLES. All right.

This program also differs from the Headstart program in that we are concerned with the emotional development of the child, not solely with the intellectual development of the child. We feel both have to be considered at the same time.

This falls in the area of prevention of mental and emotional disturbance, picking it up at the earliest stage.

(The following statement was submitted for the record:)

The Headstart program is providing preschool and day care to hundreds of thousands of children in low-income families. The day care programs for AFDC children, authorized under last year's social security amendments, will eventually provide services for hundreds of thousands of additional children. Both of these programs will attempt to provide good care for young children from low-income families. These Headstart and day care programs provide an opportunity to reach severely deprived children early in their lives with programs which meet their emotional and health needs and give them intellectual stimulation at the same time. These opportunities will mean very little, however, unless and until we learn what types of programs are most effective in improving the intellectual and social functioning of what groups of deprived children. Headstart, for example, is not, and was never intended to be, a research program. In contrast, the program proposed in this budget is a program of research, demonstration, and

evaluation. It is intended to provide new knowledge about ways to improve all preschool and day care programs. It will do this by testing which approaches work best in which circumstances.

In the past, the Office of Education, the Office of Economic Opportunity, and the National Institute of Mental Health have funded a number of small-scale research projects testing promising preschool curriculums. If we are to learn anything conclusive about how to improve preschool and day care programs, we now need a large-scale systematic investigation of the effects of major variations within the programs in particular communities and among the programs throughout the country.

What we are proposing here is a large-scale research, demonstration, and longitudinal evaluation program that will examine the effects of major variations in preschool and day care on the achievement, self-esteem, emotional development, and social competence of disadvantaged children. The NIMH staff will work with communities to plan and develop demonstration programs along the major different lines that now appear promising, give continuing help to the projects during their actual operation, and help evaluate the costs and effectiveness of these approaches. NIMH will give particular attention to large-scale demonstrations offering learning stimulation to culturally deprived young and very young preschool children, either in their own homes or in day care centers. Previous NIMH supported research has shown that such programs can dramatically raise the intelligence level of infants.

The output of this large-scale demonstration and evaluation effort will be knowledge that can be used to improve all preschool and day care programs, including those funded under Headstart.

The proposed program would have three parts: (1) The provision of professional and technical assistance by NIMH staff to provide the staff of centers for day care of children with necessary information to enhance to the fullest extent possible the development of an individual child's potential. (2) A project grant program to evaluate the progress made toward this goal. A variety of new day care approaches would be piloted with different population groups in these new child care centers. Rapid and continuous evaluation of these pilot projects will lead to dissemination of those techniques, programs, and curriculums proven most effective. (3) An associated demonstration project program through which techniques of early intervention will be employed and evaluated in culturally deprived families with highest risk of developing mental illness and associated behavioral pathology and in greatest need of treatment.

The positions requested would be for an interdisciplinary group of behavioral scientists, health professionals, who will develop, coordinate, and implement the programs; provide on-site intensive consultation and professional assistance to State, community, and local agencies involved in the development of day care programs; stimulate and assist in the planning, development, and implementation of the proposed research and evaluation by universities and public and private agencies and organizations; stimulate and assist in the development and enhancement of local community mental health programs to provide high-quality services to children and families identified as needing treatment and monitor research and evaluation efforts and provide continuous feedback to the total system of day care centers of the results of these studies to guarantee that the best techniques are available and utilized.

CENTER FOR METROPOLITAN AND REGIONAL MENTAL HEALTH PROBLEMS

Mr. FLOOD. You are asking for a relatively small increase, $72,000 for what you call "The Center for Metropolitan and Regional Mental Health Problems." How much are you spending on that Center this year, what are your current activities in this program, and what is your idea for expansion of the program?

Dr. YOLLES. The Center for Studies of Metropolitan and Regional Mental Health Problems in 1968 was spending $120,000 and had five persons on the staff. We are proposing to increase the staff by six persons amounting to an increase of $72,000. This Center was set up to focus all of the activities of the NIMH on the problem of delivery of services in metropolitan areas and the big metropolitan complexes. The

problems of such metropolitan centers are different than those of the middle-sized cities or of rural areas. Metropolitan areas have specialized problems, especially those which go across State lines. The Center for Studies of Metropolitan and Regional Mental Health Problems looks at the problem of delivery of services and comes up with suggestions as to how we can better consult with the local authorities to develop improved programs for the delivery of services to the mentally ill in such metropolitan areas. They have special problems, and this Center is devoted to taking care of those specialized problems.

NARCOTIC ADDICT REHABILITATION ACT OF 1966

Mr. FLOOD. From the justification it is not clear to us how much of your 1968 or 1969 budget is for activities authorized by the Narcotic Addict Rehabilitation Act of 1966. Will you give us those figures for the record?

(The information follows:)

FUNDS FOR ACTIVITIES AUTHORIZED BY THE NARCOTIC ADDICT REHABILITATION ACT OF 1966

Activity	1968		1969		Increase or decrease	
	Positions	Amount	Positions	Amount	Positions	Amount
Grants: Research		$504,000		$504,000		
Direct operations:						
Regional and field activities	70	3,018,000	70	3,036,000		+$18,000
Fort Worth and Lexington	121	1,045,000	121	1,080,000		+35,000
Scientific communication and public education		900,000		900,000		
Subtotal	191	4,963,000	191	5,016,000		+53,000
Total, mental health research and services	191	5,467,000	191	5,520,000		+53,000
Community mental health resource support		4,000,000		[1] 8,000,000		+4,000,000
Total, both appropriations, Narcotic Addict Rehabilitation Act programs	191	9,467,000	191	13,520,000		+4,053,000

[1] Authorizing legislation for sec. 402 of the Narcotic Addict Rehabilitation Act of 1966, which provides for the construction and operation of treatment centers and facilities, expires on June 30, 1968. Extension legislation is presently pending before the appropriate committees of Congress.

MENTAL HEALTH STUDY CENTER

Mr. FLOOD. On page 69 of your justification you say that the mental health study center "is in the process of becoming a comprehensive community mental health center with primary service obligation to the southern half of Prince Georges County, Md." What kind of cost-sharing arrangement do you have with that county or that State?

Dr. YOLLES. There is no cost-sharing arrangement at all. The mental health study center was started in 1948 when the national mental health program came into existence, really as an operational research unit for the National Institute of Mental Health. It was established in a nearby county to do research on the problems of delivery of service in an outpatient setting in a community, so we could better administer the program of support to clinics in the United States. We have worked with Prince Georges County so that they have developed their own community mental health services over the past 20 years.

Mr. FLOOD. Why, because they are across the street, or what?

Dr. YOLLES. No, sir. We located there because of the variety of populations in the county, urban, rural and so-called "bedroom commu-

nities." It is convenient to the central offices of the Institute. But we felt that we had to use our expertise to help the county develop their own services so they were not dependent on the services we were providing and they have done that and more.

They have expanded their services so that the Bureau of Mental Health of Prince Georges County now has an outstanding mental health program and has the equivalent of three clinics operating.

Mr. FLOOD. This is going to save us money, the Federal Government?

Dr. YOLLES. The mental health study center, I would estimate, has saved a great deal of money to the Federal Government in devising new, more appropriate, and cost-saving devices for the operation of clinics over the years. I can speak to that from personal experience having been the director of the center for a number of years.

Mr. FLOOD. I know that; yes.

USE OF LSD IN RESEARCH

Do you have anything to say about research in LSD as a medical tool or weapon?

Dr. YOLLES. Yes, sir.

Mr. FLOOD. How?

Dr. YOLLES. It is the responsibility of the National Institute of Mental Health—stated in the so-called masthead of the Institute and a charge from the Congress—to improve the mental health of the people of the United States. This requires a number of different activities. One is research to develop better drugs. LSD came into the scene and some of the early research indicated it might be valuable in the treatment of alcoholism, psychoneuroses, some of the sex deviations——

SEX DEVIATES

Mr. FLOOD. What about the sex deviate male and female in the mental health program; is that a disease?

Dr. YOLLES. That is another $64 question.

Mr. FLOOD. That is why I asked it.

Dr. YOLLES. The answer is not really known. There are two points of view: That this is not a mental illness and some feel very strongly that those are character disorders and/or neurotics and as such are mentally disturbed.

Mr. FLOOD. You are aware of the recent act of Parliament in Britain, after much controversy, however, making it legal where it is not public and by consent. What do you think about such a law? Would you vote for it if you were the honorable gentleman from Downes?

Dr. YOLLES. As an individual with my training I would certainly vote for it. But I can say this about the national program: That for many, many years the health professions and the national health agencies have avoided looking at the question of sex deviation because of its touchy nature.

Mr. FLOOD. Because of its touchy nature?

Dr. YOLLES. Yes, sir. The problem was looked at askance. The usual response when a question about this came up was to sweep it under the rug, so to speak; no one wanted to deal with it.

Mr. FLOOD. We had that problem with venereal disease for a long time, but not now.

Dr. YOLLES. One of the remaining problems in our society today as regards stigma—I mentioned one before, suicide—is homosexuality. Only in the last 2 or 3 years has there been open discussion of this on radio and TV. In the past year we have called together a group of national experts at the first conference on homosexuality. I shall provide a special report on sex deviancy and homosexuality for the record.

(The report follows:)

SPECIAL REPORT ON SEX DEVIATES

For almost two decades, the NIMH has been supporting research related to the mental health aspects of sexual behavior. In more recent years, the area of research has been expanded to include homosexuality, gender role identity, and sex education. In addition, funding has been provided for physicological studies and for research on sex behavior in animals under varying conditions.

Human sexuality has too long been a neglected and taboo area for research. Recently, many questions have been raised and more open discussions pursued on man's psychosexual development and on apparent changes in mores, attitudes, and patterns of sexual behavior. Such factors affect an individual's perception of himself and are, therefore, related to his mental health and his personal and social functioning.

It is only in the last few years that the social problems posed by homosexuality have been receiving increased attention. For some time there has been general agreement among experts that about 4 percent of adult American males are exclusively homosexual. There is disagreement among experts as to whether homosexuality is on the increase, but generally, if there has been an increase, experts believe it to be minimal. It is, however, apparent that homosexuality in this country is now more visible and evident than it has been in the past.

Moreover, homosexuals have organized social as well as political groups which are demanding changes in social policies affecting them and these demands are being seconded by many groups engaged in bringing about social and legal reforms.

Citizens as well as scientists are disquieted by this increased visibility of homosexuality. They are seeking increased understanding about the causes and aid that might be made available to homosexuals, particularly in terms of treatment.

In July 1967, a 12-member interdisciplinary task force was appointed to assist the NIMH in developing a comprehensive program in the area of human sexuality, with special attention to homosexuality. In addition to encouraging outstanding scientists to undertake basic and applied research on homosexuality, using longitudinal and multidisciplinary models, the task force will direct attention to the ways society deals with this phenomenon and will seek better ways to enable homosexuals to lead more satisfying lives in our society. More research is needed to ascertain the influences of early experience, interpersonal relationships, cultural mores, hormonal functions, and genetic influence on the development of gender role and patterns of sexual behavior. Emphasis will be given to stimulating programmatic research on these broad aspects of sexual behavior by encouraging development of research centers which will be concerned both with theoretical and basic studies and service projects.

A primary researcher in this field for many years is the chairman of the task force, Dr. Evelyn Hooker, of Los Angeles. Her scientific endeavors have received NIMH grant support since 1954. She is now engaged in preparing two major studies for publication. One is psychological in nature and will describe in detail the various avenues and paths by which boys and men move into and achieve homosexual identification and patterning. The other will be a sociological description of the male homosexual community in a large urban setting and will deal with its social organization, its characteristics and mores, its sanctions, supports, requirements and protections, and its formula for a "way of life."

Dr. Hooker has studied 30 heterosexuals and 30 overt homosexuals matched for age, intelligence, and education, who were given projective tests, social attitude scales, personality inventories, and intensive life history interviews.

Both groups of men were gainfully employed, not seeking psychiatric help, and showed no gross signs of psychological disturbance. Comparative analyses of the data will assess the variable influence of psychodynamic, cultural, and situational factors in the patterned sequences which lead to homosexual rather than heterosexual object choice and self-identification, as well as indicate the wide variety of patterns of personality structure and adjustment of adult homosexuals.

Material for the second book will be derived from 200 interviews with representatives of the homosexual community, observations of interaction in focal gathering places, interviews with persons who can exercise control over homosexuals (police, neighbors, and so forth), interviews with members of formal homosexual organizations, and ecological data on recreation, service, and dwelling areas within the community. The social structure of this community will be depicted from the paths of entry to it to the routes of departure from it and material on activities, language, attitudes, values, humor, and role relationships will be included.

Preliminary findings suggest that there is no apparent correspondence between a conscious sense of gender identity (male or female) and a preferred or predominant role in sexual activity. Homosexuals are not consistently "active" or "passive" in their sexual roles and they will assume different sexual roles in different relationships. Cultural and personality variables affect the sexual and gender role identification.

In the future, the investigator plans to study older adolescents (17–21-year-olds) who have just entered or are about to enter a homosexual career in the homosexual community. She feels this is a crucial period. The homosexual community is a recruiting and educational force and the nature and extent of contacts with it at this early critical time may determine how the individual resolves his psychosexual identity problems.

When these and other studies are completed, we will have much more scientific knowledge about a form of human behavior known since the beginning of history. This information should also have practical importance for clinicians, law-enforcement agencies, health agencies, and social action groups. The possibilities of prevention and therapeutic services must be based on fundamental knowledge from research studies such as those in which Dr. Hooker has been engaged these many years.

Another study which is exploring the relationship between the homosexual individual and the homosexual community of which he is a member is being carried on by investigators at the Institute for Sex Research an Indiana University. Researchers hope to learn how individuals with deviant commitments cope not only with the problems inherent in their choice of sexual lives, but also how they manage the problems they share with the general population: earning a living, making primary group relationships, and getting along in society. Male homosexuals in a large urban area will be the focus of the study. In addition, the research team is compiling an index of literature on homosexuality and will also subject data collected from 550 white male homosexuals in previous Kinsey studies to more exhaustive analyses.

Relevant material is also emerging from an NIMH-supported study of two types of social deviants—marihuana smokers and male homosexuals. The investigation is designed to probe the problem of how individuals who appear to be leading conventional lives but who are covertly deviant manage potentially discrediting information about themselves and how they are affected by the necessity to lead a "double life." Findings on 119 male homosexuals and 94 marihuana smokers residing in the San Francisco Bay area reveal striking differences between the two groups. Marihuana smoking appears to be widespread in the study city. Regular marihuana smokers studied include college students, artists, and middle-class suburbanites. However, in almost all the cases, these are people with some other "nonconventional" characteristic, such as contact with the bohemian subculture through a friend. Middle class male homosexuals have no characteristics which distinguish them from others in the same socioeconomic status or occupational strata except their sexual deviance. However, unlike the marihuana smoker, their entire life pattern is centered much more around their deviant propensities. Thus, while male homosexuality is present all across society, in all classes, educational and ethnic groupings, the individuals involved are more profoundly alienated from the larger normative structure of society; marihuana use, in contrast, tends to develop within segments of society already somewhat separated from the larger society.

The investigator has found that not only do those deviants who seek psychiatric help experience severe difficulties in forming and maintaining relationships with others, but that these difficulties permeate the entire homosexual culture and are connected, both as cause and result, with the character of the promient public features of homosexuality such as the "gay" bar. The homosexual must cope with the vicissitudes of managing information concerning his sexual habits and his self-perception and relationship are consequently affected by the dangers that he must of necessity avoid.

In another study, additional data on the psychosocial processes that affect self-acceptance among male homosexuals will be sought from 2,000 homosexuals who are members of the Mattachine Society (a male homosexual organization) and from a companion group of 200 to 300 nonmember homosexuals known to the society. The investigator believes that self-acceptance is affected by (1) the presence or absence of the perception that society does not stigmatize homosexuals; (2) the degree of association with other homosexuals; (3) the degree of perceived acceptance by other homosexuals; and (4) the extent to which the socioeconomic status is low or marginal. The data will be examined with reference to treatment and the desire for the renunciation of homosexuality.

Sex offenders are another group of sex deviants being studied by NIMH research grantees. Since 1957, group therapy has been used in Philadelphia with sex offenders on probation. In 1966, grant funds were awarded for a 5-year evaluation of the effectiveness of this treatment program. The rationale for the use of this treatment modality is that probation is an especially opportune time for rehabilitation. The trauma of arrest, trial, and conviction destroy the offender's defensive barriers, leaving him more amenable to psychotherapy. The group setting, in contrast to individual therapy, provides opportunities for peer criticism and support and is comparatively free of formal authority. In addition, the group has been found to be a practical and potent lever by which expected behavior is transmitted. Nonpsychotic offenders within the 18 to 45 age range are extensively pretested and randomly assigned to either treatment or to the control group which remains on probation but receives no group therapy. The five therapy groups consist of exhibitionists, pedophiles, homosexuals, forcible rapists and a mixed group of offenders drawn from four subpopulations. After weekly 3-hour therapy sessions over a 20- to 40-week period, the group members are retested and then studied again 2 years later.

Some preliminary findings are available on the efficacy of group therapy with 24 male pedophiles. Toward the end of the group meetings, the offenders manifested an increasingly friendly attitude toward the probation officer and displayed general improvement in social behavior involving relationships with authority. Rearrests declined and those whose employment had been disrupted by arrest and conviction regained their confidence and found jobs.

A combination of group therapy and operant conditioning in the treatment of homosexuals is being studied by another investigator. This treatment modality has been reported to have been 50 percent successful in England. This research project will be the first time it is being tried in this country.

Of outstanding significance and pertinence to current problems is the work of Dr. William Brown, a professor of public administration at the State University of New York, with major interest in criminology and administration of governmental social pathology interventions. Dr. Brown has undertaken a study of the official responses to sex related crime. His research plan is to combine field surveys of actual police department practices and opinions regarding enforcement matters related to sex crimes with an extensive review of the literature to get better descriptive information in this area. Significant issues, variations in practices, standards of judgement, etc., will be identified. From his research data, he will develop a series of policy proposals for review by police and other public authorities.

In each generation, the behavior of youth has been subjected to scrutiny by their elders, particularly in reference to sexual behavior. About the present generation, widespread feelings are expressed that drastic changes have occurred and that young people are becoming more promiscuous and more prone to condone deviant sexual behavior.

To investigate these impressions, NIMH grantees are surveying groups of adolescent youth on their attitudes toward sex, their patterns of dating behavior, and the relationship of these to religious and ethnic backgrounds, socioeconomic status, and values of the youth culture with which they are associated as part of a broad study of the American youth culture.

SPECIAL REPORT
SCHIZOPHRENIA

Introduction

During the past year, there continued a significant decline in the number of schizophrenic patients admitted for the first time to State and county mental hospitals and in the number of patients who were residing in these mental hospitals. Yet more than half of the beds in U.S. mental hospitals continue to be occupied by children, adolescents, and adults who suffer from its varied symptoms. Scientists estimate that at least 2 percent of the people born in 1960 will be victims of schizophrenia sometime during their lifetime; and as many as 6 percent will succumb under demographic and social conditions of certain communities. At the end of 1965 nearly one-half of the patients residing in State, county and Veterans Administration mental hospitals were schizophrenics; they also constituted about one-third of all admissions during that year. In private mental hospitals as in psychiatric sections of general hospitals, schizophrenics made up about 20 percent of admissions, while the 2,000 outpatient psychiatric clinics in the U.S. found that schizophrenia accounted for about 15 percent of admissions. With the increase of outpatient, emergency, day and night care facilities and the accessibility of newly developing comprehensive community mental health programs, it is likely that many more schizophrenic patients will be identified and cared for. Schizophrenia thus constitutes an increasing burden for health facilities. Another fact causing concern is the increased incidence of hospitalization among persons under 24.

Over 30 years ago, an experimental private school in the Chicago area incorporated a comprehensive sex education program into its curriculum. Over 150 former students who graduated 15–17 years ago and who are now presumed to have developed stable adult patterns will be interviewed by a team of researchers who are evaluating the effects of exposure to this program. This group will be systematically compared with a matched group of graduates who attended a school similar in almost all respects except for the sex education program. Data will be sought concerning sexual adjustment, the relevance of earlier sex education to this adjustment, and the ramifications of sexual adjustment for patterns of social functioning and mental health.

Implementation of sex education and sex counseling programs requires trained personnel skilled and sensitive to working in these areas. As yet, this is a goal rather than a reality. Currently, NIMH training funds are being used for a 3-year pilot project of sex education for medical students attending Tulane University to enable them to teach and counsel in areas such as sexual behavior, family planning and marital problems. Clinical training in a sex and marital counseling clinic is also available to the students under this grant.

The Family Study Center of the University of Minnesota has been funded for a 5-year program which provides a year of graduate study in marriage and family counseling to professisonals whose work impinges on this area: psychiatrists, social workers, psychologists, clergy and lawyers. Programs for training classroom teachers in family life education are also being developed.

NIMH is also stimulating research in the sensitive area of gender identity. Legal, moral, and social implications unrivaled in medicine emerge from the ramifications of such a disorder. Scientific progress in comprehending the nature and meaning of these gender identity disorders will require comprehensive biological and behavioral science research on these phenomena.

SCHIZOPHRENIA

Mr. FLOOD. I want to ask you now about schizophrenia. I understand that is more than half of our caseload. Has that a stigma, too?

Dr. YOLLES. No, sir. In the opening statement I mentioned this as our principal concern in the area of mental illness and psychoses. It is quite true it represents about half of our cases in hospitals and still remains an enigma in treatment. But we have many, many leads at the present time.

Mr. FLOOD. What is schizophrenia?

Dr. YOLLES. It is a psychotic illness; the individual is psychotic. There is a splitting in the mind between the emotional response of the individual and the intellectual response. Secondary to that you have such coloration phenomena as hallucinations, delusions, et cetera.

(The following special report was submitted for the record:)

The National Institute of Mental Health has comprehensive objectives which include stimulation and support for the kinds of research, training and services necessary in the ultimate control and prevention of schizophrenia as a public health problem. This report will summarize the Institute's efforts to conquer schizophrenia through a wide range of researches and service programs. Research has been emphasized partly because research projects lend themselves more readily to classification by a target illness than do training and service functions. Moreover, research into the causes of schizophrenia and the development of effective treatments are fundamental to any public health onslaught against this disorder.

NIMH scientists and grant-supported investigators have focused on the many facets that current knowledge indicates to be relevant, but a dearth of firm knowledge and the relative recency of serious concern with schizophrenia impel the investigator to examine data in many domains. These may range from molecular biochemical changes in the cell, at one end of the spectrum, to the dynamics of interpersonal relationships in the family, or the role-demands and expectations of the environment. The investigation ranges from factors thought to be genetically determined to those considered to be acquired through complex and varied learning.

Scope

From its beginning, in 1948, until the end of fiscal year 1967, the NIMH program has included over 3,045 research grant awards, devoted to studies related to schizophrenia. During 1967 the Institute supported about 300 research projects on schizophrenia ranging from multifaceted activities within large research centers and programs, to small preliminary pilot studies. Because fellowships and training grants are not necessarily categorized by the target disease studied by the awardee,

these figures do not indicate a substantial number of studies carried out by scientists on training fellowships, special fellowships, and career awards. Many of these researches do, nonetheless, touch on mental health problems relevant to schizophrenia.

In 1966 a Center was formed to stimulate and coordinate a program of activities related to schizophrenia. It was designed to assure all exchange of information and coordination of efforts among grantees and between NIMH intramural scientists and researchers outside the Institute. Thus new research problems, promising leads and findings, as well as training, service needs and the evaluation of current activities, could be expedited from one Center.

Diagnosis and "The Group of Schizophrenias"

Progress in the conquest and eradication of a disease usually begins with the ability to diagnose - to distinguish the individuals afflicted by the disease. Schizophrenia is probably better denoted as "the group of schizophrenias" for it continues to defy fully adequate description and classification despite several decades of effort. For example, a current NIMH-supported cross-cultural study has compared the diagnoses of psychotic patients from essentially similar populations in outpatient clinics in the United States and the Netherlands. American psychiatrists classified as "schizophrenic" 13 times more of their patients than did their Dutch colleagues. Is "schizophrenia" so much more prevalent in the United States? Are the criteria for classification different in the two countries? Or do we require more knowledge to define its specific nature?

Two other NIMH research projects may help to obtain answers to these questions. In one study university psychiatrists in seven countries, including the U. S., have provided ratings of psychopathologic behaviors on 200 newly hospitalized psychotic patients. These data have been subjected to sophisticated statistical analysis, revealing a number of behavioral factors which are consistent across all countries. The ratings will now be used

to construct a valid and reliable cross-cultural instrument for describing and measuring behavioral psychopathology. Hopefully these will lead to greater consensus on the diagnosis of schizophrenia and can be used to test for the true presence and meaning of differences in this illness in different cultures.

The United States is also participating, with NIMH support, in a pioneering International Pilot Study of Schizophrenia. This is a cross-cultural effort among eight nations, initiated under the direction of the World Health Organization. By using standardized methods for diagnosis and comparative research, the participants hope to demonstrate that comparable cases of schizophrenia can be identified in each of the participating nations. One hundred and twenty-five comparable patients from each of the countries will be studied so that the course of the illness can be described reliably for each case. Future comparative studies may delineate the relative roles of social, cultural, biologic and genetic factors in the etiology of schizophrenia.

Still another cross-cultural study provides a potential explanation of the difficulties in establishing reliable diagnostic criteria for schizophrenia. Capitalizing on Norway's excellent system of central registration of mentally ill patients, these grantees have collected data about mental illness in the near and distant relatives of all psychotic patients. Among "schizophrenic" patients, 58 percent of their psychotic relatives were also diagnosed as "schizophrenic"; 22 percent of the relatives were diagnosed as "manic-depressive." Among "manic-depressive" patients, 80 percent of the psychotic relatives were also diagnosed as "manic-depressive"; whereas 20 percent had different diagnoses, including "schizophrenia." Thus, mental illness in the family does not appear to follow simple classical patterns of inheritance. Instead there seem to be a gradual series of transitions, ranging from "schizophrenia" to illnesses classified as "manic-depressive psychosis." Before revising genetic hypotheses, however, it is important to remember that today's clinical criteria cannot fully

discriminate the so-called "functional psychoses" into meaningfully discrete classifications of "schizophrenia" and "manic-depressive psychosis." On the other hand, the careful sampling of the Norwegian study offers statistics that will induce a more conservative idea about schizophrenia and heredity.

Neurophysiologic studies of schizophrenic patients may lead to a better discrimination among functional psychoses. In another NIMH-supported research project a specific brain wave phenomenon, "alpha blocking," has been used as an indicator. Some patients who have been classified as "schizophrenic" on clinical criteria show a different "alpha blocking" than do normal persons and other patients who are also labeled "schizophrenic." Studies using brain wave indices may help develop objective means for classifying patients into discrete disease entities, a great forward advance from the inexact diagnostic classifications used today.

Once precise diagnosis becomes possible, an important step in the conquest of the disease lies in developing criteria for early diagnosis and treatment. Recent gains in the fight against various malignant diseases stem largely from the techniques developed for early diagnosis. A similar goal has motivated many NIMH-supported scientists who are concerned with schizophrenia. Many different approaches have been used.

In order to describe and measure psychopathology in early childhood, one grantee has studied autistic children and developed scales for the accurate delineation of specific aspects of defective development in these children. One of the scales measures, with high reliability, such critical aspects of development as interpersonal relationships and communication.

Another approach used by Institute scientists and grantees has been the study of identical twins, one of whom suffers from schizophrenia while the other does not. To date it has been possible to study one hundred such pairs of identical twins in the world, including 14 from the NIMH

series. Statistically, the schizophrenic twin differs from the normal twin on a number of factors that can be detected before the "onset" of illness: lighter birth weight, fearfulness, dependence, and the presence of identifiable "neurotic" traits. The detection of these attributes may contribute to an early diagnosis in the future.

Another project has involved a careful case-by-case follow-up study of children who had been referred earlier to a child guidance clinic. Data from this study suggest that specific neurotic traits in boys may be indicative of a preschizophrenic process. Of 60 boys later hospitalized for schizophrenia, over 20 had suffered from phobic and/or obsessive-compulsive symptoms at the time they were seen initially at the child guidance clinic. Only one out of 28 healthy control boys showed the same symptoms. There were more generalized anxiety and hysterical symptoms in the initial records of the boys later hospitalized for schizophrenia. These predictive symptom relationships could not be demonstrated from the records of a similar sample of girls. The investigators postulated that neurotic behavior is less socially acceptable in boys than in girls, and the presence of such symptoms in boys could lead to greater rejection by family members. The rejection, in turn, might engender greater anxiety among the preschizophrenic boys, eventually culminating in a full-blown schizophrenic illness. These early "neurotic" symptoms have been dismissed in the past as insignificant and transitory, yet this study suggests they may be harbingers of serious schizophrenic illness and could provide an indication for early treatment aimed at preventing a later schizophrenic breakdown.

Studies of Pathological Functions

Employing standard laboratory methods, many investigators have compared schizophrenic patients with normal "control" subjects on several basic psychological and psychophysiological measures. They have focused on fundamental cognitive processes - learning, forgetting, memory span and attention, in the hope that

specific deviations from the normal might facilitate a better understanding of the nature, the mechanisms of action and more complex manifestations of schizophrenia.

Several members of the intramural research program have been conducting comparative studies of sensory, perceptual and cognitive behavioral patterns in schizophrenic patients. One researcher has shown that non-schizophrenic male subjects exhibit more frequent fine eye movement, as they do a more extensive scanning of a stimulus configuration. This relationship between eye movement and attention was reversed in short- and long-term schizophrenics. Moreover, chronic schizophrenics with extremely high eye movement rates showed an impaired ability to focus attention on stimuli. Focused attention is not nearly so impaired among schizophrenics with lower rates of eye movement.

Sometimes it is hard to discern whether the defective responses of the schizophrenic are caused by definable physiological flaws. One intramural scientist is studying reaction time in schizophrenia and the difficulties schizophrenics have in maintaining "preparatory sets" (psychological guides to action). Preliminary data suggest that schizophrenics have difficulty in using task-relevant information properly and have trouble adjusting even to predictable changes in the environment. However, performance can improve dramatically if the patient is given motivational reinforcement, through tangible and immediate rewards for an appropriate response.

A third study in the intramural program has focused on cognitive problems of the schizophrenic. The subjects were 21 chronic adult schizophrenics, 14 acute adult schizophrenics, 15 normal adult controls. They were put through tests that had been created by the noted psychologist, Jean Piaget, to study cognitive development. Chronic schizophrenics made significantly more errors in solving cognitive problems than did the acute schizophrenics or the normal controls. The errors derived from a tendency to focus attention on only one perceptual variable and not to consider or articulate two or more

variables in developing a complex notion. Lack of flexibility seems to be responsible for this concreteness. As anxiety increases, chronic schizophrenics become pathologically abstract and develop hallucinations and delusions. Concreteness was not the unique property of chronic schizophrenics, but was also shown at times by acute schizophrenics and also normals. However, these subjects were generally able to overcome their tendencies and achieve correct solutions. It should be added that not all chronic schizophrenics functioned with excessive concreteness, nor did any particular subject necessarily function concretely all the time.

Other researchers have examined the learning processes which follow and depend on scanning and perception. Adult schizophrenic patients were compared with a matched group of normal people on an experimental task. Although both groups learned at about the same rate, the normal subjects retained what they had learned longer than the schizophrenics. Furthermore, the schizophrenics who conditioned most rapidly and communicated most effectively upon admission tended to leave the hospital sooner.

Another study of learning revealed that schizophrenic children have difficulty in transferring learning from one sensory modality to another. These children also had serious problems with auditory memory which were thought to represent relatively poor abstractive powers in comparison with normal children.

Other researchers have compared the immediate memory span of schizophrenic men with the memory span of normal control subjects. The patients' performance was significantly inferior. The investigators believe that a major malfunction in schizophrenia involves a deficit in processes of selective awareness of the environment. Explorations bearing upon this conjecture are conducted in another NIMH-supported project. Here, a reflex constriction of blood vessels in the head, known as the "defensive reflex," has been conditioned in schizophrenic patients and normal subjects. When the defensive reflex occurs it is thought to preclude a related, but different reflex known as the "orienting reflex." The orienting

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reflex is believed to be related to attention mechanisms in the central nervous system, and hence to learning. In these experiments, paranoid schizophrenic patients have been shown to differ from patients suffering from other forms of schizophrenia, and from normal subjects. Once conditioned to respond to a specific word, the paranoid schizophrenics also responded with a defensive reflex to other words similar to the test word. This suggests a deficit in the mechanisms of a discriminative learning in these patients, a phenomenon akin to inflexibility in focusing attention, to maintaining preparatory sets and to transfer learning among sensory modalities.

Failure to discriminate or focus attention could be caused by many kinds of flaws in the nervous system, and other investigators have sought to identify deficits in the arousal mechanisms of schizophrenics. Researchers in the NIMH intramural program have found that the schizophrenic responds to simple stimuli with physiologic under-reactivity, whereas he over-reacts to complex or "demanding" stimuli by comparison with normal subjects. The degree of physiologic reactivity, or arousal, varies with a socially relevant characteristic of the stimulus. Thus, the investigators infer that this is learned or environmentally determined rather than a genetic or constitutional defect. Another study of arousal may help to explain why previous investigators disagreed about the degree of disorganization shown by schizophrenic patients. By utilizing physiologic measures of arousal, the investigators demonstrated that only those schizophrenic patients who are highly aroused in the laboratory setting actually show defects in test performance. Patients whose level of arousal is no higher than that of normal control subjects also exhibit no deficit in comparison to the normals on measures of performance. Thus, the schizophrenic often may not be differing from the normal person on performance measures, so long as he is at a low level of arousal.

Etiology

During the past year there have been several promising cues to the relative significance of genetic and

environmental factors in the etiology of this illness. Two separate NIMH projects have recently reported evidence in support of genetic explanations. One is a prospective study of 57 pairs of twins, in whom at least one twin was diagnosed as schizophrenic. The patients were found in the exhaustive register of 45,000 psychiatric patients at the Maudsley Hospital in London. Among the identical twins, 42 percent of the co-twins have also succumbed to schizophrenia. By contrast, only 9 percent of the fraternal co-twins have developed the symptoms. The incidence rates for both fraternal and identical co-twins exceed the 1 percent incidence rate in the general population. However, the marked excess (42 percent) in the genetically identical co-twins over (9 percent) the less similar fraternal co-twins lends support to a genetic theory of schizophrenia. Another twin study, conducted in Norway, reported essentially similar degrees of concordance; 28-38 percent of the identical co-twins were diagnosed as schizophrenic, in contrast to 5-14 percent of the fraternal co-twins.

The London investigators have pointed out that their series contained 14 pairs of identical twins in whom only one twin was afflicted with schizophrenia. Thus, for the present, genetic factors may be viewed as necessary, but not sufficient to explain the etiology of schizophrenic illness. It may well be that certain experiences, particularly in early developmental phases of life, are essential prerequisites for the manifestation of this disorder. With this basic hypothesis in mind, some NIMH grantees are conducting cross-cultural studies in order to shed some light on the relevance of experience or environmental-social factors to schizophrenia.

An NIMH intramural team is collaborating with scientists in Denmark to assess psychopathology in the biological and adoptive relatives of groups of schizophrenic and control subjects who were adopted in early infancy. They are studying twins and close relatives who were separated early in life and were raised in different environments and also adopted children who were brought up in the same social environment as the schizophrenic patients. This study may help to delineate the roles of experience and genetic factors in the etiology of schizophrenia.

Family studies have represented a major methodological approach to the evaluation of environmental-social factors in schizophrenia. One NIMH grantee has compared and contrasted the families of children with childhood schizophrenia with families of children showing infantile autism or adolescent schizophrenia. The comparisons were based on such descriptive factors as birth order, size of family and spacing of children. Typically, the childhood schizophrenic is a first-born or only child, and if he is first-born, there is usually a relatively long-time lag between him and his next sibling. Childhood schizophrenics tend to come from smaller families.

Another project has revealed some of the parent-child interactions in families with a schizophrenic child. The parents of such a child tended to be depressed, aloof and distant from him. Physical contact between parent and child was rare. When it did occur, the purpose of the contact was to encourage the child to perform, or to censure the child, and not to express warmth of emotion. The father of such a child was often better than the mother at eliciting the child's responsiveness.

As they have sought to capture the particular family environment that may breed schizophrenia rather than other forms of maladjustment, researchers examined parent-child interaction in families with a withdrawn, disturbed, possible preschizophrenic adolescent and contrasted them with families containing antisocial adolescents. Preliminary results show that withdrawn children came from families in which members were relatively inaccurate at predictions of one another's behavior. Parental domination of the withdrawn child was achieved by covert methods in contrast to the overt, power-oriented techniques utilized in the families of the antisocial child. The withdrawn child viewed his parents as punitive and perfectionistic in their demands of him, whereas the antisocial child characterized his parents as practicing overt domination. These factors may distinguish the type of family that leads to the development of adult schizophrenia.

A relationship between interpersonal family processes and the development of schizophrenia has been examined by still another grantee who studied 49 families of normal people as well as good and poor premorbid schizophrenic subjects. The first stage of this work was the development of systematic methods for studying interpersonal relationships. The investigator found many important differences in patterns of family social interaction. Parents of normal children tended to use direct methods of behavior control whereas schizophrenic families tended to resort to indirect manipulation. The relative dominance of father, mother, and son differed among normal and schizophrenic families, as did the degree of flexibility and adaptiveness in communication and interaction among family members. Understanding the etiology of schizophrenia and differentiating various subtypes of schizophrenic disorders may be enhanced considerably by family studies of this sort.

Scientists in the intramural program have obtained data suggesting that the communication problems of parents could effect the development of core ego functions in the child, functions which are impaired in schizophrenics. Some of the most important defects and deviations from normal development occur in the shaping of foci of attention. It is thought that these defects lead to a variety of schizophrenic difficulties such as use of language, task orientation and interpersonal relations. New methods for coding and analyzing data on family interaction are being developed, so that this important developmental field may be explored further.

The NIMH intramural laboratory has compared families of discordant siblings of schizophrenics with those of delinquents and normals. There have been many new findings, as well as important confirmations of earlier studies. An interesting recent observation comes from data indicating that fathers of schizophrenics tend to idealize their mothers more than the fathers of either the normal or the delinquent.

Quite apart from the influence of family relationships, different cultural factors may exert an influence on mental health. One study of cultural factors has been conducted on the island of Mauritius which lies east of the coast of Africa in the Indian Ocean. The population of Mauritius is of recent Indian or East African origin. The study was undertaken to evaluate the assertion that "unwesternized" mental patients in India and Africa recover more rapidly and more completely from psychotic episodes than do European or North American patients. Preliminary results based on 90 patients admitted to the mental hospital in Mauritius support the assertion that functional psychoses are more transitory among peoples of Indian and African origin.

Cross-cultural study mentioned earlier has revealed distinct differences in symptoms manifested by psychotic patients seen in outpatient clinics in New York State, in contrast to their counterparts in Holland. The American patients more often exhibited "active" manifestations of depression, such as agitation; the Dutch patient tended to exhibit a more "passive," apathetic, variant of depression. Psychological complaints predominated among the American patients, while Dutch patients more often complained of physical symptoms.

Additional cross-cultural data of great value should also be forthcoming from the International Pilot Study of Schizophrenia mentioned earlier. The standardized research instruments being developed by these investigators may make possible the first rigorous studies of social and cultural factors which may cause, precipitate, minimize or prevent schizophrenic illness.

Biological Factors

Biological aberrations have been suspected to be a major factor in the etiology of schizophrenia; but recent findings, although promising, have been far from conclusive. The problem is so complex that many reported biological abnormalities later have been found to be due to differences in diet, activity, anxiety levels, hospitalization or other

factors extraneous to the essential psychopathological processes. As in other areas, the ferreting out of biological possibilities involves a slow and tedious laboratory search. Today there are three areas under active investigation. There is the study of abnormal proteins in the blood of schizophrenic persons which might represent a "toxic" factor producing - or related to - the disorder. There is the search for some abnormality in amine metabolism. There is the study of sleep as a possible cue to underlying physiological abnormality.

One of the major events of the past year has been a collaborative venture between two laboratories engaged in the isolation of unique protein fractions which appeared to have highly similar characteristics. Originally the laboratories had been working quite separately and independently. Thus, when the investigators sent each other coded samples of schizophrenic and nonschizophrenic blood serum, and each found that he was able to predict accurately the "active" samples, they suspected that they were both studying a common protein factor. A strong effort is now being made to stimulate cross-checking between other laboratories involved in this controversial area of research.

Investigators in one of these laboratories have also come up with new data about the basic nature and physiological effects of their protein factor. Previously they found that this protein changes the amino acid uptake of body cells. Now they have specifically determined that only three of the numerous amino acids are affected. The previously known chemistry of these basic compounds suggests a potential explanation of the deleterious effects caused by the special protein factor. It is known that each of the three affected amino acids is a vital precursor to three important substances instrumental in mediating nervous impulses in the brain and other parts of the nervous system. Thus, alteration of the amino acids might affect the mediating substances. If a protein factor alters these brain mediators, the biochemical changes in the nervous system might cause the behavioral alterations seen in schizophrenia.

The investigators have also begun to work with other protein substances - possibly antibodies in the blood which look as though they might affect the serum factor previously isolated. They are also studying twins, only one of whom has schizophrenia. This is being done in conjunction with the intramural program of the NIMH. They find so far that the afflicted twin possesses the blood abnormality whereas the normal twin does not. Using a different biochemical technique, the NIMH group has also found a biochemical difference between the normal and the schizophrenic twin.

Some data suggest biochemical and physiological differences between the schizophrenic individual and his nonschizophrenic twin which appear to antedate the onset of the schizophrenia. Moreover, in twins discordant for schizophrenia, the schizophrenic twin has a lower protein-bound iodine value, indicating lower thyroid functioning. There is apparently a general correlation between "PBI" and birthweight, according to this data. Since thyroid hormone is so important for development and differentiation of the central nervous system during the late intrauterine and early postnatal period, there may be some connection between the thyroid and schizophrenia.

Work on the possible abnormal metabolism of biogenic amines in schizophrenia has continued in the past year. Previously, a compound known as DMPEA (dimethoxyphenethylamine) had been found in the urine of schizophrenic persons. Both in its chemical structure and its pharmacological effects, this compound is similar to such "psychedelic" agents as mescaline. Recently, a metabolite of DMPEA designated as NADMPEA (N-acetyl-DMPEA) has also been found in schizophrenic urine. It should be emphasized that this compound shows 10 times as much effect upon behavior as DMPEA.

Investigators studying the biochemistry of schizophrenia have been intrigued by the similarity between mind-altering, hallucinogenic drugs and the amines which are natural constituents of the body. "STP," which has received such public notoriety recently as a new and much more potent successor to LSD is chemically a cross between

DMPEA and an amphetamine ("benzedrine"). The latter drug is also well known for its strong psychological effects, and prolonged use can lead to a psychosis. Research into biogenic amines is showing considerable promise and relevance.

Further biochemical answers are likely to emerge from the study of a unique and somewhat rare disease, "periodic catatonia," wherein repeated psychotic attacks lasting several weeks are separated by regular nonpsychotic intervals also lasting several weeks. These psychotic and nonpsychotic phases are almost clock-like, and the regularity has been observed in some patients who have been followed for as long as 27 years. The great advantage of this study is that a patient can serve as his own control. His psychotic self can be compared with his nonpsychotic self. Moreover, the period of time just preceding the onset of psychosis can be pinpointed rather accurately. Usually, it is not possible to compare a schizophrenic with himself in a research study; he is more often compared with a normal subject, an approach leading to a variety of methodological problems. Moreover, it is usually difficult to predict when a schizophrenic attack is going to occur, so the all-important days just preceding the attack have been most difficult to study systematically. The study of "periodic catatonia" obviates these difficulties. As new biochemical techniques become available and new hypotheses emerge, they can be applied to patients with periodic catatonia, or even to blood and urine specimens previously collected from these patients and carefully kept in storage. It is already clear that there are differences between the psychotic and nonpsychotic states in terms of nitrogen metabolism, cholesterol metabolism, urinary pigments, thyroid function, response to various drugs, and electroencephalographic pattern. New amine compounds have been discovered by the technique of "chromatography" in the urine during the psychotic state which remain to be identified, and which may be of significance.

The biology of schizophrenia is also being probed through the study of sleep and dreams in this disorder. Recent research has described many aspects of the

biology of sleep, particularly the phase of sleep which is characterized by cyclic appearance of rapid eye movements (REM's) with dreaming, during the course of sleep. Deprivation of this form of sleep has been an especial focus of work. Investigators have demonstrated that interruption of this REM sleep in the normal organism results in an ever-mounting "pressure" to continue and that, in subsequent uninterrupted sleep, there is an increased amount of this dreaming sleep as a "rebound." The rebound phenomenon can be produced by a variety of methods in both man and animals.

Implications of this phenomenon and its bearing on psychosis are being vigorously pursued. There are subtle features in the sleep of acutely ill schizophrenic patients which suggest that sleep preceding hospitalization may have been characterized by excessive REM sleep deprivation. One reason to suspect this may be so is the established clinical knowledge that sleep difficulty occurs during periods of severe emotional upset, and, specifically, during the incipient schizophrenic state.

However, some recent work has demonstrated that the relationship between REM deprivation and mental distress is not a simple one. Schizophrenic patients have been deprived of REM sleep while very close observation and evaluation of the degree of psychotic thinking and behavior was noted. Although the subjects showed the usual physiological response of a "rebound of REM sleep" there was no increase nor intensification of psychosis. In another study, however, the severity of the patients' clinical status was paralleled by their sensitivity to REM sleep deprivation.

Acutely ill schizophrenic patients in another study were given "sleep therapy" for 72-96 hours immediately after admission to the hospital. This is a form of treatment more widely used for mental illness in Eastern Europe and Russia. It consists of medicating the patient so that he is almost continuously asleep for long periods of time. While the patients have failed to show an immediate improvement in their subsequent clinical course, some important basic data was gathered by continuously monitoring

the brain waves of these patients. Although the usual cyclic patterning of the alternating sleep states was present throughout their sleep, it was striking in two of the four patients that the "dreaming sleep" markedly increased in amount as the sleep continued. Thus, there was some suggestion that there had been a deprivation of REM sleep during the development of the acute illness.

Finally, recent data from animal research may have bearing on this issue. After REM sleep deprivation, there is marked quantitative increase in the sexual and aggressive behavior of rats. Drugs that intensify psychosis augment this effect, whereas drugs of a psychosis-suppressing nature decrease the effect. "REM" deprivation has an effect upon the subsequent sleep of animals for a far longer time than was previously realized, a duration which may mean that sleep disturbance could influence psychosis in a more subtle fashion than previously expected.

The intramural program has made some progress in studies of the central nervous system in schizophrenia. Prior to drug treatment, for instance, schizophrenic persons differed from normal controls on some measures of the visual evoked brain wave response. Following tranquilizer (phenothiazine) treatment, some of the schizophrenic patients showed a clinical improvement that correlated with a shift of the evoked brain wave response towards normal values. This is important for understanding both brain functioning in schizophrenia and the mechanism of drug effect. Another study has correlated perceptual task performance and some measures of cortical evoked responses. Here, unique characteristics have been found in nonparanoid schizophrenics indicating a pronounced attenuation of the experienced intensity of stimulation.

Recent evidence suggests that the bizarre repetitive motor and perceptual activities of autistic children may be completely independent of environmental stimuli. Children suffering from the syndrome of early infantile autism were observed in a controlled stimulus-free environment, and during the presentation of stimuli thought to be meaningful to the child. The stereotyped behaviors

peculiar to these children persisted at a relatively stable level over prolonged periods of time, instead of fluctuating systematically with the stimuli. The investigators suspect that these peculiar behaviors are driven by some internal, possibly neurophysiologic, mechanism. They speculate that childhood autism, and perhaps certain types of schizophrenia of which autism may be a precursor, are determined by some processes within the nervous system of the patient, and not by environmental influences.

Prognosis and Treatment

The patient and his family share little of the professional's concern about nuances of diagnosis, the interplay of subtle etiological factors or the unraveling of mysteries of pathogenesis. They have only one overriding question about the future: is there any effective treatment for a person afflicted with schizophrenia? Much of the current NIMH research effort is aimed at providing an affirmative answer to this question.

However, uncertainty about diagnostic classification or differentiation among the "group of schizophrenias" has practical significance. Optimal treatment is directed at specific entities. For example, penicillin is remarkably effective for certain types of pneumonia (e.g., pneumococcal) but useless in other types (e.g., viral). Hence, researchers must attempt to identify specific subgroups of patients who may be responsive to a given mode of therapy.

The treatment of schizophrenia has been advanced in several ways. Major progress has been made in psychopharmacology. Fifteen years ago psychiatry possessed no drug treatments with clear efficacy for schizophrenia or for any other major mental illness. The introduction of the tranquilizers chlorpromazine and reserpine in the early 1950's inaugurated a new era in the pharmacological treatment of schizophrenia, an advance that had great social and economic implications. Since the early 1950's additional new drugs have been added to the armamentarium of the clinical psychiatrist. These compounds have reduced

the number of schizophrenic patients in public and private mental hospitals, shortened the length of the patients' stay in the hospital and allowed the treatment and rehabilitation of an increasing number of patients in their own communities without seriously disrupting their family and occupational relationships. The NIMH is continuing to work towards increasing knowledge of the clinical properties and specific indications for a variety of drugs, studying factors that influence their efficacy, as well as their side effects, which may have potential public health significance. One new drug, haloperidol, previously investigated by the NIMH Early Clinical Drug Evaluation Unit, was found to have an efficacy similar to that of the widely used phenothiazines. This drug was placed on the market in 1967.

In a seven-hospital collaborative study of chronic schizophrenia NIMH has been able to further the effective use of chlorpromazine and trifluoperazine. It has been shown that a large dose of chlorpromazine for a period of six months leads to a significantly greater improvement in patients under 40 years of age than does a low dose. If a low dosage was significantly inferior to the above high dosage for patients under 40 years, it was not inferior for patients over 40. These findings indicate that if a young patient does not respond to a low dosage of the drug, a higher dose should be tried; whereas, the use of higher doses on older patients is likely to be without additional value and may only produce greater side effects. In the study involving trifluoperazine both high and low dosages were similarly effective in all age groups with no significant difference.

Other psychopharmacological studies have been designed to test efficacy and other clinical properties of newly developed drugs in the treatment of schizophrenic adults and children. The NIMH Early Clinical Drug Evaluation program has shown, for instance, that gamfexine appeared to be a drug capable of quickly (2 weeks) stimulating chronic schizophrenics whose principal symptoms were withdrawal and apathy. However, this study also showed that the effect wears off quickly after treatment is discontinued,

and there was no evidence of any direct effect on the disorganization of conceptual thought. A combination of gamfexine and thioridazine seems to lead to more active mental processes, more alertness and interest, better organized thinking and more meaningful interpersonal relations. In another study it may be possible to determine the therapeutic effects of newer drugs on children with schizophrenia and other disturbances. The investigator offers a preliminary report that trifluperidol was the most effective anti-psychotic agent which she has tried on a population of young retarded schizophrenic children. It appeared to be more "stimulating" than trifluoperazine and reduced withdrawal in some of the children, along with affective blunting and psychotic disorganization of language. At the same time the drug appeared to stimulate speech and activity in children who were otherwise lacking in energy.

By extensive grant-supported research the NIMH continues to refine the application of psychological and psychopharmacologic agents in the treatment of schizophrenia. One careful study compared the use of five methods in treating 250 newly hospitalized male and female schizophrenics. The treatments included phenothiazine tranquilizers, individual psychotherapy, drugs combined with psychotherapy, electroconvulsive therapy and basic hospital care alone. Judging by clinical improvement and length of hospital stay, the two treatments incorporating drugs were definitely superior. Psychotherapy alone was no better than milieu treatment alone. Psychotherapy with drugs was not significantly more effective than drugs alone. Electroshock had an efficacy intermediate between the drug treatments, basic hospital care and psychotherapy alone. A detailed cost analysis indicated that psychotherapy was by far the most expensive method.

In a multifaceted study of the treatment of ten chronic schizophrenics, a combination of phenothiazine treatment and intensive psychotherapy was compared with intensive psychotherapy alone. The combination of drugs and psychotherapy was clearly superior to the use of psychotherapy alone, both for reducing florid symptomatology and

perhaps also in enhancing the patients' communication with the therapist. Not all these chronic patients improved even when they received both drugs and psychotherapy, however. Even those who showed the greatest improvement remained basically schizophrenic, in the judgment of the treating psychiatrists.

We have no evidence that pharmacological treatment can "cure" schizophrenia. What we do know is that drug treatment often leads to successful control and reduction of psychotic symptoms. It is not yet possible to answer the question of whether or not drugs modify the basic processes which underly schizophrenia. Nonetheless, research on the treatment of adult schizophrenia has continued to be productive.

Recent work has meant that assaultive, acutely disturbed and intractably withdrawn schizophrenic patients may now be treated in greater safety and comfort with a refined form of electroshock therapy. Cardiac and respiratory complications may be minimized by the correct choice of pretreatment sedatives and proper dosage of muscle relaxant drugs. Another study of an old treatment has resulted in improvements after unilateral electroshock therapy was compared with the standard bilateral technique. Patients who received the unilateral treatments were found to suffer less from confusion following therapy than did people who received the standard bilateral therapy.

Two research projects have recently offered encouraging results from behavioral therapies with children suffering infantile autism. Some previously mute children were able to acquire a rudimentary vocabulary, while others were able to relinquish severe self-destructive habits that had resisted all previous therapy. Along with improvement came a decrease in other forms of pathologic behavior such as screaming and withdrawal from adults. Another route in the development of treatment for child schizophrenia lies in family therapy.

Some ten years ago NIMH pioneered in the use of conjoint family therapy as an approach to understanding

disturbed families and their treatment. This work has been continued in the intramural program with particular emphasis on the nature of family dynamics and structure as well as the techniques, process, and outcome of family therapy. Similar work concerning the treatment of patients in the family setting is carried out by NIMH grantees. One investigator selected 50 families with adolescent schizophrenic members and provided treatment for the whole family in their home. In the great majority of cases it was possible to avoid hospitalizing the schizophrenic member of the family. Hospitalization was necessary in only 2 of the 50 cases, and then only for a brief period of time. Ordinarily, about half of the patients would have been hospitalized. Clinical and social improvements included the adolescent member's return to school and a more effective functioning of the family as a whole. Improvement may not require a trained therapist. Psychology students were employed by one investigator as "companion counselors." Under supervision, they visited schizophrenic children at their homes four to five times a week. In addition, a remedial teacher assisted the students who were retarded in school. Nine schizophrenic children have been in this pilot program for 3 months, and none have been hospitalized. As additional children have been included in the study, a scale of ego development is being prepared and evaluated. So far this study seems to show that schizophrenic children can be enabled to remain in the community and function reasonably well with the help of minimally trained personnel.

The rehabilitation of schizophrenic patients has also been attained by modifying the patients' self-esteem and social poise through effective work. Many NIMH-supported investigators are exploring this approach. One such project has compared the behavioral adjustment of 69 patients for whom work therapy was compulsory in the hospital with that of 76 patients who did not participate in the work program. The working patients were definitely better adjusted than those not required to work. Moreover, although this work program did not shorten the length of stay in the hospital, a 12-month follow-up after discharge indicated that a significantly higher proportion of the work therapy group was employed after leaving the hospital.

Another NIMH project in a State hospital has utilized a work program and changes in the hospital environment as a method of treatment. It created patient-employee groups who were paid for their work. Other patients, who were not ready for work were placed on an operant conditioning program where they were given concrete rewards. The change in surroundings and work program resulted in a dramatic 54 percent increase in work activity during a 12-week period and a great deal of progress among the patients. Of the 33 male patients, 7 were discharged from the hospital and were successfully employed.

In order to use the mental health resources of the community efficiently, it is necessary to know something about the long-term prognoses for schizophrenics, particularly in childhood. Utilizing information available from intensive long-term treatment and follow-up studies in a grant-supported project, it has been possible to isolate factors that predict improvement in psychotic children. It is also now possible to predict which children need prolonged residential care, and which are likely to do as well with day hospital treatment. This is essential for a rational and more efficient allocation of the all too precious community resources for intensive treatment of severely disturbed children.

Long-range study of the course and outcome of illness is inevitably a primary interest among mental health scientists. Two NIMH-supported studies have attempted to focus upon the question of outcome in schizophrenic adults. An extensive follow-up study of over 1,500 psychiatric patients in New Haven has revealed that 53 percent of these patients, who were hospitalized in 1950, remained or were again hospitalized during the next ten years; 2 percent were receiving outpatient care, and 31 percent had died, as of 1960. An interesting association between social class and outcome was revealed. A patient had a chance of remaining out of the hospital if he was a member of the highest social class that was three times the chance of his fellow patients in the lowest social class. Upper and middle class ex-patients, even if they exhibited greater psychological impairment than lower class ex-patients,

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nonetheless made better social and economic adjustments than did their lower class counterparts. Thus, membership in the higher levels of social class appears to confer a measure of "immunity" against hospitalization and the social and economic consequences of the schizophrenic illness - perhaps because of better mental health education and greater tolerance of deviant behavior.

Prognostic information has also been sought in measures of rate of learning and effectiveness of communication at the time of hospitalization. Patients who have done best on the test procedures administered in one study also tended to be discharged from the hospital most quickly.

One consideration in planning the best application of resources to the problems of schizophrenia is the question of incidence in the general population. Is the incidence changing because of marriage and fertility rates among schizophrenic patients and their nonschizophrenic siblings? A recently completed study offers some data about recent changes in marital rates and reproductivity among schizophrenic patients, heretofore known to be lower than those of the general population. The changes appear to be due to the impact of modern treatment and rehabilitative procedures. Patients hospitalized in New York State in 1934-36, before the introduction of current treatment methods, were compared with those hospitalized in 1954-56. Men and women in the latter group showed <u>increases</u> in marital rates, fertile marriages and overall reproductivity, when compared to their 1934-36 counterparts. The implications of these findings are that the expectancy rate for schizophrenia in the general population, long estimated to be less than 1 percent may, in fact, be <u>rising</u>, and that an increasing number of families with schizophrenic parents require more adequate treatment and management. A growing awareness of these facts should lead to an effort to make more reasoned and informed marriage and parenthood counseling available to schizophrenic patients and their families.

At every level, information is essential for coping with schizophrenia, but obtaining information is not always

a straightforward matter, and often requires some investment in developing methods. Many grant-supported projects contain some methodological focus. To illustrate, one investigator has analyzed a wide range of measures of improvement on a group of schizophrenics and showed that it was possible to consolidate a large number of measures into a few readily interpretable factors such as vocational adjustment and length of hospitalization.

Another major focus of methodological-technical work is the utilization of computer technology in the collection and analysis of research data. One research team is developing an automatic patient tracking system which will allow standardization of patients' data, convenient retrieval and up-dating of the data, while also insuring their confidentiality.

Hospital Improvement Program

One major aspect of the Institute's program is designed to stimulate new ways of improving the therapeutic facilities available to schizophrenic patients in State mental hospitals. The Hospital Improvement Program is directed toward improving the quality of treatment and rehabilitation, and toward moving the patient out of the hospital and into an active and productive role in the community. Each project tends to focus on problems which uniquely reflect the needs of the specific hospital and the community it serves. The Institute has extended grant support to more than one-half of the State mental institutions in the U. S. for the initiation of such improvement. During the past year there were 141 active projects in 47 states, the District of Columbia and Puerto Rico. In point of fact, most of the hospitals in the program have a preponderance of schizophrenic patients. Moreover, ten of these improvement projects were devoted specifically to problems of schizophrenia.

One project, begun in 1965 and recently completed, based its program around a Family Training Center. The specific aim was to bridge the gap between the hospitalized patient and his family and thereby reverse the regressive

trends toward social deterioration which are thought to result from prolonged hospitalization. The results from this program are quite encouraging. Following initiation of treatment in the Family Training Center, patients' average stay in the hospital has been decreased from 6 months to less than 1 month.

In another project, patients were moved to a newly renovated residential unit, designed to simulate family living conditions. A common day room for both male and female patients provided an opportunity for resocialization. Daily small group therapy sessions provided the focus for a multifaceted treatment. Although the average length of hospitalization prior to the project was more than 17 years, 34 percent of the pilot patients have responded to the new program with moderate to marked improvement; 11 percent have improved enough to be discharged.

A third project, still under way, is a comprehensive program of vocational rehabilitation. This has led to a 13 percent discharge rate among nearly 800 chronic schizophrenic patients, 85 percent of whom had been continuously hospitalized for more than 2 years. The program is centered around the assignment of each patient to some of a variety of newly developed rehabilitative projects on a very individual basis. These include sheltered workshops and specific jobs within the hospital complex, as well as sheltered and competitive jobs in the adjacent community. Once a patient demonstrates his ability to hold a job in the community, he is eligible for discharge to a halfway house, or to live with his family.

Encouraging results have been obtained elsewhere in the treatment of "hard-core" chronic schizophrenic patients, again through an intensified program of resocialization. Patients hospitalized continuously for more than 5 years were transferred to a newly remodeled and refurbished ward. Even the most chronic patients proved able to participate in all group activities on a full-day schedule. Patients conduct their own ward government and appoint their own committees which act in liaison with the professional staff. Vocational testing and guidance is provided, leading

initially to in-hospital and later to community job placement. Out of the original group of 30 patients, all of whom had been hospitalized continuously for 5 or more years, 20 percent became ready for discharge or were rapidly approaching that point.

Heartened by the demonstrable results, one newly funded group is attempting to mobilize some 500 chronically institutionalized schizophrenic patients. Among this group are some 200 patients who have recovered from the acute phase of their illness, but who nonetheless continue to exhibit varying degrees of crippling social deterioration which has prevented their reintegration into their families and communities. A three-phase program is planned which aims to provide intensive remotivation and resocialization. Initially, patients will be moved to a special hospital unit with a daily regimen of scheduled activities. Emphasis will be placed on meaningful cooperative relationships with other patients and staff members. Families of patients will be encouraged to participate, even at the earliest stages of the program. As the patients improve, they will be moved to smaller units on the hospital grounds where they will receive more individual therapy. Attention will be focused on assisting the patients to overcome socially undesirable behavior. The final phase will prepare the patients to return to their homes by showing them how to take advantage of the community's educational, work, recreational and social resources.

Such programs as these now offer improved services to schizophrenic patients in many States. The ultimate goal of preventing schizophrenic illness must await the unravelling of the complex interweaving of hereditary, constitutional and environmental factors that result in the disorder. Nonetheless, long before this goal can be attained, gratifying progress can be made toward rehabilitating the many thousands of people now afflicted with schizophrenia. The Hospital Improvement Projects of the Institute are providing a needed stimulus and support toward the achievement of this aim.

Community Mental Health Centers

Early diagnosis and treatment can be greatly facilitated by making available the required resources in the local community. Through the Community Mental Health Centers program, local and Federal resources have been combined to provide facilities with a complete range of consultative and treatment services for various rural and urban communities in the United States. In order to participate in the program the local community must recognize the scope and severity of its mental health problems and develop realistic plans for comprehensive mental health programs to deal with them. By June 30, 1967, there were 257 mental health centers in the U.S. funded by the Institute; 52 of them have support for both construction and initial staffing. Some 70-75 new centers are likely to be funded in 1968. Each center will serve about 165,000 people. Currently there are rural, urban, and metropolitan centers with services available to 41 million people. Given an estimated affliction rate of 1 percent for schizophrenia in the general population, approximately 410,000 schizophrenic patients are likely to utilize these facilities at one time or another during the course of their illness. These centers are immediately available to preschizophrenic children, adolescents, and adults referred to them for preventive consultation and prompt assistance. They are open to acute schizophrenic patients distressed and seeking help for the first time; and to other schizophrenics who have been previously treated in a distant mental hospital but who now live and work in the community. The centers offer a wide range of emergency resources, diagnosis, treatment, rehabilitation, and both inpatient and outpatient facilities whose proximity and availability to the community should have profound salutary effects on the overall impact of schizophrenia - its course for the patients, and its social and economic reverberations. As the centers progress in immediate service goals of treatment, education and consultation, several of them anticipate adding research functions. The centers are ideal loci for studying and evaluating many urgent clinical and social questions, not to mention assessing the most effective modes of operation for the centers themselves.

Through community mental health programs it may be possible to repair lives without unnecessary hurt to the individual's subtle tissue of social life, beginning first with his family, and then with the community in which he lives. While permitting the mentally ill to remain as much as possible within the "natural" human context of family and community, the centers provide some answers to the exigent distress of the presently ill and their families. Still, while providing the best services possible at present, it is urgent that our research press on to the borders of the unknown until we discover what are the diseases we call schizophrenia, how do they start, what mechanisms must we combat in order to effect a cure. At that point it will be possible to attack the problem directly as we now attack bacterial disease. It is only then that we can speak of conquering schizophrenia.

SUMMARY OF BUDGET REQUEST FOR COMMUNITY MENTAL HEALTH RESOURCES SUPPORT

Mr. FLOOD. I want to ask you some questions about community mental health resources support. You have $100,168,000 appropriated for 1968. You are asking for $87,300,000, a reduction, believe it or not, of $12,868,000. Of course, this is because of the carryover of funds as a result of holding down on the obligations in 1968 under House Joint Resolution 888?

Dr. YOLLES. Yes.

Mr. FLOOD. If you get your request you have $132,300,000 actually available in 1969 compared with $100,548,000 in 1968. That is an increase of $31,752,000; is that right?

Dr. YOLLES. Yes, sir.

LACK OF AUTHORIZATION TO APPROPRIATE

Mr. FLOOD. Is it also right that you lack authorization for the $8 million of this request that is for construction and operation of narcotic addict rehabilitation facilities?

Dr. YOLLES. Yes. The bill, H.R. 15758, has been introduced.

Mr. FLOOD. What is the status of H.R. 15758?

Dr. YOLLES. It is pending hearings before the House Interstate and Foreign Commerce Committee. Hearings are scheduled sometime during the week of the 25th on this bill, which will place the authorities now in section 402 of the Narcotic Addict Rehabilitation Act, which authorizes the award of grants, in the Community Mental Health Centers Act.

CONSTRUCTION DEFERRALS

Mr. FLOOD. With regard to construction, bricks and mortar, you are holding the program down to $45,380,000 this year?

Dr. YOLLES. Yes, sir.

Mr. FLOOD. And again I bring out the national fiscal situation in 1969. It looks just as bleak as in 1968. So what about those heavens, will they fall again if you are held to the same level as 1968 under all of the circumstances?

Dr. YOLLES. We feel this reduction in the amount for construction will slow the program; it will not permanently damage the program. Of course, $45 million of the construction funds which are authorized were deferred to 1969. I think Mr. Cardwell can talk to that in further detail.

Mr. FLOOD. I would like some facts and figures to show what is the legitimate demand for this program.

Dr. YOLLES. We will submit that for the record.

(The information follows:)

FUNDS REQUIRED TO MEET DEMAND FOR CONSTRUCTION OF COMMUNITY MENTAL HEALTH CENTERS

The National Institute of Mental Health expects to approve applications for construction grants totaling $51,427,000 during 1968. This will exceed the amount avaliable by $6,047,000.

The amount available for construction of community mental health centers in 1968 is $45,380,000, all of which was carried forward from funds appropriated in 1967. This carry forward is possible since funds appropriated for this activity

remain available for obligation for 2 years. As a result of the cost reduction program, none of the $45 million appropriated in 1968 will be available for obligation in that year.

CONSTRUCTION GRANT PERSONNEL

Mr. FLOOD. The same question, of course, reoccurs immediately on the matter of staffing. You are asking for an increase of $113,132,000. What will happen if you only got $51,168,000, the amount you have in fiscal 1968? Same question, same problem, same Congress.

Dr. YOLLES. May I answer the question this way?

If I were forced to choose between my children, so to speak, I would put a higher priority on staffing grant funds because this allows the program to go forward, than I would put on construction grant funds. But both are necessary to the program.

Mr. FLOOD. On staffing the Federal share decreases each year, after the first 15 months. Wouldn't the same amount of Federal funds, all things being equal, go further in 1969 than it would in 1968? Doesn't that follow like night follows day?

Dr. YOLLES. I am not sure of that.

Mr. ISBISTER. In essence the "old business," this meeting commitments you have referred to is at a reduced rate. For 1969, our 215 continuing grants, with the application of the formula, would require $42 million.

Mr. FLOOD. Wouldn't it go further in 1969 than in 1968?

Dr. YOLLES. The total amount requested that was available in 1968 was $51 million. The $42 million required to meet the continuing requirements in fiscal 1969 would represent that reduction, sir.

Mr. FLOOD. Mr. Laird.

CHILD CARE DEMONSTRATION PROGRAM AND HEADSTART

Mr. CARDWELL. Before we leave this account could I say there is an item I would like to propose for the record, with your permission. I would like to ask that we be given a chance to extend Dr. Yolles' explanation of the difference between the early child care demonstration program and Headstart. I would add that this whole question was reviewed very carefully within the exectuive branch before this item was put in the budget. There was a group consisting of one of the HEW assistant secretaries, the Commissioner of Education, staff members from the Bureau of the Budget, and the White House.

Mr. FLOOD. We know about that.

Mr. CARDWELL. Who went into this very question.

Mr. LAIRD. It took that many people to find the difference? Is that what you mean?

Mr. CARDWELL. It was a question of trying to develop a comprehensive program for child care and development, one which would cover the problem of providing care for children of underprivileged persons, persons on public assistance, the question of emotional problems of children, the question of evaluating the capacity of children to learn in the early stages, and the question of research on the learning processes of children. These involve the full range of HEW activities ranging from education to mental health to social and rehabilitation services. For this reason there was a very comprehensive study of which this was a part, but only a part.

Mr. LAIRD. I think it would be helpful if we could have a better explanation for the record, because we seem to have two agencies doing very close to the same thing. I don't quite understand our present arrangement.

Mr. CARDWELL. That is our objective, to try to help clarify the situation.

(See p. 850 for add material that was submitted for the record.)

SUPPORT FOR BEHAVIORAL SCIENCES

Mr. LAIRD. Dr. Yolles, we are hearing an awful lot about the support for behavioral sciences. We hear it in the Defense Appropriations Committee, we hear it in the Independent Offices Committee, we hear it in the budget for the National Science Foundation. What is the role of the National Institute of Mental Health in relationship to the total support of behavioral sciences?

Dr. YOLLES. The role of the National Institute of Mental Health in relation to the behavioral sciences is a very substantial one indeed. The Institute serves as the principal focus in the Public Health Service for behavioral science at this time and has for a number of years.

For many years the Institute has been the primary source of support for research and training in the behavioral sciences. The first grant, incidentally, of the NIMH was made in this area and we have taken the position at NIMH that behavioral science represents a basic science substructure of all mental health activities and this has been borne out over the years in all of our actions and in our policy statements. At the present time human behavioral studies comprise about 27 percent of the total NIMH research effort and when you include the animal studies, this increases to over 40 percent of the total support.

These statistics clearly reflect the continuing emphasis on areas of behavioral sciences which were pioneered through Institute support. A sizable segment of NIMH training programs also is devoted to training for behavioral research. More than $21 million is utilized in training programs intended to enhance the research skills of those in the mental health field and this includes research fellowship programs at various levels as well as training programs in research for those in the behavioral sciences. So our activities and our relationships to behavioral sciences encompass the whole range of activities in NIMH—in research, in training, and in the application of behavioral science principles in some of our service operations.

Mr. LAIRD. Some of the Institutes at the National Institutes of Health are getting into behavioral sciences. We have also watched the growth of the National Science Foundation in this area. Do you think there is or can be any real coordination of these activities?

Dr. YOLLES. I would think there could be a considerable amount of coordination. There have been a number of efforts over the past 3 or 4 years. You may be aware that we have been working, when we were part of the NIH, as well as recently, since we have been separated from it, with the National Institute of General Medical Sciences, and the National Institute of Child Health and Human Development.

Mr. LAIRD. That Institute is moving into this area.

In this budget and last year's budget it started showing up really for the first time in large amounts.

Dr. YOLLES. There is a legitimate area for all of these programs in the area of behavioral sciences. It is a substratum for many areas of program.

Mr. LAIRD. Why wouldn't you have the responsibility for coordination for the Federal Establishment?

Dr. YOLLES. Why we don't have it is an open question. We have been supporting most of it for many years and presently continue to do so. More recently, with new approaches in behavioral sciences and realization of the importance of behavioral sciences as substrata for many programs which involve human behavior, other Institutes took up the support of these sciences.

We feel that they have a legitimate role in support of basic behavioral science areas. I don't think that the field should be restricted to any one Institute. The field is not as broadly developed as it needs to be in terms of application to all health efforts. We do, however, feel very strongly that NIMH efforts in behavioral sciences should continue and expand in relation not only to mental illness but also to the development of mental health and the development of the healthy personality as well.

PROJECTED DECREASE IN RESIDENT MENTAL PATIENTS

Mr. LAIRD. In your statement you changed the projection as to when we would be able to cut in half the number of individuals hospitalized with mental illness. Would you discuss that a little bit?

Dr. YOLLES. Yes. We had for many years prior to 1955 a continuing increase of resident patients in mental hospitals. At the end of each year there was a higher number. In 1955 with the advent of the psychoactive drugs and new approaches to treatment, a new hope seemed to develop about treating the mentally ill. This resulted in a turn in the trend line so it started to come down and statistics for the following year, 1956, for the first time showed fewer resident patients at the end of the year than there had been the previous year. This drop has continued steadily.

In 1963 the Community Mental Health Centers Act was passed. In spite of the trend line which would have projected far more patients at the end of 1973, NIMH made the prediction that the number of hospitalized patients would be reduced by half, to about 252,000, by 1973. The development of the community health centers and a continuing acceleration in the rate of decrease now enables us to change that prediction. We feel that, by 1973, if present trends continue we will have only 186,000 patients in mental hospitals at the end of that year, rather than the 252,000 which was the goal and which looked like a very ambitious program at that time.

We consider this to be a signal success of the mental health establishment in the United States.

Mr. LAIRD. And the largest contributing factor to this you would say is the drug development?

Dr. YOLLES. The drug development started the downward trend. This was the principal factor in changing the course of the trend, but with the advent of the community mental health centers and the new approach toward treatment in the community, there was further acceleration in the trend. The psychiatric drugs remained available

to us, but the fact that the individual could be treated in the community and kept in his home and at work even though he had a mental illness rather than being hospitalized either for a year or for 2 or 3 years changed the entire pattern of care.

MODEL COMMUNITY MENTAL HEALTH CENTERS

Mr. LAIRD. Last year as I recall in talking about the community mental health centers, you said you were going to set up two model centers as direct operations of the National Institute of Mental Health. One was to be based at a large mental hospital and I believe that was going to be St. Elizabeths. The second was to be based in a general hospital, possibly using your facilities in Prince Georges County as the base. How are you coming along on these two centers? Have you decided definitely where you are going to locate the second center?

St. Elizabeths is the first, is that correct?

Dr. YOLLES. That is quite correct.

Let me deal with St. Elizabeths. We are in the process now, through the use of a task force, of setting up the principles and the structure of the community mental health center which will be responsible for area D of the District of Columbia. This is going on quite well. The mental health study center, which we were discussing a few moments ago, will be the base for the community mental health center based on a general hospital.

We have been working in Prince Georges County since 1948 and of course our first thought was we would continue to work in Prince Georges County and would take the southern half of the county as the catchment area for the new comprehensive community health center if we could find a suitable inpatient base at a general hospital. We have not been successful as yet. So we have cast our net a little wider, if you will, to surrounding counties and one of the areas we are looking at—there is nothing settled at all as yet—is in Howard County, the new city in development in Columbia which has some advantages and would enable us to start in a community which is just beginning and to work with the developing institutions in the community to help build in mental health programs and principles in the schools, in the service agencies, and work with the local medical organizations. So Columbia looks like a very fruitful place but nothing definite has developed as yet.

DRUG USE AND LAW ENFORCEMENT

Mr. LAIRD. Doctor, there has been some conflict between your approach and the approach of some of our law enforcement agencies as to the use of narcotics. How is this conflict being resolved?

Dr. YOLLES. Mr. Laird, you are referring to a continuing situation which has been in existence for a number of years, and this is based on the philosophies of some of the law enforcement agencies as well as the philosophies of medical institutions generally.

I might say at this point that the law enforcement persons regardless of whether they are in the Bureau of Narcotics or the Department of Justice or any of the State law enforcement agencies

are quite convinced and wholehearted in their feelings about the approach to dealing with addiction and they are quite sincere. I have every respect for their opinions in the area of law enforcement. I happen to have strong opinions, based on scientific fact and my medical experience, which do not often, at least in the area of control of narcotics and drug abuse, coincide with those of the law enforcement authorities. We differ specifically in the case of LSD, for example, which was recently discussed. If it is necessary to have a penalty for possession of such a substance, I am very much concerned as a physician and one who is interested in addiction and drug abuse, that we do not damage the very individuals we are trying to protect by such laws by keeping them from coming for treatment when they have a "bad trip" or a severe reaction because of the fear of self-incrimination. This is my overriding concern in this area.

As a lesser concern, we know from our surveys and the scientific information available to us that most of the college students use these drugs once or twice, they try them for one reason or another, for kicks or for curiosity or it happens to be the social thing to do at the moment.

I am somewhat concerned, as I said 2 years ago when asked this question before, about filling up the jails with college kids who are merely trying something for the first time. These are my two principal reasons for being somewhat concerned about the penalty for private possession of any of the hallucinatory drugs.

Drug Education

Mr. Laird. About 3 years ago we discussed with the National Institue of Mental Health the problem of public information on drugs and the use thereof. At that time it was brought out that you were able to produce material and information and develop an adequate educational program. You had been quite successful with young people, not only educating as to the adverse effects upon youth but you were actually able to curtail the use quite a bit through educational programs. We talked then about the use—one of the things that the chairman suggested, and I thought you were going ahead with it—the use of films for schools. Not much has really been done on that. I read over your recent testimony before the Dodd committee in the Senate which was very adequately and effectively covered in the New York Times. I would like to place in the record the profile on you at this point, "Authority on Drugs," taken from the New York Times. I think it is a very complimentary profile and one that should go into the record. But I just do not believe you have made enough headway here.

(The information follows:)

Authority on Drugs—Stanley Fausst Yolles

Washington, March 6.— The witness before Senator Thomas J. Dodd's Subcommittee on Juvenile Delinquency pointed to three boxes jammed with computer cards this morning and said quietly: "This is the most complete file on LSD that exists in the world." Dr. Stanley Fausst Yolles, the witness, ought to know. As Director of the National Institute of Mental Health, he is responsible for all research, both private and governmental, on the mind-changing drug that has fascinated and terrified Americans for the last several years.

Dr. Yolles (pronounced YOH-les) is a Brooklyn-born physician who switched from parasitic diseases to psychiatry midway in his medical career. Last fall, he was chairman of the first U.S. delegation on mental health to visit the Soviet Union.

HEAVY-LIDDED EYES

Of medium height and build, immaculately barbered, with large, heavy-lidded eyes, Dr. Yolles at first gives little clue to the range of the man.

Those who work with him describe him as "brainy," "very well read and educated" and "by temperament a devil's advocate."

"The words for him are 'sardonically amused,'" said one employee.

Phillip Sirotkin, a political scientist who is associate director of the institute, says Dr. Yolles "really knows government and political processes very well—as well as any political scientist" and certainly far better than most doctors.

In addition, Dr. Yolles is a model railroad buff, the tracks are beginning to impinge on the ping-pong area of his basement in Bethesda, Md.; a photographer, the darkroom clutters up the attic; an Egyptologist, the library is overflowing with books about Egyptian history and archeology; stamp-collector, his collection, begun in childhood, also helps fill up the library; and gadgeteer, evidence of this are scattered over the house. So is the statuary Dr. Yolles has brought home from his wide travels.

He has born April 19, 1919, and received his bachelor's degree in 1939 from Brooklyn College, where he met his wife-to-be, Tamarath Knigin. A year later, he received his master's degree from Harvard University.

For 6 years, first with the Corps of Engineers, then with the medical department of the Army, he worked in parasitology in British and Dutch Guiana and Trinidad, aided by his wife. Their specialty was the prevention of insect-borne tropical diseases.

Mrs. Yolles, also a physician, works in the personnel office of the Public Health Service. They have two daughters, Melanie, 13 years old, and Jennifer, 9.

"I then decided that preventive medicine in terms of psychiatry was a brand-new field I wanted to explore," Dr. Yolles said.

GOES NORTH AGAIN

He went north again, to get his basic medical training at New York University-Bellevue-Medical Center. In 1950, Dr. Yolles joined the Public Health Service, did his internship at its hospital on Staten Island and served his residency in psychiatry at Lexington, Ky.

On December 17, 1964, Dr. Yolles was named director of the National Institute of Mental Health and Assistant Surgeon General of the Public Health Service.

A member of his staff says that on the job, he is "quiet and doesn't go roaring around the halls—he's not a nasty autocrat."

"But when he gets on the phone and says: 'get me whoozis,' if you don't produce you go somewhere else," the aide added "What Yolles wants, Yolles gets."

Dr. YOLLES. I agree that a great deal more needs to be done in terms of public education, as well as general education.

EDUCATIONAL TOOLS FOR DRUG EDUCATION

Mr. LAIRD. You made quite a point of it in your appearance in the Senate. I would like to know what you have that you can use for this purpose.

Dr. YOLLES. We have a number of activities which are proposed. We have in the budget at the present time about $800,000 for educational activities in the area of drug abuse. We have a program set up for use of this money in public education. We intend to produce a major bank of films, rather than one film. It will be a bank of films, which can be tailored to various audiences. We would like to develop for the first time a film which shows coolly and objectively what the story is with regard to the drug addiction and drug abuse in the United States.

To put the drug abuse problem in the United States in the context of the international scene—we are not the only ones who have problems in this area. There are many countries who have problems in this area—we would like to produce a film which would cover the international scene. Production of this film is going on now under contract. It will be of sufficient length so that it can be cut and tailored to be used for school audiences. We hope to have a major showing on national TV for this. But I would like to emphasize that it will present no particular point of view. It will present all of the facts, as objectively as we can present them. Such objectivity is not extant in the field of narcotics and drug abuse at the present time. Existing films are either heavily medically slanted or heavily law enforcement slanted and there is no good general film.

In addition to the film underway we have a number of books, pamphlets, lectures, transcriptions for radio, et cetera, and we plan to use all of the media during this coming year.

Mr. LAIRD. Let's have some specific examples of what you are doing. I would like to understand exactly what you meant by this statement before the Senate committee. You say you have had tremendous success where you have had the educational tools and where you have been able to get the information across to people.

I don't think you have many tools.

Dr. YOLLES. In relationship to LSD, our principal tool was using conferences with deans of colleges, having conferences with student leaders and having a pyramidal system if you will, one individual transmitting this information to a number of others. We were able to get across to the individual what the effects of LSD really were in terms of bad "trips," psychotic sequelae, and the possibility of genetic damage.

As far as marihuana is concerned, we are just starting in this area now because some of the information is pretty tenuous in the area of marihuana. Some of the other drugs that are used we know more about, for example, the barbiturates and amphetamines. There hasn't been any really concerted effort to disseminate that information.

SIDE EFFECTS OF LSD

Mr. LAIRD. What about LSD? You have had some projects going on for a couple of years on the effects of LSD on childbirth defects. You have done research work in that area. I think you have used mice or rats and guinea pigs.

How are you getting the information out from these research centers?

Dr. YOLLES. By lectures and by published bulletins and scientific communication devices of the National Clearinghouse for Mental Health Information.

Mr. LAIRD. I can go down to the police department and see films on people taking trips. Of course most of those films they wouldn't even release because I guess there is a question of privacy involved. But yet that is the way to get people concerned about it. You have basic research work that proves pretty clearly there are bad side effects particularly on the female.

Dr. YOLLES. We are not certain of that as yet.

Mr. LAIRD. You are certain of it as far as mice are concerned.

Dr. YOLLES. No, not always, because some of the animal studies have been contradictory. It is still in a state where we do not know the final answers as yet. But there is enough evidence already to alert people to the possible dangers so that we would resist giving LSD in an experimental situation to any woman in the child-bearing age, until we can resolve the problem one way or another.

Mr. LAIRD. You certainly would not recommend or allow the use of LSD if you were Food and Drug Commissioner and you had to approve it for use. You would not approve it for use on the basis of the questions that have been raised right now, would you?

Dr. YOLLES. It is approved as an experimental drug. Investigational new drugs permits are issued for LSD when the research is recommended by the Joint Committee of NIMH and FDA. But the Bureau of Medicine in the FDA will not agree in any situation now to allow the use of the drug if women of child-bearing age are involved in the protocol of the experiments that are going to be carried out.

Mr. LAIRD. That is a lot different than approving it for general use by practitioners.

Dr. YOLLES. That is right. There is enough evidence, even if it is presumptive at this point. This will not stop research, however.

Mr. LAIRD. Before the Senate you were quite strong in your statement as far as birth defects are concerned.

Dr. YOLLES. We would not recommend it for any woman in the childbearing ages. Furthermore, as far as general LSD use is concerned, I don't think LSD should be administered by anybody except a physician under the most carefully controlled situations, and then only after the protocol is reviewed very carefully by suitable experts. It is a very dangerous drug.

EDUCATIONAL EFFORT ON DRUGS

Mr. LAIRD. The point I am trying to get to here, and perhaps I am not getting there by as direct a route as I should—I like the point you made in the Senate. Where you were able to get out material and where you were able to use the educational process you were able to cut down quite materially on the use of these drugs and other substances.

Dr. YOLLES. Yes.

Mr. LAIRD. I just don't think we are doing enough here.

I think progress is being made as far as sex education in the schools. Some pretty good things have been prepared for use in the schools on that subject, but I don't think there is very much in this area.

Dr. YOLLES. I think you are quite right. Education for parents, for example, is sadly lacking. Most parents do not know what to look for. If they suspect that one of their children is smoking marihuana they have no way of knowing whether it is true or not. There are some very direct educational tools that can be used. You can expose PTA groups to the smell of burning marihuana without any difficulty, you can educate them to the signs of narcotic addiction, and so forth. These techniques have not been used to a large degree. What has been used in place of them over the years has been scare techniques and these no longer work, either with the adult population or with

the kids. They have become suspicious of "official information" because scare techniques have been used so often. They know the results, often from direct observations, seeing other students smoking marihuana cigarettes and observing that there were no dire immediate consequences.

If an official source comes in and says don't smoke a marihuana cigarette because you can become an addict immediately, and cites all of the dire catastrophes associates with the use of it, they become suspicious and reject all of the information. That is why we have been trying to concentrate on purely objective scientific information to be disseminated not only to the kids, but to educators and to the general public and we intend to do that using all of the media available.

I think one of the principal methods that needs to be exploited is the use of national TV at the present time to present a straight, factual, scientific presentation of the subject of drug addiction and drug abuse, because of all of the interest that has been stirred up and all of the mystery which exists about this subject in the United States.

EDUCATIONAL FILMS

Mr. LAIRD. When are you going to have your first film ready to go on national TV?

Dr. YOLLES. We hope this will be ready by June of this year.

TITICUT FOLLIES

Mr. LAIRD. Have you seen this film and what have you had to do with it, the Titicut Follies.

Dr. YOLLES. We have had nothing to do with the production of the film. We have seen it at a showing at the National Institute of Mental Health. It is a rare dramatic exposition of the conditions which exist at one of the hospitals for the criminally insane, in Massachusetts, Bridgewater Hospital.

In my professional opinion, it is a film worth seeing by all of those who are interested in any way in the field of mental health and by that I include legislators, individuals in the Federal Establishment, and State authorities, because I think it depicts what we have carefully pushed out of our minds. There are still bad conditions in some of our hospitals in the United States even today. We tend to ignore them, tend to forget them and tend to push them out of our minds.

But I think this kind of visual presentation is an excellent method of reminding us that all is not well in the mental health establishment in terms of hospitals.

Mr. LAIRD. In 1947 I made a tour of all of the mental hospitals in Wisconsin as well as the hospital for the criminally insane. It probably had a greater effect on what I did in the next session of the legislature than anything I had ever been involved in as a politician. It resulted in a new mental health bill in the next session of our legislature which was sponsored and had the support of our new Governor, who took over at that time.

I think without the tour that I made at that time we would not have moved as rapidly as we did in our State legislature. Things were pretty bad.

I have not seen this film, but I have heard about it from several people who have seen it. Are the conditions it depicts rather general?

Dr. YOLLES. I think what is depicted in the film is general in the sense there are some hospitals in practically every State that are like this. If it is not the entire hospital, then it is typical of large parts of the hospital. I would recommend it for viewing by all concerned.

PRODUCTION OF FILMS UNDER CONTRACT

Mr. LAIRD. You mentioned that the films you were producing were being produced under contract.

Dr. YOLLES. Yes.

Mr. LAIRD. Why do you use the contract procedure to produce these films?

If you use the contract procedure, you are going to have to be responsible for their content. I think the policy involves this committee as well as the Institute and the people of HEW. If you use a grant procedure with our universities and colleges and medical schools you are better able to preserve their academic freedom.

I recall a film that was made on air pollution. I was very happy when the people from the coal industry, the oil industry, and the automobile industry came to me and complained very vigorously about our financing this film through this subcommittee's appropriation bill, that I could say to them, "well, this was produced by one of our great universities and we cannot become involved in censorship of this material because you don't do this with such an educational institution." When you do it under contract you have to be involved.

Dr. YOLLES. We would prefer to support these under grants for many reasons. Of course it allows more freedom for the producer. There was some urgency in getting such a film started and we chose this method because it was quicker.

Mr. LAIRD. This film has been under production for about 3 years, has it not?

Dr. YOLLES. No sir. It has been in process now for about 8 or 9 months in terms of production.

Mr. LAIRD. We started talking with Dr. Felix about a film, on the use of drugs, that could be used in the schools.

Dr. YOLLES. It was not the same thing. This film was started 8 or 9 months ago. We thought it was urgent that we have this sort of material and because of its urgency we did it by contract. We would prefer to have it done by grant usually.

Mr. LAIRD. In that case it is awarded by a review council?

Dr. YOLLES. Yes.

Mr. LAIRD. If it is awarded by contract it does not have to be reviewed by the council?

Dr. YOLLES. No, but it is reviewed in our Institute and at the Department level and at the Public Health Service level, so there is professional review.

FUNDING OF PROGRAMS IN WISCONSIN, KANSAS, AND OHIO

Mr. LAIRD. I have been getting some communications from people in Kansas. Our colleague on this committee, Garner Shriver, talked to me about this and Congressman Joe Skubitz talked to me about it.

I have also heard from people in Wisconsin and people in Ohio about the problem they face in funding their current mental health program. They are three of the States that are ready to go forward. Under this budget request those States that move forward and are prepared to go are being held back because many other States are not ready. What is the status of this?

Dr. YOLLES. Dr. Levenson, do you have the material for those States?

Mr. LAIRD. They use the figure of $10 million.

Dr. LEVENSON. In terms of community mental health centers I can tell you what we anticipate from those States in 1969.

Mr. LAIRD. Do you know what I am talking about—these three States and their problems?

Dr. LEVENSON. Not specifically, no. But we would be glad to look into that problem for you.

Mr. LAIRD. Thank you very much Dr. Yolles.

Dr. YOLLES. Thank you.

JUSTIFICATION MATERIAL

PUBLIC HEALTH SERVICE

Mental Health Research and Services

Amounts Available for Obligation

	1968	1969
Appropriation	$246,741,000	$277,639,000
Unobligated balance brought forward	1,479,000	--
Transfer to "Operating expenses, Public Buildings Service," General Services Administration	-58,000	--
Proposed for transfer to "Saint Elizabeths Hospital, Salaries and Expenses"	-980,000	--
Advances and reimbursements from:		
Other accounts	1,717,000	1,178,000
Non-Federal sources	14,000	14,000
Unobligated balance, lapsing	-1,104,000	--
Total	247,809,000	278,831,000

Obligations by Activity

Page Ref.		1968 Estimate Pos.	1968 Estimate Amount	1969 Estimate Pos.	1969 Estimate Amount	Increase or Decrease Pos.	Increase or Decrease Amount
	Grants:						
19	Research.....	--	$74,589,000	--	$81,159,000	--	+$6,570,000
	(General research support).....	--	(5,483,000)	--	(7,755,000)	--	(+2,272,000)
	(Scientific evaluation).....	--	(375,000)	--	(375,000)	--	--
	(Categorical clinical research centers)...	--	(1,750,000)	--	(1,875,000)	--	--
21	Hospital improvement..	--	10,610,000	--	10,610,000	--	--
22	Training.....	--	100,762,000	--	109,046,000	--	+8,284,000
24	Fellowships.....	--	10,155,000	--	10,641,000	--	+486,000
25	Early child care demonstrations.....	--	--	--	14,500,000	--	+14,500,000
	Direct Operations:						
26	Planning, development and administration of extramural research programs.....	102	2,550,000	102	2,569,000	--	+19,000
35	Intramural research...	536	16,014,000	557	17,325,000	+21	+1,311,000
40	Manpower and training.	95	1,710,000	95	1,727,000	--	+17,000
44	Mental health services.....	77	1,552,000	83	1,641,000	+6	+89,000
50	Special mental health Programs.....	165	3,548,000	216	4,205,000	+51	+657,000
66	Regional and field activities.....	268	7,205,000	268	7,302,000	--	+97,000
71	Fort Worth and Lexington clinical centers....	1,057	11,536,000	1,057	10,580,000	--	-956,000
73	Scientific communication and public education	72	2,542,000	72	2,551,000	--	+9,000
76	Program management and services.....	368	5,036,000	368	4,975,000	--	-61,000
	Total obligations.....	2,740	247,809,000	2,818	278,831,000	+78	31,022,000

Obligations by Object

	1968 Estimate	1969 Estimate	Increase or Decrease
PUBLIC HEALTH SERVICE			
Total number of permanent positions	2,726	2,818	+92
Full-time equivalent of other positions	99	100	+1
Average number of all employees	2,601	2,679	+78
Personnel compensation:			
Permanent positions	$21,985,000	$23,053,000	$+1,068,000
Positions other than permanent	877,000	877,000	---
Other personnel compensation	426,000	426,000	---
Total personnel compensation	23,288,000	24,356,000	+1,068,000
Personnel benefits	2,170,000	2,276,000	+106,000
Travel and transportation of persons	1,331,000	1,395,000	+64,000
Transportation of things	168,000	178,000	+10,000
Rent, communications and utilities	795,000	903,000	+108,000
Printing and reproduction	517,000	522,000	+5,000
Other services	11,384,000	11,007,000	-377,000
Payment to "National Institutes of Health Management Fund"	6,760,000	6,760,000	---
Supplies and material	2,413,000	2,468,000	+55,000
Equipment	2,762,000	3,045,000	+283,000
Grants, subsidies, and contributions	196,116,000	225,956,000	+29,840,000
Subtotal	247,704,000	278,866,000	+31,162,000
Quarters and subsistence charges	-35,000	-35,000	---
Total obligations by object Public Health Service	247,669,000	278,831,000	+31,162,000

Obligations by Object-Continued

	1968 Estimate	1969 Estimate	Increase or Decrease
ALLOCATION TO SAINT ELIZABETHS HOSPITAL			
Total number of permanent positions.....	14	...	-14
Average number of all employees.....	13	...	-13
Personnel compensation:			
Permanent positions.....	90,000	...	-90,000
Other personnel compensation	15,000	...	-15,000
Total personnel compensation.....	105,000	...	-105,000
Personnel benefits.....	8,000	...	-8,000
Rent, communications and utilities.....	24,000	...	-24,000
Other services.....	1,000	...	-1,000
Supplies and materials.....	2,000	...	-2,000
Total obligations by object, Saint Elizabeths Hospital.....	140,000	...	-140,000
Total, obligations by object.....	247,809,000	278,831,000	+ 31,022,000

Summary of Changes

1968 enacted appropriation	$246,741,000
Unobligated balance brought forward	1,479,000
Proposed transfer to "Saint Elizabeths Hospital, Salaries and Expenses"	-980,000
Transferred to "Operating expenses, Public Buildings Service", General Services Administration	-58,000
1968 estimated reimbursements	1,731,000
Unobligated balance lapsing	-1,104,000
1968 estimated obligations	247,809,000
1969 appropriation	277,639,000
1969 estimated reimbursements	1,192,000
1969 estimated obligations	278,831,000
Total change	+31,022,000

	Base		Change from Base	
	Positions	Amount	Positions	Amount
Increases				
A. Built-in				
1. Annualization of 1968 pay raise costs	---	---	---	$289,000
2. Annualization of 61 positions new in 1968	---	---	---	196,000
3. One extra day of pay in 1969	---	---	---	74,000
4. Rental of new space	---	---	---	100,000
Total built-in increases	---	---	---	659,000

	Base		Change from Base	
	Positions	Amount	Positions	Amount
B. Program				
1. Research Grants.....	---	$74,589,000	---	$6,570,000
a. Regular projects..	---	(69,089,000)	---	(4,478,000)
b. General research support grants..	---	(5,483,000)	---	(2,272,000)
2. Training.....	---	100,762,000	---	8,284,000
3. Fellowships.....	---	10,155,000	---	486,000
4. Early child care demonstrations.....	---	---	---	14,500,000
5. Intramural research...	536	16,014,000	35	1,371,000
6. Mental health services.....	77	1,552,000	6	72,000
7. Special mental health programs.....	165	3,548,000	51	628,000
8. Regional and field activities.....	268	7,205,000	---	58,000
9. Fort Worth and Lexington clinical centers....	---	---	---	329,000
Total program increases...	---	---	92	32,298,000
Total increases.....	---	---	92	32,957,000
Decreases				
A. Built-in				
1. Non-recurring costs...	---	---	---	-196,000
2. Elimination of allocation to Saint Elizabeths Hospital.	14	140,000	---	-140,000
3. Decrease in outside reimbursements.....	---	1,731,000	---	-539,000
4. Fort Worth and Lexington Clinical research centers...	---	1,479,000	-14	-1,060,000
Total decreases.....	14	140,000	-14	-1,935,000
Total net change requested.....	---	---	78	+31,022,000

Explanation of Changes

Built-in increases

1. Annualization of 1968 pay raise costs. The increase of $289,000 represents the difference between the full year cost, higher salaries in 1969 due to 1968 pay legislation, and the cost which was incurred in 1968.

2. Annualization of position new in 1968. An increase of $196,000 will permit normal full-year funding in 1969 of 61 positions authorized by Congress in 1968, but not fully funded in that year.

3. One extra day of pay in 1969 above the normal 52 week base will require $74,000.

4. Rental of new space. An increase of $100,000 will be used to relieve present overcrowding and provide space for expanding programs.

Program increases

1. Research grants. An increase of $4,478,000 will provide modest increases for research projects in behavioral, clinical, psychopharmacological, and applied research, including some additional funds for studies in narcotic and drug abuse, alcoholism, suicide prevention and metropolitan mental health problems. There is also an increase of $2,272,000 in this Institute's share of the General Research Support grants.

2. Training grants. An increase of $8,284,000 will provide additional stipends for graduate and undergraduate training in many mental health disciplines.

3. Fellowships. An increase of $486,000 will be used to maintain the present level of fellowship support.

4. Early child care demonstrations and evaluations. A new effort to demonstrate and evaluate different methods of preventing and treating emotional disturbances of young disadvantaged children in day-care center and pre-school education programs will be initiated with an increase of $14,500,000 in grant funds.

5. Intramural research. An increase of 35 positions and $1,371,000 will take advantage of newly available research space in 1969 at the

NIH Animal Farm, Poolesville, Maryland, and the yet to be completed research building under construction on the NIH reservation.

6. Mental health services. An increase of six positions and $72,000 will provide additional staff support for the Center for Metropolitan and Regional Mental Health Problems.

7. Special mental health programs. An increase of 40 positions and $500,000 is included to administer the early child care demonstration and evaluation program. The additional 11 positions and $128,000 will augment the Institute's Centers for Prevention and Control of Alcoholism, Suicide Prevention, and Narcotics and Drug Abuse.

8. Regional and field activities. An increase of $58,000 will be used to strengthen regional office operations.

9. Ft. Worth and Lexington clinical centers. The number of beds available at the Fort Worth Clinical Research Center for Veterans Administration patients is steadily declining, resulting in a decrease in the anticipated reimbursement for 1969 of $329,000. This increase is requested to replace the reduced resources, since there is no reduction in overall hospital costs.

Decreases

1. Non-recurring costs. There is a total of $196,000 in non-recurring costs of equipment and other miscellaneous items.

2. Elimination of allocation to Saint Elizabeths Hospital. A research support project which has been carried out at Saint Elizabeths Hospital under an allocation of $140,000 is now funded directly in the hospital's appropriation.

3. Decrease in reimbursements. A reduction in the number of beds available for Veterans Administration patients at the Fort Worth Clinical Research Center will result in an estimated reduction of $329,000 in reimbursements. There is also an estimated reduction in reimbursements from other agencies and outside sources.

4. Fort Worth and Lexington Clinical Research Centers. $1,060,000 was obligated in 1968 from funds appropriated in 1967 which remained available for use until December 31, 1967. This results in a built-in decrease of that amount in 1969.

Authorizing Legislation for Grants

I. The following Sections of the Public Health Service Act authorizes grants made under the subactivities "Research," "Hospital Improvement," "Training," and "Fellowships."

Sec. 301. The language of this Section will be found under the tab "Preamble Paragraph" in Volume IV.

Sec. 302. (a) In carrying out the purposes of Section 301 with respect to narcotics, the studies and investigations shall include the use and misuse of narcotic drugs, the quantities of crude opium, coca leaves, and their salts, derivatives, and preparations, together with reserves thereof, necessary to supply the normal and emergency medicinal and scientific requirements of the United States. The results of studies and investigations of the quantities of crude opium, coca leaves, or other narcotic drugs, together with such reserves thereof, as are necessary to supply the normal and emergency medicinal and scientific requirements of the United States, shall be reported not later than the 1st day of September each year to the Secretary of the Treasury, to be used at his discretion in determining the amounts of crude opium and coca leaves to be imported under the Narcotic Drugs Import and Export Act, as amended.

(b) The Surgeon General shall cooperate with States for the purpose of aiding them to solve their narcotic drug problems and shall give authorized representatives of the States the benefit of his experience in the care, treatment, and rehabilitation of narcotic addicts to the end that each State may be encouraged to provide adequate facilities and methods for the care and treatment of its narcotic addicts.

Sec. 303. (a) In carrying out the purposes of section 301 with respect to mental health, the Surgeon General is authorized--

(1) to provide training and instruction and to establish and maintain traineeships, in accordance with the provisions of section 433 (a);

(2) to make grants to State or local agencies, laboratories, and other public or nonprofit agencies and institutions, and to individuals for investigations, experiments, demonstrations, studies, and research projects with

respect to the development of improved methods of diagnosing mental illness, and of care, treatment, and rehabilitation of the mentally ill, including grants to State agencies responsible for administration of State institutions for care, or care and treatment, of mentally ill persons for developing and establishing improved methods of operation and administration of such institutions.

(b) Grants under paragraph (2) of subsection (a) may be made only upon recommendation of the National Advisory Mental Health Council. Such grants may be paid in advance or by way of reimbursement, as may be determined by the Surgeon General; and shall be made on such conditions as the Surgeon General finds necessary.

II. The following Section of the Narcotic Addict Rehabilitation Act of 1966 authorizes grants under the subactivity "Research."

Sec. 402. (a) There are hereby authorized to be appropriated for the fiscal year beginning July 1, 1966, and for the succeeding fiscal year, the sum of $15,000,000 to enable the Surgeon General (1) to make grants to States and political subdivisions thereof and to private organizations and institutions (A) for the development of field testing and demonstration programs for the treatment of narcotic addiction, (B) for the development of specialized training programs or materials relating to the provision of public health services for the treatment of narcotic addiction, or the development of in-service training or short-term or refresher courses with respect to the provision of such services, (C) for training personnel to operate, supervise, and administer such services, and (D) for the conducting of surveys evaluating the adequacy of the programs for the treatment of narcotic addiction within the several States with a view to determining ways and means of improving, extending, and expanding such programs;

Explanation of Transfers

	1968 Estimate	1969 Estimate	Purpose
Transfer to: "Operating expenses, Public Buildings Service, "General Services Administration....	-$58,000	0	Transfer of rental costs.
Proposed transfer to: "Saint Elizabeths Hospital, Salaries and Expenses".....	-980,000	0	Transfer of funds to cover costs of 1968 pay raise.

Research Grants

	1968 Estimate	1969 Estimate	Increase or Decrease
Regular programs.....	$66,981,000	$71,154,000	+$4,173,000
Special programs.....	7,608,000	10,005,000	2,397,000
Total research grants...	74,589,000	81,159,000	+6,570,000

The objective of the research grant program of the National Institute of Mental Health (NIMH) is to provide support for research on the etiology, diagnosis, treatment and prevention and control of mental illness, and the promotion of mental health. The Institute is responsible, therefore, for the support of clinical and basic research aimed either at solving problems of specific mental and emotional disorders or at expanding knowledge of the various dimensions of human behavior; and for support of research focused on applying newly discovered knowledge and techniques. In order to promote the mental health of the Nation, it is necessary to improve our base of knowledge by means of a continuum of scientific investigations from basic, normative studies to community-based evaluations of new approaches to the care of the severely ill.

Projects are supported in the following areas: behavioral sciences, clinical research, applied research, psychopharmacological research, research in narcotics and drug abuse, research in alcoholism, metropolitan mental health problems, crime and delinquency and other social problems, and research in suicide prevention. Research grants are awarded on an individual project basis. NIMH also provides support to research institutions, by providing a proportionate share for General Research Support Grants, which are administered by The Division of Research Facilities and Resources, NIH.

The Institute's extramural research program covers a wide range of activities in the areas of clinical, behavioral, psychopharmacology and applied research. The broad spectrum of studies encompasses: the etiology of the various mental and emotional disorders; the biological, psychological, and social processes associated with these disorders; their incidence and prevalence; and the identification and validation of new and improved methods for their diagnosis, treatment, and control through drugs and other modes of therapy.

Detailed information on these research grant programs is included in appropriate subactivities of Direct Operations. Clinical problems such as the schizophrenias and the depressions are discussed in several contexts in view of their relevance to the programs of several administrative units within the total research grant activity.

Distribution of Research Grants

		1968 Estimate		1969 Estimate		Increase or Decrease	
		No.	Amount	No.	Amount	No.	Amount
1.	Noncompeting projects...	780	$42,924,000	850	$49,175,000	70	+$6,251,000
2.	Competing projects.....	175	8,482,000	175	8,482,000	--	---
3.	Supplementals	(40)	496,000	(80)	1,276,000	(40)	+780,000
4.	New.....	633	15,079,000	575	12,221,000	-58	-2,858,000
5.	Subtotal, regular programs.....	1,588	66,981,000	1,600	71,154,000	+12	+4,173,000
6.	General research support grants.....	--	5,483,000	--	7,755,000	--	+2,272,000
7.	Scientific evaluation...	--	375,000	--	375,000	--	---
8.	Clinical research centers.....	--	1,750,000	--	1,875,000	--	+125,000
9.	Subtotal, special programs.....	--	7,608,000	--	10,005,000	--	+2,397,000
10.	Total research grants...	1,588	74,589,000	1,600	81,159,000	+12	+6,570,000

Research Grants Program Analysis

		1968 Estimate	1969 Estimate	Increase or Decrease
1.	Behavioral sciences.....	$18,171,000	$18,948,000	+$777,000
2.	Clinical research.....	9,371,000	9,840,000	+469,000
3.	Applied research.....	18,922,000	19,792,000	+870,000
4.	Psychopharmacology research	9,471,000	9,940,000	+469,000
5.	Narcotic and drug abuse....	3,996,000	4,624,000	+628,000
6.	Alcoholism.....	4,200,000	4,430,000	+230,000
7.	Metropolitan M.H. Problems.	950,000	1,450,000	+500,000
8.	Suicide prevention.....	1,900,000	2,130,000	+230,000
9.	Subtotal.....	66,981,000	71,154,000	+4,173,000
10.	General research support grants.....	5,483,000	7,755,000	+2,272,000
11.	Scientific evaluation.....	375,000	375,000	---
12.	Categorical clinical research centers.....	1,750,000	1,875,000	+125,000
13.	Subtotal, special programs.	7,608,000	10,005,000	+2,397,000
14.	Total research grants.....	74,589,000	81,159,000	+6,570,000

Hospital Improvement Grants

	1968 Estimate	1969 Estimate	Increase or Decrease
Total hospital improvement grants.....	$10,610,000	$10,610,000	0

The purpose of the Hospital Improvement Project program is to provide support for demonstrations of improved methods of care, treatment, and rehabilitation of the mentally ill in state mental hospitals. Its objectives are to strengthen therapeutic services and improve the quality of patient care, and to increase the contributions that these institutions can make as an integral part of the comprehensive community mental health programs of the future. This program is discussed in greater detail under mental health services.

Distribution of Hospital Improvement Grants

	1968 Estimate		1969 Estimate		Increase or Decrease	
	No.	Amount	No.	Amount	No.	Amount
1. Non-competing continuations..	115	$10,182,000	103	$9,785,000	+12	-397,000
2. Competing continuations..	2	200,000	9	825,000	+7	+625,000
3. Supplementals..	(1)	11,000	...	....	(-1)	-11,000
4. New.....	5	217,000	...	...	-5	-217,000
5. Total.....	122	10,610,000	112	10,610,000	-10	0

Training Grants

	1968 Estimate	1969 Estimate	Increase or Decrease
Total training grants	$100,762,000	$109,046,000	+$8,284,000

The primary objective of the Institute's training program is to increase the number of specialists in the mental health field. To meet this goal, a wide variety of training opportunities are provided for all levels of personnel engaged in mental health work; professional personnel in clinical service, research, training, and administration; sub-professional and technical personnel - including those receiving inservice training in institutions for the mentally ill; and general practitioners and other non-psychiatric specialists prepared to assume a more effective role in psychiatric treatment. Training is also provided in such special areas as alcoholism, suicide prevention, metropolitan mental health problems, drug abuse and narcotics, and support is provided for pilot projects to develop new and imaginative programs of training in mental health skills.

Training efforts are directed at providing - by 1970 - over 87,000 trained mental health personnel in the four core mental health disciplines of psychiatry, psychology, social work and nursing. The Institute's training program will provide crucial manpower support in behalf of the Nation's community mental health program. Other National programs, e.g., Medicare and Headstart, will increasingly utilize the skills of mental health personnel. The necessity of pursuing a well coordinated and productive training effort is, therefore, clear.

These programs are discussed in detail under the subactivity Manpower and training.

Distribution of Training Grants

	1968 Estimate		1969 Estimate		Increase or Decrease	
	No.	Amount	No.	Amount	No.	Amount
1. Continuations:						
a. Noncompeting	1,520	$74,870,000	1,537	$80,954,000	+17	+$6,084,000
b. Competing	347	17,511,000	353	19,020,000	+ 6	+ 1,509,000
2. Supplementals	(116)	500,000	(125)	541,000	(+ 9)	+ 41,000
3. New	180	7,579,000	182	8,195,000	+ 2	+ 616,000
4. Scientific evaluation	(9)	302,000	(9)	336,000	...	+ 34,000
Total	2,047	100,762,000	2,072	109,046,000	+25	+ 8,284,000

Summary
Training Grants (By Type of Program)

	1968 Estimate		1969 Estimate		Increase or Decrease	
	No.	Amount	No.	Amount	No.	Amount
1. Undergraduate	285	$9,270,000	295	$9,735,000	+10	+$465,000
2. Graduate	1,273	76,623,000	1,282	83,663,000	+ 9	+7,040,000
3. Continuing Education	171	3,949,000	168	4,213,000	- 3	+ 264,000
4. Experimental & Special	105	5,400,000	110	5,761,000	+ 5	+ 361,000
5. Staff Development	213	5,218,000	217	5,338,000	+ 4	+ 120,000
6. Scientific Evaluation	(9)	302,000	(9)	336,000	...	+ 34,000
Total	2,047	100,762,000	2,072	109,046,000	+25	+8,284,000

Training Grants Program Analysis

Disciplines	1968 Estimate	1969 Estimate	Increase or Decrease
Psychiatry	$29,819,000	$31,817,000	+$1,998,000
Behavioral Sciences	20,400,000	22,451,000	+ 2,051,000
Psychiatric Nursing	10,900,000	11,975,000	+ 1,075,000
Social Work	13,400,000	14,980,000	+ 1,580,000
Narcotics and Drug Abuse	231,000	254,000	+ 23,000
Alcoholism	430,000	473,000	+ 43,000
Metropolitan M. H. Problems	40,000	44,000	+ 4,000
Suicide Prevention	422,000	464,000	+ 42,000
General Practicioner	10,251,000	10,940,000	+ 689,000
Experimental & Special	5,400,000	5,761,000	+ 361,000
Continuing Education	3,949,000	4,213,000	+ 264,000
Staff Development	5,218,000	5,338,000	+ 120,000
Scientific Evaluation	302,000	336,000	+ 34,000
Total	**100,762,000**	**109,046,000**	**+ 8,284,000**

Fellowships

	1968 Estimate	1969 Estimate	Increase or Decrease
Total fellowships.....	$10,155,000	$10,641,000	+$486,000

Fellowships programs provide for scientists engaged in research on the problems of mental health and mental illness. Programs range from those which support young investigators beginning careers in the biomedical and behavioral sciences relevant to mental health, to those that support fully qualified research scientists in positions favorable to the development of research careers.

These programs are discussed in detail under the appropriate sub-activities of Direct Operations.

Distribution of Fellowships

	1968 Estimate		1969 Estimate		Increase or Decrease	
	No.	Amount	No.	Amount	No.	Amount
1. Continuations:						
a. Noncompeting.....	522	$5,250,000	522	$5,501,000	---	+251,000
b. Competing.....	66	853,000	66	894,000	---	+41,000
2. Supplemental.....	(125)	51,000	(125)	53,000	---	+2,000
3. New	517	4,001,000	517	4,193,000	---	+192,000
4. Total fellowships.....	1,105	10,155,000	1,105	10,641,000	---	+486,000

Fellowships (By Type of Program)

	1968 Estimate		1969 Estimate		Increase or Decrease	
	No.	Amount	No.	Amount	No.	Amount
1. Predoctoral.....	810	$4,681,000	810	$4,906,000	---	+225,000
2. Postdoctoral.....	70	508,000	70	532,000	---	+24,000
3. Special.....	80	1,138,000	80	1,192,000	---	+54,000
4. Research Career:						
a. Research awards.....	20	680,000	20	713,000	---	+33,000
b. Res. scientist awards..	125	3,148,000	125	3,298,000	---	+150,000
5. Total fellowships.....	1,105	10,155,000	1,105	10,641,000	---	+486,000

Early Child Care Demonstrations and Evaluations

	1968 Estimate	1969 Estimate	Increase or Decrease
Total grants.....	---	$14,500,000	+$14,500,000

This is a new program of grants to demonstrate and evaluate various methods of improving early healthy child development to prevent emotional disturbances and mental health problems of young children from poor and culturally deprived families. The background, goals, and methods of this program are described in the narrative justification for the Special Mental Health Programs activity.

Planning, development, and administration of extramural research programs

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
Personnel compensation and benefits	102	$1,297,000	102	$1,320,000	---	+$23,000
Other expenses	---	1,253,000	---	1,249,000	---	-4,000
Total	102	2,550,000	102	2,569,000	---	+19,000

Clinical and laboratory studies of the major psychiatric illnesses that is, of the schizophrenias and depressions as well as the other psychotic, neurotic and character disorders in all age groups - command a major portion of the research effort. Attempts are being made not only to identify new information about biological and experiential factors which relate to psychopathological behavior, but also to develop more effective and safer methods of treatment and prevention.

Schizophrenia presents a major psychiatric challenge. In the U.S., schizophrenics still account for about one-half of the resident patients in the State and county mental hospitals and V.A. neuropsychiatric hospitals. The incidence of hospitalization of adolescents and children is increasing. In addition, it is estimated that at least 2 percent of all Americans born in 1960 will be victims of schizophrenia during their lifetime. Although the current average length of hospitalization has decreased (only about 10 percent of admissions are retained for more than one year as compared to 20-40 percent in 1954), the rate of release is somewhat slower for schizophrenics than for the rest of the hospital population. Through intensive rehabilitation programs and improved pharmacotherapy, we have made some progress in combating this malady, but its exact nature has defied adequate definition.

NIMH grantees are exploring the many aspects of schizophrenia by exploiting all approaches and domains of data which our current knowledge indicates are relevant. The spectrum is very broad: from molecular biochemical changes in the cell at one end to the dynamics of interpersonal relationships in the family and the role-demand and expectations of the socio-cultural environment at the other; from factors thought to be genetically determined to those considered acquired through complex and varied learning and conditioning which may modify the internal and external behavior of the human organism. It is increasingly clear from large, careful, and intensive genetic studies that heredity plays

a significant role in schizophrenia - but that it is not the only factor. Some scientists have focused on biological processes, biochemical factors, and electrical brain wave patterns which may distinguish the schizophrenic patient both from other psychotic patients and from normal individuals. Differences already identified between psychotic and non-psychotic individuals include: nitrogen metabolism, cholesterol metabolism, urinary pigments, thyroid function, response to various drugs, and electroencephalographic pattern. The search for causes is tedious and slow due to the large number of variables and individual variations, some of them extraneous to the psychopathological process. Nevertheless, there are three promising areas now undergoing intense investigation: 1) abnormal proteins in the blood, 2) abnormality in amine metabolism, and 3) possible sleep abnormalities.

Investigators are studying early social and psychological factors and processes predictive of schizophrenic reaction. Family studies have provided a major methodological approach to evaluating these factors. Although pharmacological treatment may not provide a "cure" for schizophrenia, it does provide successful control and amelioration of psychotic symptoms in many cases. Numerous studies are in progress assessing the relative effectiveness and value of pharmacological, physical and psychotherapeutic methods of treating chronic and acute schizophrenic patients.

The seriousness of depression is suggested by its incidence. Approximately 90,000 patients are hospitalized for depressive reactions each year. In addition, it may be the underlying cause of many other illnesses, both mental and physical. Our program is attacking this problem on several fronts, with studies of the biological, psychological, and social factors involved in etiology, treatment, and prevention. Recent evidence indicates that psychotic depression is more prevalent among the relatives of patients suffering from affective psychoses than among the relatives of those suffering from schizophrenia; there is, therefore, an obvious need for more systematic studies of the contribution and interaction of genetics and environmental factors in the etiology of the psychoses. Data from recent studies of various anti-depressant drugs and from studies of sleep and dreams have opened new avenues of investigation into the comparative effectiveness of various drugs and have also ppovided specific working hypotheses about etiologic factors. The effects the depressions have upon the central nervous system, hormonal system, electrolyte balance and metabolism are being increasingly clarified. However, a basic understanding of this family of disorders still presents a major scientific challenge.

The clinical program is also focusing on the development of new methods of identifying and classifying mental illness. Traditional concepts about character disorders such as homosexuality are being challenged and refined by more extensive and precise data. Also,

original and improved methods for classifying, describing, diagnosing, and evaluating emotional disturbance are being devised for use in cross cultural research. A computer program has been developed to aid in psychiatric diagnosis. Other developments include better definitions and measures of psychopathological behavior and response to various treatments, and new approaches in operant conditioning and "behavior therapy" in the treatment of various disorders in both adults and children.

Knowledge of the mechanisms and processes of the central nervous system is essential to an eventual understanding of mental and emotional disturbances. The roles the brain plays in behavior is of central concern. Electrophysiological, anatomical, and chemical techniques are being used to investigate such areas as the relationships between the sensory and motor divisions of the nervous system; the evolutionary development of the nervous system; hypnogenic brain structures; reinforcing structures; the role of neurotransmitters in the control and variety of behavior; and neural bases of aggression. Corollary research is focusing on the important behavioral effects of brain damage.

Behavioral scientists continue their efforts to understand the impact of psychological, social, and cultural factors in the etiology, course, and treatment of mental illness. Contrary to long-held theory, for example, early life experiences do appear to generate emotional responses in infants - which may help lead to the early detection and correction of emotional disturbances. We are developing new insights into the complex patterns of family interaction and the ways in which family relationships influence personality factors such as achievement motivation. Comparative studies are revealing some of the social frustrations that lead to aggressive behavior and delinquency. A current research project, for example, will assess the ways in which various adolescent groups evaluate and define the issues and problems they are confronting. Projected areas of study in the behavioral sciences includes computer simulation of cognitive processes, the role of endocrine mechanisms in maternal behavior, genetics and stress-susceptability, learning ability and mental retardation, the prediction of creativity in scientists, the psychological effects of threats to freedom, and the creation of a precise personality trait taxonomy.

Psychopharmacology has been one of the most productive areas in the Institute's research program. New drugs effective in the treatment of mental illness have been developed, and efforts toward the synthesis of new chemical compounds of potential therapeutic value are in progress. Advances have also been made in the development of a standard animal screening technique which can be used to identify chemical compounds with properties similar to those of chemicals of demonstrated therapeutic value. The search continues for the development of good animal models of human psychiatric illness against which chemical compounds can be tested. In the clinical setting, investigators supported under

the Early Clinical Drug Evaluation Unit program have completed during this past year studies on 62 drugs or drug combinations, of which 13 had not previously been reported.

Reports from the Institute's Intramural program and other investigators support the usefulness of lithium carbonate in the treatment of manic-depressive psychosis. A collaborative study involving VA and non-VA hospitals will attempt to replicate this finding. It is also expected that results from a large collaborative study on the evaluation of chlorpromazine and trifluoperazine in the treatment of chronic schizophrenia will enchance the phsyician's ability to deal with this serious disorder.

The search for the most effective medication for depressed patients is also being actively pursued. A collaborative study, comparing the efficacy of chlorpromazine, imipramine, and a pharmacologically inactive substance in depressive patients may lead to more refined drug treatment.

The pharmacological treatment of patients in psychiatric outpatient therapy is also being studied. Various drugs are being tested for treating neurotic and schizophrenic outpatients and patients with personality and character disorders.

More basic studies identifying the effects of psychoactive compounds on the behavior of animals should permit the development of "model states" for human behavioral abnormalities. The effects of drugs on the electrical activity of the brain are being categorized in an effort to predict whether particular drugs would be useful as sedatives, stimulants, or hallucinagenic agents.

A primary objective and responsibility of the NIMH is to translate research knowledge into better mental health services and care. This is accomplished by stimulating research in critical problems, designing and evaluating demonstration projects, making special plans for the dissemination of project results, and facilitating the assimilation of outstanding findings into continuing service programs.

A recent project effectively demonstrated the value of a state-wide research coordinator, resulting in increased support of mental health research activities by State legislators, more sound and vigorous research activity in the State institutions, and the injection of new research ideas into the State mental health program. Pilot projects are underway to test relative cost/effectiveness of several approaches to spreading the use of research results. These projects will aid in refining techniques and policies of the NIMH toward bringing about still greater benefits from research.

The techniques of system analysis are being applied to test the relative effectiveness of delivery of mental health services and of funds in providing these services. Areas of mental health improvement that are of immediate concern to the applied research program are those dealing with social problems, aging, mental retardation, treatment and rehabilitation, children and family, and crime and delinquency. In an effort to find ways to increase the well-being of elderly persons, we are investigating the effects of the normal cause of advanced aging, as compared with deterioration from common diseases of the elderly: Optimal housing conditions for older persons, and the use of facilities in the community rather than in mental hospitals for this large patient population.

The Institute is concerned with mental retardation as it is affected by cultural deprivation, learning disorders, and psychiatric need. Retarded children deprived of the opportunity to learn skills of daily living can make dramatic strides toward self-sufficiency given appropriate reward schedules, retarded children can learn a great deal more academic subject-matter than had been thought possible. Other results indicate that personality traits have a direct bearing on the retardate's level of functioning and ability to learn and that retarded behavior cannot be measured by the usual test techniques, but requires special and continous assessment.

The applied research program is marshalled along with other Institute resources to help reduce crime and delinquency. The extremely high rate of criminal recidivism is of grave concern. One experiment on a variety of community treatment approaches for delinquents, in place of traditional institutional treatment, revealed that rehabilitation in the community can be twice as effective in reducing recidivism at one-half the cost. The application of automatic rewards for achievement in an institutional remedial program has substantially reduced subsequent readmissions. Another project confirmed that reformatories can actually increase hostility in delinquents rather than reduce their emotional and adjustment problems. Self-mutilization by prison inmates may be reduced. Progress has been made identifying the complex pattern of this type of behavior. More than one-third of the 3,000 Juvenile Court Judges in the country have received additional training under an Institute-supported continuing education program.

New ways of improving mental hospital services and facilities are being explored. For the first time in the U.S., a complete cost analysis for a mental hospital has been obtained. This analysis will serve as the basis for more efficient and economic planning of services. In one hospital, it was found that giving psychiatric aides responsibility for carrying our treatment in a ward of chronic patients resulted in a sharply

reduced readmission rate. Another investigator demonstrated the necessity of improving methods used by general hospital nurses in dealing with emotional disturbances of physically ill patients. Results from other projects indicate that efficiency of mental hospital programs can be increased by pre-commitment interviewing and follow-up in the community; that hospitalization can be avoided for an acutely ill member of the family if, at the time of crisis, family-oriented treatment is provided; that, through a work program with earned income, using "operant conditioning" or incremental rewards, patients can be helped to attain self respect and independence from the hospital.

A number of studies are geared toward a very critical goal -- preventing mental illness. Findings of one study have opened up new avenues for both prediction and prevention of postpartum psychopathology. Another project has developed a measuring device which is quite sensitive in signaling the need for emotional support in elementary school children. Other studies directed toward the early developmental stages are concerned with child neglect and abuse; the reaction of children to the death of a parent; the early identification of superior children in socially deprived areas; the socialization of the autistic child; the treatment of schizophrenic children; intensive care of children in their home at the time of emotional crisis; and the effectiveness of a day school program as opposed to residential care.

The direct interrelationship of such social problems as poverty, and family disintegration with mental and physical illness, mental retardation and alcoholism is becoming increasingly clear. Poverty is apparently a factor in the etiology of mental illness and mental retardation; it interferes with healthy personality development and a person's capacity to be independent and realize his potential. Some people may be poor because of emotional or mental disabilities, social or cultural patterns of behavior. Also, the rehabilitation of a mental patient may be seriously hindered if he lives in an economically depressed area where there are few jobs and other opportunities.

The Institute concentrates on the mental health aspects of the poverty cycle including the poor person's attitudes toward society, feelings of self-esteem, family relationships, social competence, and developmental and ego-enhancing needs. Through the NIMH Center for Studies of Mental Health and Social Problems, pluralistic, multi-disciplinary approaches are encouraged. Innovative methods are being tried to reach, and treat effectively, poor and culturally deprived racial or ethnic groups. In a slum area of the Bronx, the psychiatric service of a public general hospital is operating a neighborhood store-front service center and is also studying the most effective ways of using indigenous neighborhood aides in a mental health program. In a very different environment, an isolated area in Appalachia, a traveling social worker-nurse clinical team has been able to reach patients discharged from a mental hospital and prevent their readmission.

The complex and expanding problem of mass violence is of growing concern, and is being attacked within all the major research programs. Of fundamental concern is research in the behavioral areas dealing with aggression, hostility, and conflict. There are also studies specifically related to mass violence and rioting, such as the racial attitudes of both the young and the old, and the attitudes of those personally involved in riot-torn cities such as Detroit. Personality studies are probing adjustment problems, such as the Negro male's reaction to failing to meet the cultural role standard denied to him by a restrictive society, and the reasons for militancy among Negro college students.

Through the social sciences, attempts are being made to understand: the social structure of the ghetto and poor rural neighborhood, the crippling effects of work alienation and restricted occupational roles, the detrimental effects of sub-standard and scarce housing, ghetto family problems, the ominous and pervasive effects of social deprivation, and the results of social immobility and status inconsistencies. Research is also exploring possible connections between the self concept, dependency patterns of ghetto youth, juvenile delinquency, and participation in mass violence. Studies of programs designed to alleviate the problems leading to mass violence are also in progress. They range from specific, educational efforts designed to enhance the self-concepts of ghetto residents, to a working conference on poverty, to research on violence-prone communities in order to encourage the prospective methodology - rather than retrospective in the study of mass violence.

Clinical Research Centers

"Program-project" designates a mechanism which lies between individual project grants and general research support grants. These projects, and the Clinical Research Centers supported by them, provide a means of joining together scientists of various disciplines to mount a comprehensive and concerted attack on the most complex clinical research problems. The centers, containing both beds and appropriate supporting laboratories, are designed for research on human subjects. There are at present 12 active program-projects and research centers, and several additional projects are being planned.

Four major centers being supported are devoted to the study of adult psychoses, primarily schizophrenia, and one is concerned with the study of childhood schizophrenia. One center focuses on longitudinal studies of chronic schizophrenics, particularly catatonics, in order to uncover periodicities in the measurements. Another center maintains a metabolic ward for studies of acute psychotic disorders and is obtaining new information on the significance of amines in schizophrenia. The psychotomimetic activity of DMPEA, a compound isolated from the urine of schizophrenics, has been found to be strongly potentiated by a phenethylamine stimulant. Different metabolic stages are being analyzed to determine if DMPEA is due to a metabolic defect. Another important

finding is a related anticholinergic agent which produces delirium in chronic alcoholics. These investigators have confirmed that LSD use can result in chromosomal damage. Another center has completed an intensive, multi-faceted study of chronic schizophrenia and has begun a comparable study of acute schizophrenia. Psychotherapy alone does little for chronic schizophrenic patients; phenothiazine therapy in conjunction with psychotherapy, however, appears to work well, reducing symtomatology and perhaps also making the patient more receptive to psychotherapeutic efforts. A fourth center focuses on the psychiatric treatment and the physiological and behavioral correlates of altered clinical states. Findings of sleep studies suggest that stimulating and energizing drugs tend to decrease Rapid Eye Movement (REM) sleep while tranquilizers increase REM sleep. The staff of a ward for schizophrenic children is engaged in an intensive attack on all aspects of childhood schizophrenia. In the past year, the staff has identified serious cognitive disturbances in these children. Studies suggest brain dysfunction and a deficiency in the hydroxylation of two principal corticosteroids.

Four program-projects are concerned with psychosomatic illness and stress. One focuses on psychosomatic responses to stress and has established four clinical sub-categories. An anxiety-depression scale has been developed which predicts dietary success in the obese. Obese patients have made striking life and weight changes after psychotherapy. It has also been found that subjects with high muscle tension have better control of their emotions than those with low muscle tension. Another research program is focusing on bronchial asthma. Two psychological mechanisms appear to be involved: first, emotions may change the allergic reaction, and second, emotions may exert a direct effect on the brain's control of the caliber of the air passage in the lungs. The primary objective of another program is to delineate relationships of steroid hormones to brain activity and behavior. Studies of premenstrual tension and postpartum depressions have begun, and the influence of pregnancy and the menstrual cycle on narcolepsy and sleep patterns is being studied. A fourth program is investigating the psychological concomitants of a wide range of organic diseases including cancer, stroke, and arthritis. An important finding is that major illnesses are preceded by feelings of hopelessness and helplessness, which lead to submission to the environmental stress inducing these feelings.

A program-project has recently begun to study the basic biological role of REM sleep and the consequences of REM sleep loss.

There are three program-projects for the study of the epidemiology of mental illness. One is devoted to methods for recording and summarizing the full course of mental disorder in an urban and a rural population. A substantial decline in the incidence of chronic, severe social breakdown has been observed in a rural population under study following the establishment of a comprehensive mental health center. This provides the first evaluation of the impact of such a center on a community which is indeed very encouraging. Another project hypothesizes differences between urban and rural communities in the relationship between sociocultural disintegration and psychiatric disorder. A program of reintegration is planned in order to determine if this will alleviate the amount of psychiatric disorder in a population. A third project has just begun its analysis of data collected on the genesis and dimensions of deviant behavior. A demographic atlas of symptom frequencies is being generated to provide an integrated data bank for more detailed and theoretically based investigations.

Included in the net increase of $19,000 is the annualization of the 1968 pay increase, $14,000; one extra day's pay in 1969, $5,000; and annualization of two positions new in 1968, $8,000; offset by a decrease of non-recurring expenses of $8,000.

Intramural Research

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
Personnel compensation and benefits	536	5,266,000	557	5,641,000	+21	+375,000
Other expenses	---	10,748,000	---	11,684,000	--	+936,000
Total	536	16,014,000	557	17,325,000	+21	+1,311,000

Intramural research scientists conduct investigations of the fundamental genetic, psychosocial and biological processes which determine all behavior, and clinical studies of the behavior disorders which characterize the various types of mental illness. More effective treatment methods are being developed, utilizing a broad range of biological and psychological approaches. Basic to treatment is an understanding of the respective roles of heredity and environment in shaping human behavior, and the ways in which psychological and physiological processes interrelate and result in specific human actions. Studies now in progress will contribute not only to the development of preventive psychiatry, but also to an understanding of the conditions necessary for the most creative development of human resources.

One major area of investigation is the development of intellectual capacity and the ability to learn by experience. It has been found that children under three years old react to many tests of learning much as lower animals do; after age three, distinctively superior ways of learning and thinking emerge. Most tests used heretofore measured the sensory and motor processes primarily involved in lower order thinking and give little information concerning the development of the abstract intelligence employed in higher level thinking. But personality characteristics present before age three have been found to provide reliable clues to a child's intellectual development after age five. Infants from all social backgrounds show essentially equal intellectual development up to the age of one; but children from low socioeconomic groups lag behind significantly by age three. This may be the result of inadequate verbal stimulation in a disadvantaged environment. At least, in a recent experiment, infants from lower class families who were provided regular and frequent verbal stimulation maintained the normal level of intellectual development over a period of time, while a similar group not receiving this special attention fell significantly behind. One intramural investigator suspects that conceptualization is

essentially perceptual rather than verbal - that basic concepts are formed by isolating common sensory features from otherwise unrelated events. He has been able to produce dramatic improvement in the conceptual performance of very young children by training them visually rather than linguistically.

Family attitudes obviously have a significant effect on the way children learn to perceive reality and structure and integrate life experiences. Studies of the ways in which family interactions play a role in the development and maintenance of schizophrenic behavior and other emotional disorders have permitted the development of objective scoring procedures by means of which "blind" raters can distinguish parents of offspring with different kinds of psychiatric disorders. A new project will compare findings from a study of emotionally disturbed adolescents with findings from two other samples: 1) adolescents who form an intense relationship with their peer culture, drop out of their parent's culture and become "hippies;" and 2) those who become involved in social action and social protest movements.

It is clear that both family interactions and heredity exert powerful influences on personality development. The importance of heredity has been established through studying children adopted at very early ages, thus separating heredity from envioronmental influences. Several genes appear to be involved, but additional research is necessary to determine why some people with this particular genetic structure do not develop schizophrenia. Continuing studies of identical twins, only one of whom has become schizophrenic, are designed to trace the etiology of this illness.

The study of depression and its frequent sequel - suicide - continues on several fronts. Better methods of detecting suicidal intent or inclination are badly needed. It has been estimated that each year in this country some 4,000 people see a physician within one week of the time they commit suicide. Preliminary tests indicate that accuracy of clinical diagnoses of suicidal patients can be greatly improved by utilizing objective chemical information about the excretion of urinary steroids. Depressed patients show marked sleep disturbances which are roughly proportional to the degree of depression. There is fragmentation of the normal sleep pattern, curtailment of its duration, and a notable reduction of Rapid Eye Movement (REM) sleep, which results in a cumulative process of REM deprivation. The REM's which do occur are abnormally intense -- as is also the case in psychoses associated with alcoholism. It is of interest in this connection that experimental REM deprivation in normal persons often results in the development of severe tension states. The usefulness of lithium carvonate in the treatment of manic-

depressive illness is now evident, although we do not yet know how the drug acts. Research on the chemical action is continuing, in part to explore the preliminary finding that treatment with lithium increases the uptake of norepinephrine, an amine whose short supply may be related to the cause of depression.

Neurophysiologists have for many decades sought to learn how the conscious will to move is transformed by the brain into the nerve impulses which lead to voluntary muscular contraction. Such knowledge would help us understand the defects of movement which occur in patients with Parkinsonism, multiple sclerosis, and stroke. Through the use of techniques only recently devised, it has become possible to study the activity of single neurons in the brains of animals carrying out the complex voluntary movements. Results show that output information leaving the motor area of the brain is coded for the minute details of muscle activity. The motor cortex thus appears to be "programmed" for such functions, and present evidence suggests that the cerebellum may do the programming. Further study of these two critical motor areas of the brain is in progress.

A laboratory study of the physiochemical steps involved in the transmission of the nerve impulses along a nerve fiber indicates that acetylcholine a probable chemical transmitter, has a definite stimulatory effect upon some aspects of the central nervous system cell's metabolism. Other investigations of the brain and nervous system are concerned with details of intracellular function as they relate to memory and learning; the molecular basis of nerve excitation and conduction; the correlation of behavior with basic physiological processes. Also, studies of the effects of thyroid hormone in stimulating the synthesis of protein in brain tissue may provide a better understanding of impaired cerebral function in cretinism.

Continued studies of the catecholamines have yielded additional information about their role in behavior. It has been shown that electric shock, and certain drugs effective in the treatment of depression, increase the activation of norepinephrine. It has also been shown that the storage capacity for noradrenaline in sympathetic nerves, reduced by experimental hypertension, is restored and the hypertensive blood pressure is normalized by the removal of experimental high concentrations of salt from the diet. Current studies of synthesis rates are comparing changes in the level and turnover of amine metabolites with changes in such states as sleep, stress, and drug action. In addition, selected patients are being studied with the aim of correlating the therapeutic effects of drugs in mood changes with the changes in catecholamine excretion.

The addictive nature of virtually all effective narcotic analgesics has greatly limited their usefulness, and has spurred a search for pain relievers which do not create physical dependence. There are three new drugs, each at least as powerful as morphine in reducing pain, which appear to create little or no dependence. They also have shown fewer adverse side effects on mood and respiration than have previous morphine antagonists. Though extensive clinical trails are still needed before final conclusions can be drawn, there is good reason to expect that we shall soon have a potent pain killer which produces neither euphoria nor physical dependence. Noloxone, itself a potent narcotic antagonist, will probably prove to be a nontoxic selective antidote for poisoning by other antagonists.

The mysterious nature of the addiction process is gradually yielding to systematic research. Most narcotic addicts relapse after treatment and resume drug use. We have now learned that the termination of narcotic use produces not only 1) an immediate, severe, but brief (3-5 days) abstinence syndrome, but also, 2) a somewhat protracted (1-2 months) syndrome of subtler changes in circulation, temperature, and respiration, and finally, 3) an even more protracted (6 month or longer) abstience syndrome involving the same bodily processes. Addiction to narcotics might produce long-lasting physiological abnormalities that have behavioral correlates.

Addiction to alcohol involves both psychological and biological processes. Now underway is an examination of the biochemical and metabolic events in the brain and other organs following excessive alcohol ingestion, to determine how these processes are related to the convulsions and delirium which occur at withdrawal. Progress in these studies will be more rapid because techniques have been developed for creating chronic intoxication in a laboratory animal. The animal develops physical dependence and shows a withdrawal syndrome quite analogous to that in man.

Recent developments in computer technology and in the field of electrophysiology are opening new avenues to the study of personality and behavior. A conceptualization of personality types is emerging which integrates physiologic, sensory, and perceptual responses, bridging the gap which has long separated the psychological and somatic aspects of behavior. New techniques involving complex brain wave and eye movement recording procedures make it possible to evaluate quite precisely the nature of an individual's response to specific stimuli even when circumstances prevent him from verbally communicating a subjective experience. Accumulating evidence indicates that the brain may have an internal control mechanism which regulates the intensity and possibly even the nature of the sensory message - thus accounting in part for the variety of individual reactions to precisely the same stimulus.

A program increase of 35 positions and $1,371,000 will be used to take advantage of research space in two new facilities - the NIH animal farm in Poolesville, Maryland, and the new research building, yet to be completed, for the joint use of The National Institute of Neurological Diseases and Blindness and the National Institute of Mental Health. The net increase includes mandatory increases of $65,000 for annualization of 1968 pay raise costs; $15,000 for one extra day's pay in 1969, and $17,000 to annualize the cost of seven positions which were new in 1968; offset by a decrease of $17,000 for non-recurring costs. The net change also reflects a decrease of 14 positions and $140,000 for research activities which had been funded through an allocation to Saint Elizabeths Hospital until 1968, but which are now included in the appropriation for that institution.

Manpower and Training

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
Personnel compensation and benefits	95	$1,043,000	95	$1,056,000	---	+$13,000
Other expenses	---	667,000	---	671,000	---	+ 4,000
Total	95	1,710,000	95	1,727,000	---	+ 17,000

The principal mission of the training program is to increase the numbers and improve the quality of people working in the areas of mental health and mental illness. The program of support ranges from training professionals to work on the most complex scientific problems of mental illness to providing technical training to subprofessional and ancillary personnel. The content of training programs covers the entire scope of the problems of mental health and mental illness, including specific areas such as alcoholism, urban problems, juvenile delinquency, suicide, and drug abuse, as well as general training for clinical service, research, consultation, and administration. Research training includes support of the biological, psychological, and social sciences as well as support of the clinical areas of psychiatry, psychology, social work, and nursing. In order to encourage experimentation in training and to support innovative approaches to mental health problems, experimental and special projects are supported not only in all traditional mental health fields, but also in other disciplines and professions - such as law, education, and the clergy - that have regular contact with mental health problems.

An early estimate of the manpower needs of the traditional mental health professions (psychiatry, psychology, psychiatric social work, and psychiatric nursing) was to produce 87,000 trained professionals by 1970. That goal is still attainable, although much remains to be done. The following table indicates both past growth and projections to 1972.

Mental Health Manpower Pool

	1950	1960	1965	1967*	1970*	1972*
Psychiatrists	5,500	13,000	18,593	20,501	23,735	26,169
Psychologists	3,500	9,000	13,265	15,603	19,946	23,536
Psych.Soc.Workers	3,000	7,200	11,378	13,676	17,893	20,561
Psych. Nurses	10,000	15,000	20,554	21,978	25,690	29,187
Total	22,000	44,200	63,790	71,758	87,264	99,453

*Estimates

The 1968 budget added substantially to the experimental program, established a continuing education program, provided an increase in the research training programs, and allowed expansion of the traditional graduate programs. A significant proportion of new funds is spent to train nurses, psychiatrists, psychologists, and social workers in the area of community mental health. In addition, the continued emphasis on experimental and special programs adds support for new categories of mental health workers to meet immediate needs and to staff community mental health centers in the immediate future.

Continuing Education Program

The comprehensiveness of mental health training was extended with the newly established Continuing Education Program. This program is intended to improve and increase the skills of mental health specialists so that they may remain current with the most recent advances in methods and technology. In addition, the program assists the institutions providing training by increasing their capacity to make established mental health personnel more effective.

The general practitioner program continues to provide stipends for nonpsychiatric physicians who need short-term training in psychiatric principles in order to improve the conduct of their medical practice. In addition, the program provides support for general practitioners to be trained as psychiatrists and to engage in psychiatric practice. The Continuing Education Program has assumed responsibility for the third element of general practitioner support to provide continuing education courses for nonpsychiatrists. This move will enable a more comprehensive effort, not only in training physicians in the principles of psychiatry, but also in improving the mental health training of personnel in allied fields.

During 1969, priority will continue to be placed upon continuing education program planning, instead of support of isolated courses and workshops, and upon greater collaboration between universities and service institutions. Training centers will be encouraged to collaborate closely with State and community mental health services in their area. State departments of mental health and local service institutions will continue to be encouraged to plan systematic continuing education for their own staffs and other persons in their jurisdictions in collaboration with other educational resources or training centers.

Undergraduate Programs

The support of undergraduate programs is provided on a more modest scale but is critical to the continued development of the more advanced training especially in psychiatry and in psychiatric nursing. In psychiatry, the undergraduate program provides faculty support in order to introduce the principles of psychiatry into the curriculum of the medical student early in his education so that he is able to integrate this teaching into his general medical education. This program has not only enhanced the quality of medical education and practice, but has also increased the number of graduates influenced to enter psychiatry as a specialty. The growth of the human behavior programs in psychiatry also characterizes a growing trend toward injecting,early in the medical student's education, an appreciation of the contribution of the behavioral sciences. The undergraduate support program in nursing is intended to increase the number of graduate nurses continuing their education in the mental health

field. In addition, these programs provide knowledge of the mental aspects of nursing care to the general nurse practitioner.

In September 1967, five new medical schools began to accept new students; five more new schools are expected in 1968. A total of twenty new schools should be operational by 1972. All of these schools will be establishing training programs in psychiatry, but the impact of the undergraduate psychiatry and undergraduate human behavior grant programs will be felt to a significant extent in 1969. Grants to the new medical schools enable the integration of psychiatric instruction into the general medical curriculum in a fashion that has not been possible before. This support will also enable appropriate planning for programs in psychiatric residency as these new schools reach more advanced stages of development.

Research Training and Fellowships

The Research Training Programs have also been extended to meet the need to derive new knowledge that provides the basis for the understanding of mental illness and for the expansion and increased effectiveness of preventive efforts and clinical service. The Biology, Psychology, and Social Sciences Programs continue to receive particular research training emphasis, but clinical research training efforts in other areas are also promoted.

The Research Fellowships Program provides advanced research training basic to mental health at three levels. 1) predoctoral, for graduate training toward the doctoral degree; 2) postdoctoral, for advanced training, and 3) special fellowships, usually for individuals in midcareer who have contributed effectively to behavioral research. The fellowhip program provides basic scientific training as well as advanced and specialized training in a variety of mental health research areas. These include the psychiatric and psychological study of mental development and mental illness; the biological, psychosocial, and cultural correlates of behavior; and research in basic psychological processes. The Research Fellowships Program has developed a basic cadre of research scientists who contribute both to the understanding of the etiology and incidence of mental illness and to the prevention and correction of such disturbance.

Research Scientist Development Program

This program, known as the Research Career Development Award Program until September 1967, has been broadened in scope, reflecting a change in the concept of the program toward promoting and developing research in all aspects of mental health and illness. The program will promote the expansion or establishment of mental health research programs by means of individual awards to suitable institutions for the recruitment and development of research scientists. More specifically, the objective is to develop research capacity in the psychiatric profession, to engage investigators from a variety of the behavioral and biomedical sciences in mental health research, and to foster interdisciplinary research on mental health problems.

Programs of both basic and applied research on problems relevant to mental health and mental illness will be supported, including research on personality and on human development in relation to mental health, studies of social factors in mental health, studies of physiological and biochemical substrates in relation to behavior, and investigations in the diagnosis, treatment, or prevention of mental disorders and illness.

The built-in increase of $17,000 for direct operations in this activity includes $14,000 for annualization of the 1968 pay raise costs and $3,000 for one extra day of pay in 1969.

Mental Health Services

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
Personnel compensation and benefits	77	$897,000	83	$934,000	+6	+$37,000
Other expenses	---	655,000	---	707,000	---	+52,000
Total	77	1,552,000	83	1,641,000	+6	+ 89,000

The mental health services programs support a broad array of activities aimed at improving the delivery of services to the mentally ill. These include:

1) The support of construction and staffing of comprehensive community mental health centers.

2) The improvement of the quality of care and competence of staff in State mental hospitals.

3) The administration of the mental health care aspects of the Social Security legislation.

4) The improvement of planning for comprehensive mental health services, and the integration of mental health planning into comprehensive health planning.

5) The coordination of Institute programs of regional, metropolitan and rural mental health.

Mental Health Care Administration

Both the Medicare and Medicaid programs, administered by the Social Security Administration, provide psychiatric benefits for patients over 65; under the Medicaid program, States may purchase psychiatric services for the medically indigent. Data available from the Social Security Administration indicate that about 10 percent of the 4,307,000 claims for hospitalization approved during the first year of the Medicare program were for psychiatric conditions. The extent to which psychiatric patients used the services of extended care facilities, home health agencies, and private physicians is not yet known. However, the Medical Services Administration, Bureau of Social and Rehabilitation Service, estimates that approximately 70,000 patients age 65 and over in State mental hospitals in 25 states have received benefits under the Long Amendments to Title XIX (Medicaid), which allow the Federal government to participate in payments.

To insure that appropriate and adequate psychiatric services are available to those who qualify under these programs, the Institute has established a

Mental Health Care Administration Branch. The Branch collaborates, formally and informally, with the Social Security Administration, the Welfare Administration, and other units in the PHS to interpret and communicate current approaches to psychiatric treatment in mental health centers and hospitals serving medically indigent and geriatric patients. It also attempts to identify problems in the implementation of the Medicare and Medicaid programs and gaps in coverage. At the regional level, conferences and consultations have been held between NIMH regional staff and the regional office staffs of the Division of Medical Care Administration and the Bureau of Family Services, as well as with State mental health agencies. In addition, the Branch works with national professional organizations on program development and the definition of standards. The two basic goals are: 1) to increase the number of qualified psychiatric personnel and 2) to maintain quality control. Particular emphasis has been placed on demonstrating the usefulness of the general hospital in the provision of mental health services, since at present less than 20 percent of these hospitals routinely admit psychiatric patients for treatment.

During 1969, special attention will be given to broadening the influence of the Regional Office Mental Health Consultant in counseling State mental health authorities and other agencies. These regional consultants will assist them in meeting and maintaining standards and in making maximum use of available funds to establish comprehensive mental health services and to develop alternative resources for geriatric patients. The Branch plans to initiate several studies of the impact of funds and program responsibility on State mental health services and their utilization. Efforts will also be made to identify gaps in coverage of mental health services for the beneficiary populations, and to encourage experimentation with new techniques for providing these services.

All of these activities are designed to improve the scope and quality of treatment programs, and to incorporate public and private hospitals, extended care facilities, and home health agencies into an effective system of mental health services.

Studies of Metropolitan and Regional Mental Health Problems

An increase of six positions and $72,000 is included for the Center for Studies of Metropolitan and Regional Mental Health Problems which was established in July 1966 in recognition of the growing mental health problems in metropolitan areas. The Center functions as a focal point within the Institute for liaison activities with new and burgeoning Federal programs in urban areas. The Center's activity has a dual purpose: 1) to reduce mental illness by planning for and supporting appropriate treatment services, and 2) to promote mental health by enhancing the quality of life in urban social systems.

To fulfill its mission, the Center employs a range of mechanisms, including research grants, training grants and fellowships, and consultations with public and private State and local agencies. During 1967, the Center awarded new grants in the following areas:

1) evaluating mental health interventions in the relocation of families uprooted by an urban renewal project;

2) exploring the social and institutional consequences of abolishing a large city's skid row area through an urban development project;

3) interlocking a community mental health center and a neighborhood multi-purpose service program in a ghetto area;

4) studying the nature and import of mental health components in successful "model cities" proposals submitted to Department of Housing and Urban Development.

In the first half of 1968, additional research grants were awarded to studies of rural-urban migration and the human response to social and physical density. Other investigations under review encompass such areas as provision of new mental health services to high-risk groups (e.g., users of Travelers Aid Society, college students); ecologic determinants of urban housing patterns and neighborhoods; and the evaluation of psycho-social implications of the trend toward long-range planning in most fields of urban development.

Preliminary explorations have been made toward grant support of a university-based urban studies team which would collaborate with the Center's staff. This would foster complementary studies and provide an important research capability. In addition, the Center proposes to add several social scientists to the staff in 1969. These additions would improve research, enhance the interdisciplinary team approach to solution of major social ills, stimulate extramural research and training, and provide consultation with State and local agencies seeking new insights into unknown variables in urban living.

The fellowships awarded have reflected the multidisciplinary character of the Center. In 1967, for example, three were awarded in the general area of community planning, four in urban sociology, one in urban anthropology, and one in psychology. The range of interests pursued by the fellows include the influence of the physical structure of parks on behavior; the urban phenomenon of social anomie; the acculturation of ethnic minority groups; and systems of organizing and delivering social services in metropolis. In 1969, the Center will increase its support of the most relevant education and training of professional planners in every field of urban development.

Increasing awareness of "the problem of the American city" is reflected in the recent creation of two cabinet level departments, Housing and Urban Development and the Department of Transportation; in the proliferation of programs directed toward the inner city; and in the active interest expressed by several Congressional committees. It is highly important that mental health considerations penetrate every aspect of urban development, physical and social, and that the phenomenology of urban life be studied so that intelligent preventive mental health planning can be developed. The complex nature of the urban condition and the bewildering number of relevant social programs make it

quite important to maintain interagency communication. Examples of Center staff time committed to liaison activities include:

1) service on HEW team which reviewed applications for Model Cities grants (administered by HUD);

2) participation (representing NIMH and the PHS) in a five-agency pilot program establishing Neighborhood Service Centers in 14 cities;

3) contact with the Community Relations Service of the Justice Department regarding conditions of acute community conflict within selected large cities.

In early 1968, the staff did extensive field work in many of the major cities which had experienced or were anticipating outbursts of mass violence in ghetto areas. The staff sought to increase its own understanding of the outbreaks, looked for relevant research questions, and worked in a consultant capacity with many individuals and agencies involved with the actual or potential riot situations. Understanding the nature of the inner city ghetto, the psychodynamics of mass violence, and the impact of civil disorder on the entire urban condition will continue to receive the attention of Center staff during 1969.

Other foci of attention during 1969 include:

1) developing methods of integrating mental health considerations into the Federal urban development programs (model cities, neighborhood service programs, economic opportunity, etc.);

2) building flexible, responsive, social service systems on a metropolitan-wide scale;

3) evaluating psycho-social developments within the planned urbanization of "new towns;"

4) addressing the more general question of the nature of "community" as that concept changes with our increasing urbanization and technological advancement.

Hospital Improvement Projects

The Hospital Improvement Program (HIP) provides support for demonstration projects applying new knowledge in the treatment, care, and rehabilitation of patients in State mental hospitals. Its specific objectives are to improve therapeutic services and the quality of patient care, and to aid State hospitals in implementing comprehensive programs of mental health care.

By the end of 1967, exactly half of the 302 hospitals eligible to participate in this grant program had received awards. In 21 states, all eligible institutions had been awarded grants, while only three states had no participating institutions. Approximately 60,000 patients are involved in current hospital improvement projects.

Since the overall purpose of this program is to improve the quality of hospital care, projects are designed in response to the perceived hierarchy of needs in each institution. Improvements, then, are as diverse as the types of institutions for which they are planned. Specific projects include those directed toward: 1) enhancing the therapeutic aspects of daily living; 2) providing intensive small-group settings designed to insure patient-staff continuity; 3) encouraging maximum involvement of families; 4) utilizing various methods to reduce patient dependency levels; 5) applying a developmental approach in the treatment of children and adolescents; and 6) increasing liaison with community agencies, especially in the development of transitional care programs.

Some hospitals have used their project grants to develop specialized services for particular patient groups, such as children and/or adolescents, geriatrics patients, or chronic patients. Others have used grants to develop new methods of providing services, such as geographic unitization of a hospital complex, or follow-up and aftercare services. Still others are using their grants to employ qualified personnel and consultants to develop and implement new hospital-wide therapy programs. Participating hospitals are almost unanimous in their praise of HIP-sponsored reforms. In many cases these grants have provided an opportunity for innovative programming which had previously been impossible. Many severely disturbed custodial patients have responded positively to the new treatment programs, opening new possibilities for improvement and discharge among chronic patients. In addition, "unit teams," developed under the auspices of HIP grant programs, have had a revolutionary impact on the utilization of staff resources. Personnel deployment and staff patterns and function have been reassessed and modified in light of insights gained through HIP assistance.

NIMH is now supporting the maximum number of HIP projects that can be funded under the current budget ceiling.

Hospital Staff Development

Recognizing the need for hospital staffs to acquaint themselves with newer treatment techniques, and to alleviate the acute shortage of psychiatrically trained personnel, the Institute initiated the Hospital Staff Development grants program (formerly Inservice Training) in a major effort to assist State mental hospitals. Since its inception in 1964, 200 or 66 percent of the hospitals eligible to participate have been awarded HSD grants. Every State has received at least one HSD grant in an eligible mental hospital.

First priority was given to training aide and attendant personnel. As the program developed, however, it became apparent that the concept of staff development had to be expanded to include all categories of hospital personnel to fulfill the long-range objectives of the program. While the majority of active programs still focus on the training of attendants and aides, other types of staff are being incorporated increasingly into these programs; in some cases, new programs are being created for these staff members. Personnel involved for the first time include supervisory staff and individuals preparing to assume teaching-training functions within the hospital. Some hospitals have amalgamated the projects from both the HIP and HSD to provide complementary programs:

HSD programs are initiated to train personnel for treatment programs which began as HIP projects. This complementary approach is especially vital in such specialized areas as behavior therapy and team treatment.

The original timetable for program expansion in this program has been met, and there has been some expansion during 1968. If the stationary budget condition remains, however, it is anticipated that expansion will not be possible in 1969. In the meantime, the staff continues to explore possibilities for extending the benefits of the HSD program to other, nonparticipant hospitals.

Mental Health Facilities

The staff of this branch is responsible for the Institute's program of assistance in the construction of community mental health centers. This program is discussed in the "Community Mental Health Resource Support" appropriation.

Community Mental Health Centers Staffing

The staff of this branch is responsible for the Institute's program of assistance in the staffing of community mental health centers. This program is discussed under the "Community Mental Health Resource Support" appropriation which follows.

In addition to the program increase of $72,000 for the Center for Metropolitan and Regional Mental Health Problems, there is a built-in increase of $14,000 for annualization of 1968 pay raise costs and $3,000 for one extra day of pay in 1969 for the Mental Health Services activity as a whole.

Special Mental Health Programs

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
Personnel compensation and benefits	165	$1,940,000	216	$2,350,000	+51	+$410,000
Other expenses	--	1,608,000	--	1,855,000	--	+247,000
Total	165	3,548,000	216	4,205,000	+51	+657,000

The objective of the Institute's Special Mental Health effort is to plan and administer programs directed toward specifically identified problem areas of special significance such as alcoholism, narcotic and other drug abuse, mental health of children and families, crime and delinquency, and suicide prevention.

These areas possess certain characteristics in common. Each is an area of critical public importance; each requires a multi-disciplinary approach both in the conduct of research and the delivery of services; in most, little is known about underlying causes; and each requires additional specialized manpower to meet the needs for new knowledge and improved patterns for the delivery of services.

In order to respond to the requirements of these special areas, and to utilize more effectively and efficiently the resources available to it, the Institute has developed a group of specialized centers charged with responsibility for the total Institute program activity in these key fields. The centers serve as the national focus for research, manpower development, and innovative service program development.

In addition to the centers, descriptions of which will follow, two special programs on early child care and aging have been established in the office of the Director, Division of Special Mental Health Programs.

Early Child Care Demonstration and Evaluation Program

The large numbers of unskilled and inadequately educated persons who have been unable to achieve a satisfying and productive role in our complex society represent an appalling waste of human potential. Technological development has exceeded the development of our human resources, leaving a gap between the level of skill required to contribute to our culture and the level of skill developed by current practices of child rearing and of child education. The social and psychological problems posed by low intellectual functioning, academic failure, low occupational achievement, and unemployment affect every level of our society, but are particularly prevalent in the disadvantaged low socioeconomic portion of the population.

Persons of low socioeconomic status typically earn relatively low scores on standard intelligence tests, and low levels of intellectual functioning are related to low academic and occupational achievement. It has been shown,

however, that the test performance of very young infants from lower socio-economic classes is about the same as that of other infants. During the second and third years of life underprivileged youngsters tend to fall behind their more advantaged peers. This problem of early disruption of intellectual development must be solved in order to solve the correlated problems of low academic and occupational achievement. Fortunately, research is accumulating on early intellectual functioning. The following generalizations are supported by data from several studies and are consistent with one another, but they need to be tested further and demonstrated on a wider scale.

1) Low socioeconomic status children receive less intellectual, particularly verbal, stimulation in the preschool years than high socioeconomic status children.

2) The quantity and quality of intellectual, particularly verbal, stimulation received by a child during infancy can significantly influence his level of intellectual functioning.

3) Intervention through a program of home tutoring can result in lower socioeconomic status urban infants achieving average levels of intelligence at three years while their peers, without tutoring, have mean scores that are far below average at that age.

Such research results point to the need to mount an intensive demonstration program, including careful evaluation of innovative techniques and alternative methodologies, to improve early healthy child development and to prevent mental illness and the intellectual disability stemming from cultural impoverishment. Such a program of prevention - as opposed to remediation - might eventually eliminate many of the educational and occupational failures that current poverty programs are designed to reduce. The goal of this program of preschool education is to develop effective and economical methods for fostering the intellectual development and the social competence of the child. In order to plan the most effective methods, the characteristics of the natural environments of children that influence their development should be determined. Methods to supplement their experience must be explored. Ways of motivating and training child caretakers should be evaluated. In order to determine the critical variables which influence the effectiveness of various preschool intervention programs, a comprehensive, systematic and centrally coordinated plan for investigating these factors should be developed. The program will include the development, demonstration, and evaluation of day-care programs, family day-care programs, home tutoring, and parent training in child care and child education.

To give national leadership to this program, the Institute proposes to develop a multidisciplinary cadre of behavioral scientists and mental health professionals. Just as the biological sciences contributed to the productivity of agriculture and the physical sciences have provided the base of our industrial development, so the behavioral sciences can foster the development of our human resources.

The 1969 estimate includes an increase of $14,500,000 for grants, and an increase of $500,000 and 40 positions in this activity for administration of the program.

Mental Health of the Aging

This Section provides needed coordination of the Institute's efforts in this program area. More specifically, the Section stimulates and encourages:

1) the incorporation of specific mental health considerations into programs for the aging in which mental health aspects have previously been unrecognized;

2) the provision of appropriate services for older people in those mental health programs which have neglected this important segment of the population;

3) services and research in areas in which innovative programs and knowledge are needed.

There are now some 20 million Americans above the age of 65, including about 12,000 over 100 years of age. However, this 10 percent of the population receives less than 3 percent of the services of outpatient psychiatric clinics, makes up 24 percent of all first admissions to State mental hospitals, and occupies 30 percent of all public mental hospital beds. There is a high incidence of depression, suicide, withdrawal, and regressive responses in older people. The mental health aspect of aging is therefore an important area of scientific inquiry supported by the Institute.

While medical science has increased longevity, the complexities of modern life - urbanization, automation, the exponential growth in knowledge and technology - post additional problems of adaptation for aged persons far in excess of earlier times in simpler societies. The handicaps imposed by non-acceptance and loss of status in a youth-oriented society accelerate the psychopathological reactions occurring in older persons. Many of the mental health problems common to other age groups are also prominent among the aged, but this group is vulnerable, in addition to specific difficulties associated with the aging process. Although some of the mental impairment of the aged is a concomitant of physical aging, the psychological reaction to this physical process often leads to excessive impairment that cannot be attributed to organic changes. By the year 2000, there will be an estimated 65 million people over 65 in the United States. Realizing the seriousness and increasing magnitude of the problem, Congress has passed several major pieces of legislation, such as Medicare and the Older Americans Act, in the past few years.

The Hospital Improvement Program encourages the use of current knowledge in the demonstration of improved services and care programs for the large geriatric population of State mental hospitals. During the past year, 17 hospitals received funds for improved geriatric services. Most of them are

using new milieu and stress-active remotivation techniques. Efforts are being made to involve family and friends of the patient and to strengthen relations with community agencies. Several include preadmission screening and referral programs and supportive follow-up services to community care facilities. Some projects address themselves to specific segments of the geriatric population, such as the most severely debilitated patients requiring considerable nursing care, the long-term chronic patient, the recent geriatric admissions, or those patients showing the best chance of living independently outside the hospital. The success of some of the geriatric hospital improvement projects has been heartening. Several States are encouraging the replication of demonstration service programs throughout the entire State hospital system. State and regional meetings are helping to disseminate the findings so that other hospitals will be stimulated to modify and improve services. One of the most critical problems in this field is overcoming the shortage of trained personnel. Last year, $500,000 was awarded to 17 training programs concerned with developing mental health manpower. Fourteen are to graduate schools of social work and two are in geriatric psychiatry. A one-year training program for nurses with masters degrees aims to increase the number of clinically skilled psychiatric nurses who will be able to do teaching, research, and consultation in universities, institutions, and community agencies on the gero-psychiatric aspects of professional nursing practice.

Future program development activities will give high priority to encouraging the development of specialized geriatric services within community mental health center programs. Only a few such programs have been implemented or are in the planning stage.

More generally, there is a pressing need to apply mental health principles and knowledge in the planning and implementation of all health care services for the aged. In a number of urban areas, planning is underway to test different models of coordinated and integrated comprehensive services for the aged which are available, easily accessible, and appropriate to their needs.

Many aged, for a variety of reasons, require institutional care. Consultation and technical assistance to homes for the aged and nursing homes will be expanded, and research and demonstration programs will be encouraged. Already, homes for the aged have indicated their interest in improving the quality of their residential program and expanding their activities so that they can serve as community centers for the aged residing in the community. NIMH-supported investigators were among the first to develop innovative and creative ways by which the retired person could continue to contribute productively to his community. The Foster Grandparent Program is an outgrowth of such a project in Nashville, Tennessee. NIMH will continue to encourage research in this area so that increasing numbers of the aged can contribute to and derive satisfaction from voluntary and/or paid work in human services programs.

In the final analysis, good service programs must be based on a continuous accumulation of basic knowledge about the aged and the nature and meaning of aging in our society. NIMH supports a wide range of research related to the aged and the aging process involving the biological, medical, psychological, and social sciences. Among the factors affecting adjustment to later life in which research is being stimulated are the impact of cultural values, minority status, and ethnic background. New areas of research endeavors being supported include studies of a range of psychological processes, such as self-concept, in relation to a variety of different environmental situations (occupying a hospital bed, living in an institution, living in a housing project for the aged, living in the community). Data obtained from such research will enrich the knowledge and skill with which all the citizen and professional groups concerned with the aged can plan for the present and the future. These studies should prove useful not only to the therapeutic process, but to all those concerned with providing a meaningful and rewarding life experience for the aged.

National Center for Prevention and Control of Alcoholism

The behavioral, biological, and social causes of alcoholism are unknown. There is no known single most effective mode of treatment. Not only are more data needed on the natural history of this illness, but prevention methods are not well developed. Personnel, facilities, and financial resources are inadequate, and there is an insufficient number of high quality treatment and rehabilitation facilities. Education about alcoholism and drinking usually is weak, often unscientific, and is generally not based on sound educational principles. Professional and technical manpower to work with alcoholics is very limited. Despite these serious problems and deficiencies, increasing numbers of people with alcohol problems are being treated and rehabilitated.

During the past two decades there has been noticeable change in the view toward alcoholism. Significant advances have been made, for example, in both public and professional acknowledgement that alcoholism is a disease rather than a form of moral transgression. The health professions are assuming leadership in developing a contemporary approach to the study and treatment of alcoholism, which incorporates scientific and humanistic goals. Most recently the courts have adopted legislative precedents which view the alcoholic as a sick individual, and the legal proceedings now incarcerating alcoholics will hopefully soon be revised.

In recognition of the magnitude and social impact of alcoholism as a major public health problem, the National Center for Prevention and Control of Alcoholism was established in 1966 to coordinate and focus activities in the field of alcoholism, to formulate new programs, and to conduct research studies in its own laboratories. Facilities for clinical research have been made available at St. Elizabeths Hospital in the District of Columbia.

When the National Center was established, only one university-based multi-disciplinary research center for the study of alcoholism existed in the United States. During FY 67, high priority was given to the development of additional centers of this type. By the end of the fiscal year, funds had been awarded for three additional research centers: Boston City Hospital and Harvard Medical School; Barnes Hospital and Washington University School of Medicine; and Baltimore City Hospital and the Johns Hopkins School of Medicine. Two additional universities have received grants for research centers in FY 68. Although the focus of research will differ among research centers, all will have the following general features:

1) Research will be multidisciplinary in character, integrating basic science and clinical science disciplines. Participating disciplines will include psychiatry, social psychology, experimental psychology, biochemistry, neurophysiology, and a variety of medical sub-specialties such as cardiology and gastroenterology.

2) All of the centers will conduct an active program of research training at the post-doctoral level in medicine and in the various basic science disciplines.

3) The research centers will be located in geographical areas which have a high endemic incidence of alcoholism. The establishment of centers in these areas should provide a stimulus for training, research, and service both to the university and the community at large.

4) All of the research centers will be associated with universities and medical schools which have demonstrated excellence in carrying out research and treatment for many disease entities.

5) The centers will have wide geographic distribution within the United States.

6) The principal investigators and project directors at the centers will be distinguished scientists who have done excellent research in the field of alcoholism.

Although causal factors in alcohol-related illness remain unknown, a number of currently available methods of treatment offer significant hope to alcoholics and their families. The National Center has supported a series of applied research projects designed to improve diagnostic treatment and rehabilitation services for the alcoholic. One distinct problem has been the reluctance of general hospitals to accept and treat alcoholics. A major advance has been made in a project designed to provide around-the-clock diagnostic and treatment services for alcoholics within a comprehensive emergency ward facility.

This service was bolstered by continuity of care through an alcoholism clinic in the outpatient department of the hospital. The findings obtained

strongly suggest that the general hospital can successfully provide assistance to alcoholics on an emergency basis and follow through with continuity of care in appropriate outpatient settings. The adequacy of comprehensive care for alcoholics provided by a general hospital challenges the notion that specialized detoxification centers and treatment units are needed for these patients. Additional applied research projects are being instituted to assess the efficacy of community-based consultation facilities for alcoholic patients, and also the role of nonprofessionals in assisting alcoholics and their families. Center staff consulted with a variety of institutions and agencies which propose to expand treatment and rehabilitation services for patients with alcohol-related problems.

A major deficit in all alcoholism programs is the lack of adequately trained personnel. Although training resources for professional and nonprofessionals in the area of alcoholism have been expanded during the past decade, the current effort and level of support is still insufficient. Professional training institutions -- teachers colleges, schools of social work, schools of nursing, medical schools, seminaries -- are being encouraged to give appropriate attention to alcoholism. Continuing education and staff development programs are being stimulated and supported for professionals currently in practice. Recognizing the existing and continuing shortage of health professionals, the development of training opportunities for preparing "technicians" or new kinds of mental health workers is being given high priority. During the past fiscal year, the Center cultivated training programs in a wide variety of areas and disciplines. In addition, expanded training programs are currently functioning or nearly operational for medical students, physicians, behavioral and social scientists, and educators.

The Center's Intramural Research Program derives from the premise that alcohol addiction is associated with neurochemical, metabolic, and neurophysiological correlates of behavior. Center staff have carried out a series of metabolic studies which have demonstrated that alcoholic and nonalcoholic individuals show no differences in their ability to metabolize alcohol. This contradicts the current hypothesis that alcoholics may possess a unique mechanism for metabolizing alcohol. In addition, studies have been carried out in the intramural laboratories which add significantly to our knowledge of the effects of alcohol ingestion on water and electrolyte balance in alcoholics. Data obtained from these studies should aid in the treatment of alcoholics suffering from acute alcohol withdrawal symptoms. Animal studies currently in progress should help to clarify the role of physiological factors and stressors in alcohol addiction. Other animal studies now underway should help to elucidate the role of early life stress factors and the exposure to alcoholism in relation to drinking patterns.

A major activity during this year has been to encourage appropriate attention to alcohol problems within the developing community mental health

center programs. This activity has included intensive collaboration with the staff of the Regional Offices. At least one individual in seven of the nine Regional Offices has received intensive orientation on the objectives of the National Center. In addition, there has been one general meeting with staff of all the Regional Offices. Center staff have spent substantial time working to provide alternatives to incarceration of alcoholics arrested for public drunkenness. In visits to a number of major urban areas, they have held meetings with mental health and alcoholism personnel, as well as with other relevant community agencies, to discuss alternatives and to develop local programs.

A Center member has participated actively in the NIMH work group related to the Partnership for Health Legislation, PL 89-749. In addition, information about PL 89-749 and its relation to alcohol problems has been communicated to all State alcoholism programs and local affiliates of the National Council on Alcoholism. The staff of the Regional Offices have also been informed of the importance of securing appropriate attention to alcohol problems within the developing programs under PL 89-749.

During this fiscal year, numerous law schools throughout the country were contacted in an effort to find the school best qualified to undertake legal research and to draft a model code regarding alcohol problems, legal issues, and treatment programs. A major law school has been selected and the contract has been negotiated.

Center for Studies of Narcotic and Drug Abuse

The problem of drug abuse is not confined to heroin addiction, but embraces many classes of drugs and newer kinds of drug abusers with a pathology quite different from that of the "hard-core" addict. There are at least 60,000 active narcotics addicts, but there may be as many as 400,000 people habituated to non-narcotic compounds. The American people spend $250 million on tranquilizers each year, including some products with proven addiction potential. The serious increase in the use of hallucinogens, amphetamines and marihuana among college and high school students has received national attention in the last two or three years. Recognizing, therefore, that drug abuse is not one but a broad set of problems, the NIMH, in January 1967, created the Center for Studies of Narcotic and Drug Abuse as a focal point within the Institute to coordinate programming and to integrate and intensify the research effort.

In the field of opiate drug dependence, research has continued with animal models of addiction, neurophysiological studies of the effects of opioid drugs in various portions of the central nervous system, and on the biochemical and molecular biological correlates of physical dependence and tolerance. Clinical studies with methadone and cyclazocine maintenance have been proceeding in several clinical centers, and naloxone (a pure opiate antagonist with minimal side effects) has been studied as a maintenance drug. Additionally, there has been continuing support for newer treatment programs for opiate addicts.

A comprehensive national treatment program utilizing and implementing recent research findings will be initiated under the Narcotic Addict Rehabilitation Act of 1966. A pilot project is underway to classify systems of care and to test the feasibility of a uniform data collection system that would provide comparable information on patients in various programs and communities from point of entry to treatment through follow-up. When fully operational, the NARA program should provide significant epidemiological data on the characteristics and progress of opiate addicts subsequent to their admission for treatment.

NIMH is now the only legal supplier of LSD for research purposes in the country. The Institute supports research projects investigating the value of this drug as a therapeutic agent, e.g., in the treatment of alcoholism and schizophrenia, as well as basic research into the mechanism of action and total biological activity of hallucinogenic drugs. Scientists working with LSD are also studying the possible adverse biological effects of LSD use - and in particular the genetic consequences. Several of these investigators have reported chromosomal aberrations from in vivo and in vitro studies with LSD. Others have been unable to replicate these results. Since there have been few before and after studies in man on the biological effects of LSD and since the current data are contradictory, there is no clear evidence at this time of chromosomal damage in humans resulting from LSD usage. However, on the basis of presumptive evidence and animal studies, it seems clear that use of LSD should be carefully controlled, and should be avoided particularly by women in the childbearing years. The information currently available about the biological hazards of LSD and other hallucinogenic drugs is incomplete and the Center will continue to give high priority to encouraging ongoing research in this area.

Several separate surveys are nearing completion on the patterns of drug use by high school and college age youth. A survey instrument is being developed for collaborative investigations into the prevalence and characteristics of drug use by these groups. Preliminary reports from the college surveys indicate that approximately 18 percent of college students have used marihuana one or more times, and that about 8 percent have used hallucinogenic drugs at least once. These data need to be followed up by more extensive survey information, utilizing the instruments developed in the pilot studies.

A dose response curve for tetrahydrocannabinol (the principal active ingredient in marihuana) in man has been defined. In low dosage, this compound approximates alcoholic intoxication; in high dosage, it approximates the hallucinogenic state secondary to mescaline ingestion. Preliminary work with the synthesis and pharmacologic exploration of tetrahydrocannabinol indicates that future research efforts must include studies of chronic toxicity of tetrahydrocannabinol and marihuana, as well as behavioral and socio-psychological studies of marihuana and tetrahydrocannabinol use in man. A comprehensive research plan has been developed to investigate the pharmacologic and toxicologic properties of marihuana and its components, as well as the consequences and correlates of marihuana usage.

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Center for Studies of Suicide Prevention

Over 20,000 suicidal deaths are reported each year. Many experts believe that the actual number of suicides is double that figure. In addition, since there are roughly eight suicide attempts for every suicide committed, there are perhaps two million people now living in this country who have attempted suicide. One of the greatest costs in suicide is the trauma and mental suffering to the surviving family and intimate friends, who number more than a million over a period of ten years. Suicide ranks third among causes of death (to accidents and cancer) in the 15-19 age group and among college students. Other high risk groups include divorced males, soldiers during peacetime, and the elderly.

Since the NIMH established a Center for Studies of Suicide Prevention, there has been a greatly intensified effort in this area. Prior to the inception of the Center, only three grants had been made in suicide prevention. As of November 1967, 27 grants and 4 contracts have been awarded. In 1965, there were only 15 suicide prevention programs around the country; now there are 59 such programs in 21 States and District of Columbia. A program for training psychiatrists, psychologists, sociologists, social workers, health educators and nurses, called "Fellowships in Suicidology," has been initiated at the Johns Hopkins University, and plans for additional similar training programs in other parts of the country are underway. Proposed training efforts would involve the training of health educators, gatekeepers such as clergy, physicians, pharmacists, lawyers, etc., and lay people with demonstrated civic interests. Education activities directed to professional groups and the public have been launched.

The Center for Suicide Prevention, together with the National Clearinghouse for Mental Health Information, has begun publication of the Bulletin of Suicidology, a quarterly journal. The first issue contained a directory of suicide prevention centers in this country, a current bibliography on suicide, and original theoretical articles about suicide and self-destruction. The Center collaborated in the publication of a pamphlet, "How to Prevent Suicide," and prepared a number of professional articles, including one called "How the Family Physician Can Prevent Suicide," which was distributed to 130,000 physicians in the country. Essays in Self-Destruction, a volume edited by the chief of the Center, was published late in 1967. An expanded use of films, television, and radio is envisaged; and a series of long-play training phonograph records is being created which presents the content of suicide telephone calls, with a discussion by professionals both on the records and in the accompanying discussion guide. In addition, an International Congress in Suicide Prevention Conference on Suicide has been supported and the First Annual Conference on Suicidology is planned for March 1968. Regional workshops and symposia on suicide prevention have been and will continue to be held.

The Center has supported studies in a number of areas in FY 68: special programs for physicians, nurses, community mental health personnel, and

volunteers; follow-up programs of individuals who attempt or threaten suicide; studies of the meaning of life and death to suicidal people. Next year will see continuation of these, plus an intensified effort in such critical areas as suicide among adolescents and the identification of other high risk groups. Intramural research on suicidal phenomena will be initiated by in-depth study at Saint Elizabeths Hospital of a small number of suicidal persons and their "significant others." Such aspects of total behavior as patterns of sleep, of thought, and of interaction (mutual dependency, hostility, etc.) will be studied to provide further clues to the prevention and treatment of suicidal behavior.

Center for Studies of Crime and Delinquency

Lawlessness, ranging from petty thievery to multiple homocide, has become a major problem in our society. Its monetary cost to the Nation -- including expenses related to law enforcement, administration of justice, and correctional efforts, as well as the cost of damages inflicted by offenders -- has been estimated at more than $20 billion a year. There are approximately 1.3 million offenders under correctional supervision. Public expenditures for police, courts and corrections -- estimated at more than $4 billion a year -- are borne primarily by taxpayers at the State and local level. The psychological costs of crime, which defy measurement in terms of dollars and cents, affect the lives of countless innocent people in numerous ways.

Delinquent and criminal behavior stems from a complex interaction of psychological, social and other factors, the precise nature of which is poorly understood. There is general agreement, however, that behavior which violates socio-legal norms is symptomatic of underlying social and emotional disfunction. The seriousness of the problems of juvenile delinquency is indicated by recent studies which conclude that one out of five boys between the ages of 10 and 17 will at some point come before the juvenile court. Moreover, in some deteriorated urban areas as many as 9 out of 10 juveniles have come into contact with juvenile authorities.

NIMH has a specific concern with the prevention and control of deviant behavior which is threatening to society or stressful to the individual. The Institute's special research competence in the field of human behavior makes it an appropriate focal point to develop and disseminate knowledge related to this area of grave societal concern. The Center for Studies of Crime and Delinquency coordinates all aspects of the Institute effort, including: meeting the need for better definition and conceptualization of the phenomena of crime and delinquency; supporting basic research on the causes and nature of law-violating behavior (e.g., studies of aggression and prediction of individual violence); developing more effective and better coordinated community resources directed at delinquency prevention and control; intensifying the search for and utilizing a variety of community-based treatment and rehabilitation programs as suitable alternatives to incarceration; developing newer models for the training of professional, support-professional, and nonprofessional mental health, correctional, and related personnel; and pursuing a variety of concerns pertaining to the needs of mentally disordered

offenders and numerous other issues in the broad area of law and mental health. Efforts are also being made to stimulate more effective communication of new knowledge through publications, conferences, direct consultation with States and local communities, and related measures.

As part of its broad range of consultative and collaborative program activities, the Center worked very closely with the President's Commission on Law Enforcement and Administration of Justice. Technical and advisory assistance was provided in the preparation of special papers for that Commission. The Center has also been working closely with the Joint Commission on Correctional Manpower and Training by serving in various consultation and advisory roles and by collaborating on various aspects of the Commission's work.

In view of the rapid proliferation of published material on crime and delinquency throughout the world, the Center has developed the Crime and Delinquency Abstracts. This quarterly publication attempts to encompass the world's literature in the field and provides a readily available and widely distributed information resource for the professional, scientific, and lay communities in criminal justice, mental health, and related fields.

The Center continues to emphasize greater utilization of significant research findings. As an example of this effort, the Center recently developed and participated in a conference which sought to identify and analyze issues related to the effective use of offenders and ex-offenders in a variety of new careers. The proceedings of another conference, recently published as an NIMH monograph entitled Typological Approaches and Delinquency Control: A Status Report, assessed current knowledge pertaining to the development and use of typologies for more effective treatment of offenders.

In addition to continuation of the areas mentioned earlier, the following are critical program needs:

1) Understanding the social forces operating in the community in order to define, label, and manage deviant behavior. It is essential to study carefully the social processes resulting in certain individuals and groups being labeled as deviant.

2) Delineation of the community context of deviant behavior. Confusion surrounds the issue of the nature and extent of the difference between "hard core" delinquency and tolerable, if annoying, youthful behavior.

3) Increased utilization of community-based-programs as alternatives to institutionalization. NIMH-supported research has demonstrated the feasibility and effectiveness of such community treatment.

4) Increases in the manpower pool to combat crime and delinquency. Such efforts ought to be directed toward development

of more efficient models for personnel training and utilization.

5) Critical issues in the area of law and mental health. Both research and improved services for various categories of mentally disordered offenders are needed.

6) Additional innovative efforts are indicated to improve the methods by which information and research results can be more effectively disseminated and utilized.

7) Carefully designed basic and applied research. Hastily conceived crash programs often lack a sound scientific base and careful evaluations of effectiveness -- and limited manpower and funds are not always efficiently or appropriately used.

Center for Studies of Child & Family Mental Health.

At least 500,000 children in this country suffer from overt and borderline psychoses, and perhaps an additional million are afflicted with other severe mental disorders. Perhaps 10-12% of all school age children have emotional problems requiring some kind of mental health service; at least 2.5%, more than a million school children, need immediate help. In the 15-19 age group, suicide is the third leading cause of death. Experts feel that less than one percent of the disturbed children in the United States receive any kind of treatment, and less than half of that fortunate group receive truly adequate professional help. A high proportion of all counties in the United States are without clinics altogether, and most of these also lack agencies which might substitute in some measure for clinical care.

The admission rates of children and adolescents to State hospitals have been increasing. At the end of 1965, approximately 4,300 boys and 1,700 girls under 15 (one-third under 10 years of age) were patients in State mental hospitals. There were 25,000 mental hospital residents between the ages of 15 and 24 at the end of 1963. Although the U. S. mental hospital population as a whole has declined substantially in the last decade, both the first admission rates and the resident population rates for children have increased at an accelerated pace -- far beyond the relative increase in the number of children in the general population; e.g., the number of boys between 10 and 14 has increased almost twofold since 1950, but this group has increased almost sixfold in mental hospitals. Projections to 1973 anticipate an increase of 15 percent in the proportion of children under 15 in the country's population; in mental hospitals, however, these children are expected to increase by 164 percent. For youth between the ages of 15 and 24, we can expect a 36 percent increase in the population and a 70 percent increase in the wards of mental hospitals.

Fifteen million (20%) of the 71 million children under 18 in this country are growing up in families handicapped by poverty. Almost six million of these children are pre-schoolers. The social, economic, educational, and psychological deprivations associated with poverty play a major role in the development or exacerbation of mental and emotional handicaps in children. Perhaps one-third of the children receiving assistance under the Aid to Families with Dependent Children Program have serious emotional problems that need psychiatric attention.

The NIMH is dedicated to changing this bleak and shameful picture. The Center for Studies of Child and Family Mental Health was established last year to coordinate and integrate the activities of the Institute. Its activities include: developing long-range program objectives in light of present and anticipated needs; collecting and organizing data on the mental health of children and adolescents; coordinating information on Institute programs affecting youth; establishing a functional consortium of NIMH staff interested in child and family mental health; consulting with researchers and applicants on the development of proposals; consulting with practitioners to disseminate research findings and to implement innovations improving nationwide mental health services; participating in interagency committees and joint Federal programs affecting children (e.g., The Interdepartmental Committee on Children and Youth); providing a central information resource on child mental health to professionals and the lay public. The Center also cooperates with other parts of HEW and other Federal and national agencies in planning to include mental health content and services in such programs as Head Start, Neighborhood Service Centers, parent-child centers, urban renewal development planning and day care. Recognition by Congress of the importance of childhood and adolescence resulted in the establishment of the Joint Commission on Mental Health of Children.

The Institute's work on child development focuses on three areas: the critical early years of life, the family, and the school. Research on the family's contribution to a child's development extends from genetic influences at one end of the spectrum to the influence of socialization at the other. One recent project establishes that the period of early childhood (1-3 years) is critical in cognitive and emotional development. Stimulation of the infant and provision of varied experience for the very young child are essential if he is to function successfully in society. Projects dealing with school children include studies of learning, of school problems in deprived areas, and of the relationships between particular personality factors and learning and behavior. Much of the research has immediate implications either for improving our present services to children or for instituting new ones.

The Institute's program in behalf of children and youth embraces the varied efforts of biomedical and behavioral science researchers, clinicians, community agencies, and teaching institutions. In substance,

intramural and extramural research includes work in the most basic sciences -- in biochemistry, genetics and experimental psychology -- as well as clinical studies of autistic and other emotionally disturbed youngsters. Areas of investigation include studies to obtain normative data; to develop instruments for identifying and measuring deviations; to discover means of averting or arresting the pathological process at the earliest possible stage; and to document the influences of family life and the social system on the growth and development of infants, children, and adolescents. Data gathering, analysis, and provision of services are structured to include health promotion, prevention of illness, early treatment, and rehabilitation for children and families.

Behavior disorders leading to social problems are well-known phenomena among today's youth. These problems coincide with increasing family and community expectations for social competence, mounting educational pressures, changes in fields of counseling, parent education and mental health services, and the increasing awareness of breakdown in family life. Treatment approaches to these situations must include a variety of community resources. The hospital inpatient service and outpatient child guidance clinic, the oldest of the treatment modalities, are now changing their traditional approach. The Hospital Improvement Program has encouraged the development of service units exclusively for children and adolescents, who are frequently distributed throughout adult awards. The new units have initiated or improved educational curricula, recreational activities, and vocational training. Outpatient clinics are gradually shifting from individual therapy to group and family approaches, and to consultation with community workers such as teachers, nurses, and doctors to enhance their perception and ability to work with children and families. In addition, an increasing number of young people are now serving as counsellors, companions, tutors, and even therapists for children. They are also taking advantage of job training opportunities to prepare themselves for employment, which hopefully may break the chain of poverty and at the same time increase the pool of talented manpower in the service professions.

NIMH is supporting training in marriage counseling and for the development of new techniques for handling marital problems. Training of para-professionals includes using mothers as aides in educational and therapeutic services. Such training is useful in giving the woman whose children are in school the opportunity to continue her own development while making a contribution to society. For unmarried mothers, demonstration programs have provided education and job training opportunities enabling them to support their families. In addition, there is increasing interest in and commitment to preparation for marriage beginning with information on sex and family life in the schools and continuing with premarital counseling, including family planning. An increasing body of data underscores the need for this kind of information, and also accentuates the need for training mental health and educational personnel who can implement such programs. Recently, NIMH has found a unique opportunity to

encourage the provision of important mental health aspects of family living, through its participation in preplanning for new communities, including the development of entire new cities.

Mental Health Career Development.

This program is designed to supply the PHS and the NIMH with professional leaders who are both qualified and motivated to fulfill program responsibilities. The effort is now concentrated on psychiatrists and psychiatric-mental health nurses, but plans are being developed to include a similar program for psychologists. Career development officers assess future PHS needs for these disciplines in addition to providing the careerists and planned, personalized educational sequence and continued on the job development. Careerists are currently in a wide variety of program settings, including patient care facilities, mental health research units, demonstration projects, administrative operations, and consultation programs.

In addition to the increase of 40 positions and $500,000 to initiate the new early child care demonstration program, the net increase of $657,000 includes 11 positions and $128,000 to augment the Centers for Alcoholism, Suicide Prevention and Narcotic Addiction and Drug Abuse; $26,000 for annualization of 1968 pay raise costs; $44,000 for annualizing the cost of positions which were new in 1968; $3,000 for one extra day of pay; and an offsetting decrease of $44,000 for non-recurring costs.

Regional and Field Activities

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
Personnel compensation and benefits	268	$2,703,000	268	$2,852,000	---	+$149,000
Other expenses	---	4,502,000	---	4,450,000	---	- 52,000
Total	268	7,205,000	268	7,302,000	---	+ 97,000

Epidemiology constitutes a significant part of the scientific foundation for public health. The emphasis on mental health epidemiology has increased because of the movement from custodial care and because of the growing interest in the etiology and prevention aspects of mental illness. New facilities can be efficiently planned only if the needs of the population served are known. Similarly, community programs to prevent and treat mental illness can be properly developed only if factors leading to the occurrence of mental illness are known. The Center for Epidemiologic Studies was established in January 1967, to provide unified leadership and support for a national program in the epidemiology of mental illness and mental health.

One of the Center's major efforts thus far has been to select a site for the first pilot Field Station. This will provide the Institute with an up-to-date comprehensive picture of mental health needs and services in a typical community, and will carry out intensive epidemiolgic studies. Following a nationwide search involving consideration of 132 locations and on-site examination of 16 sites, Kansas City, Missouri was finally selected. In 1969, another site will be selected, and the first two units in the field station network will be established.

The development of better tools and techniques for conduct of epidemiologic investigations in mental health is a major research need. There are several methodological and analytic studies now in progress to supply research with these tools. During 1969, projects will be contracted to promote development of statistical instruments and techniques, to support promising new methods, and to conduct brief feasibility studies. Particular emphasis will be given to problems of large-scale data handling and to development of baseline measures of mental health.

A major obstacle to progress in mental health epidemiology has been the lack of comparability from one study to another. During 1968, the Center sponsored a conference on the development of automated clinical records for epidemiologic research. In 1969, there will be at least one additional meeting to bring together professionals working in this field; a newsletter will also be developed.

The dearth of qualified epidemiologists in mental health is a serious problem throughout the country. In 1968, steps were taken to attack this problem. A survey of existing training courses in mental health epidemiology was conducted, and a number of professionals who might be willing to develop

supplementary training programs were contacted. As a result, beginning next year, a series of courses will be given annually to interested professionals in the behavioral and clinical sciences.

An Epidemiologic Studies Review Committee has been appointed and the research and training grant program will be fully operational in 1969. Guidelines have been developed for prospective applicants.

Regional Staff

NIMH regional staff, based in the DHEW Regional Offices, carry out programs of assistance to States and serve as field units providing consultative and technical assistance to State and community agencies and institutions. Among the programs facilitated by regional operations are hospital staff development, hospital improvement projects, project grants, grants-in-aid, and construction and staffing of comprehensive community mental health centers. The goal of regional staff operations is to insure maximum utilization of resources provided to State and local agencies and institutions, by developing and implementing Institute programs to meet overall State needs at a particular phase of development of mental health services.

During 1968, high priority has been given to hastening the development of the Comprehensive Community Mental Health Centers Program, and regional staff have provided continuing consultation for participant communities. Program guidelines have been developed and are revised or adapted whenever necessary to assist states in implementing their comprehensive mental health plans.

In 1969, continuing attention will be given to consultation and technical assistance for States and communities which have already instituted Community Mental Health programs. Regional offices will also continue to encourage the stimulation and development of programs in such areas as narcotic and drug abuse, prevention and control of alcoholism, child mental health crime and delinquency, social problems, suicide prevention, staff development, and participation in special studies on mass violence. In all these areas, the regional staff will actively and systematically participate in planning and coordinating Institute programs to provide maximum benefit to the States from the various Institute mechanisms of support and assistance. An increase of $58,000 is included in the estimate to meet the costs of these expanded activities.

Narcotic Addict Rehabilitation Activities

Abuse of narcotic drugs is a serious problem of mounting national concern. Estimates of prevalence, which generally cite the number of addicts known to police and are therefore quite minimal, only begin to reflect the devastating effects of narcotic abuse on the individual, his relatives, and on society at large. NIMH has the major responsibility for implementing an organized program to reduce radically the human suffering, disability, death, crime and social disruption resulting from narcotic abuse.

The Narcotic Addict Rehabilitation Act (NARA) of 1966 (P.L.89-793) stands as the declaration of a new national policy regarding narcotic addiction. The

NARA provides for a civil commitment of narcotic addicts, including those charged with or convicted of violating Federal criminal laws. With the passage of the NARA, Congress authorized a comprehensive medically oriented approach to the treatment and rehabilitation of narcotic addicts. The NARA provides for total treatment rather than fragmented efforts. Institutional treatment must be geared toward the supervised return of the patient to the community. For the first time, provision is made for professionally supervised aftercare for addicts in their own communities after discharge from inpatient treatment. Such an approach is essential in the treatment of addiction if the high rate of recidivism is to be reduced.

The responsibility for the program for addicts committed under Titles I and III is vested in the Surgeon General and will be carried out through the NIMH. Consonant with community mental health concepts, and to insure that close supervision of the addict will be maintained, contracts for hospital and aftercare treatment and rehabilitation services will be negotiated with appropriate facilities near the homes of the addicts. Currently, examination and hospital treatment of patients committed under Titles I and III are provided at the NIMH Clinical Research Centers at Fort Worth and Lexington. When suitable State and local facilities have been developed, contracts will be let for these services in the addict's community.

From the beginning, aftercare treatment and rehabilitation services will be provided in the addict's community through contracts with State or local agencies, private organizations or persons. NIMH professional personnel are being assigned to area offices in the eleven metropolitan areas having the largest addict populations. They will develop contracts and evaluate the performance of contractors to insure high level performance. They will interpret the program to community groups and will stimulate and aid communities in correcting deficiencies in needed services. Contracts will provide for a flexible treatment program adapted to the needs of the individual addict. The primary aftercare services required are those which relieve family dysfunction, stabilize financial status, and develop the patient's ability to earn a living and cope with the stresses of daily life. The contracts will provide continuity of treatment which will implement the recommendations of the hospital staff and help the patient develop personal, social, and vocational competence. It is estimated the cost of 2½ years of aftercare treatment will average $11,640 per addict.

Research and evaluative procedures will be built into the NARA program to provide much needed information about the etiology and epidemiology of narcotic addiction and effective methods of rehabilitating addicts.

It is estimated that in 1969, under Titles I and III of NARA, 2,200 addicts will be examined in NIMH facilities, 1,100 will receive an average of six months of hospital treatment, and by the end of 1969, 1,400 addicts will be receiving post hospital treatment. By 1973, approximately 6,600 addicts will be receiving treatment under NARA.

Mental Health Study Center

For two decades, the Mental Health Study Center has functioned as a community research and experimental service operation to develop new methods of service delivery to test their value, and also to provide a sound body of knowledge about the community, its characteristics, its organizations and social systems, and the relationship of these to mental health and mental illness. It has devoted particular attention to devising and implementing methods of coordinating its programs with those of other public and voluntary agencies and has emphasized consultation and collaboration with existing community agencies. The Center's work has provided an important impetus to the development of the comprehensive community mental health center movement.

Many community mental health centers do not have the staff or facilities to perform the research which is needed. By emphasizing research in addition to the delivery of mental health services, the Mental Health Study Center continues to make a substantial contribution to the community mental health movement. One study of 4,075 students has indicated that potential school dropouts can be identified one to six years before they actually leave school. Other studies are investigating the role of residential environments and occupational structures on mental health. Another major investigative area has been the study of characteristics of service organizations and occupations. A nation wide interview study focused on the sources of stress and satisfaction in typical life areas of normal adults.

In addition to its research effort, the Center is in the process of becoming a comprehensive community mental health center with primary service obligation to the southern half of Prince George's County, Maryland--an area of approximately 300 square miles with a population of about 200,000. This population includes representative samples of the various population groups and mental health problems of the nation as a whole. The provision of comprehensive services to this population will require a significant increase in the Center's clinical operation. The Center serves as a community laboratory for the demonstration, innovation, and evaluation of mental health services, appropriately varied and tailored to the needs of diverse groups. The Center's staff believes that community centers should focus more on the community itself as a primary target for planned change. To reduce the prevalence of mental problems in individuals, it is necessary to understand the critical stress areas for all individuals residing in the community, and to take steps to diminish the impact of these stress areas.

The Center continues to give equal emphasis to service, demonstration, clinical and applied research, community research, and to the training of professional and subprofessional staff for new roles. Numerous hypotheses in community mental health are being tested and the impact of programs on individuals and on communities is being examined. Studies are designed to search for the social and social-system factors that are related to the etiology and amelioration of mental illness and the maintenance and promotion of mental health.

In addition to the increase of $58,000 for regional office operations, the net increase of $97,000 for this total activity includes $31,000 for annualizing the cost of the 1968 pay raise, $8,000 for one extra day of pay in 1969, and $121,000 to annualize the cost of positions new in 1968. These increases are partially offset by a decrease in non-recurring other objects of expense in 1969.

Fort Worth and Lexington Clinical Research Centers

	1968 Estimate		1969 Estimate		Increase of Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
Personnel compensation and benefits	1,057	$8,440,000	1,057	$8,551,000	---	+$111,000
Other expenses	---	3,096,000	---	2,029,000	---	-1,067,000
Total	1,057	11,536,000	1,057	10,580,000	---	-956,000

As part of the PHS attempt to stimulate programs for the treatment and prevention of drug abuse and dependence, the Fort Worth and Lexington Hospitals have been redesignated as NIMH Clinical Research Centers and given the primary mission of providing new knowledge and new methods of intervention, treatment, rehabilitation, and aftercare in the fields of drug abuse, drug dependence, and specific personality disorders. These Centers will be developed to serve as model treatment, training, and demonstration centers for personnel concerned with these problems.

Although we do not yet fully understand the factors which underlie drug addiction, it is believed to be symptomatic of a personality disorder influenced by social, cultural, economic, and pharmacological factors. Drug abuse and other forms of anti-social behavior are viewed as unsuccessful efforts of individuals with poor impulse control to cope with the stresses of daily life. Current treatment efforts seek ways to support the "weak" individual and to modify his environment in such a way that he will be able to develop better coping mechanisms as alternatives to deviant behavior. Currently available methods of rehabilitating narcotic addicts and individuals with personality disorders have generally not been effective. The majority of them have relapsed soon after being discharged from hospitals or prisons. The human suffering and social disruption resulting from these disorders make it imperative that intensive research be initiated and expanded in numerous areas.

A major research challenge exists in the relationship between personality disorders and socially deviant behavior. Little is known about either the dynamics of faulty personality development or the mechanisms underlying specific symptomatic manifestations of personality disorders. Insights gained from the study of other manifestations of personality disorders are necessary for a better understanding of the mechanisms which produce socially deviant behavior such as drug abuse. Increased understanding of the dynamics of the drug abuser will, in turn, contribute to deeper understanding of personality disorders. Future research must be more longitudinal, concentrating on the potential addict and the discharged patient rather than being limited to the physical and psychological symptoms of addiction per se. The Narcotic Rehabilitation Activities program will provide the opportunity to monitor various treatment approaches for addicts in their communities over a prolonged time period. Both traditional and innovative treatment approaches will be carefully evaluated. This program should provide information needed to understand the multiple forces which lead to narcotic addiction, and make more effective preventive and rehabilitative techniques possible.

During the past year, these Clinical Centers have been recruiting staff and developing projects to fulfill their new mission. For instance, the Fort Worth staff has continued its study of the effectiveness of a prerelease unit for hospitalized addicts, operated a halfway house in Houston, and provided a continuum of care for patients from San Antonio.

However, both staffing and facilities are currently incompatible with modern principles of treatment and public health practice. Currently, all patients committed under Titles I and III of the NARA are being examined and treated at these two Centers. During the first year of the program, the NIMH has also assisted the Attorney General by providing inpatient care in these centers for addicts committed to him under the provisions of Title II. In addition, in the past, the hospitals have relied heavily on patients for maintenance, laundry, housekeeping and dietic services. Given the change in mission and the need to improve the treatment program for the NARA patients, fewer patients and less of the patients' time will be available to provide these services. They will need to be replaced by permanent employees. The facilities are antiquated, dilapidated, and, in some cases, unfit for human habitation. A planned and concerted effort has been launched to transform the non-therapeutic prison-like image of these two institutions to one consistent with the highest standards of patient care.

The net decrease of $956,000 results from the following changes in the activity funding:

Annualization of 1968 pay raise costs.....	$79,000
One extra day of pay in 1969.....	25,000
Decrease in reimbursements from V.A. for patient care.....	329,000
Program increase to defray loss of V. A. reimbursement funds.....	329,000
Decrease in funds available from 1967 supplemental for NARA legislation.....	1,060,000

Scientific Communication and Public Education

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
Personnel compensation and benefits	72	$ 741,000	72	$ 748,000	--	+7,000
Other expenses	--	1,801,000	--	1,803,000	--	+2,000
Total	72	2,542,000	72	2,551,000	--	+9,000

The programs of the NIMH are notable for their complexity and breadth. They include diverse activities ranging from resources for the delivery of direct health services to the training of mental health manpower to the conduct and support of basic and applied research. The field of mental health is of interest not only to professionals in the field, but also to those who have occasion to use mental health concepts in their work -- such as clergy, physicians in general practice, lawyers, police and prison officials, and a wide range of physical and social scientist -- and to students and to family members of the mentally ill. Mental health in the broadest sense is a measure of the quality of life, and is therefore also of interest to the general public.

The Office of Communications, recently organized within the Institute, is designed to transmit accurate information promptly to these widely different groups. The scientific and technical information branch of the Office is comprised of the National Clearinghouse for Mental Health Information, while the general public information and education program is centered in the Public Information Branch. The newly formed Information Services Branch provides editorial, photographic, art and graphics, and distribution services for the other branches of the Office and for the Institute as a whole.

National Clearinghouse for Mental Health Information.

The Clearinghouse, the formal Institute resource for collecting, analyzing, and disseminating scientific and technical information, has basically three functions. First, it provides scientific information both upon individual request and in the form of recurring and single issue publications. Second, it provides scientific analyses and compilations which present an overview and synthesis of current research activities. Third, it attempts to develop new solutions to burgeoning scientific information problems and devises improvements in its storage and retrieval system. More than 14,000 items have been added to the information retrieval system in the last year, including more than 7,000 new research reports and

7,000 abstracts. This brings the information stored to some 60,000 items, the largest known collection of current mental health information, and permits more comprehensive replies to information requests.

As current information is collected and processed, it is abstracted or retrieved on the basis of areas of interest and packaged into "current-awareness" journals. The NCMHI has continued to publish Mental Retardation Abstracts, Crime & Delinquency Abstracts, Psychopharmacology Abstracts, Psychopharmacology Bulletin, Occupational Mental Health Notes, and Drug Dependence and Abuse Notes to satisfy needs in these areas; and has launched a well-received new journal, The Bulletin of Suicidology, which includes both articles and abstracts. A broad-scale journal containing current developments and digests of original research reports was inaugurated as the Mental Health Digest. This publication has met the need for a general publication for the entire mental health program and has met with exceptional endorsement and use by a wide spectrum of consumers. Analytical papers reviewing, synthesizing, and evaluating the literature have been prepared in a number of areas, such as mass violence and creativity in children. Most have been in areas of critical current interest in which little comprehensive work had previously been done. In addition, an improved information retrieval system has been implemented and original scientific documents are stored on microfilm, saving money and manpower. Finally, the NCMHI imprimatur was carried on new Institute publications which reached hundreds of thousands of individuals.

Public Information and Education.

The Public Information Branch provides information and materials to both individuals and lay organizations. Staff are in daily contact with the public media, providing assistance in preparing major feature stories and information on fast breaking events. In FY 68, for example, some 250 news releases were prepared. The Branch released a feature length movie and a shorter animated film on the Community Mental Health Centers, and has released several monographs, including "Alcohol & Alcoholism." The Branch also filled many thousands of public inquiries and publication requests during the year. In addition to an increased number of services and publications in FY 69, the Branch will develop innovative services for the media, such as radio transcriptions, films and TV spots, and special articles and features.

Information Services.

Under this newly formed service are the new Institute library, central editorial assistance for Institute staff, and photographic, art-work, and distribution services. These areas will be strengthened in 1969.

Narcotics and Dangerous Drug Information Service.

The Institute established a task force to insure integrated planning of this new service, and the program design is well underway. During the coming year the program will be effectively developed and some projects will be completed. Projects include:

1) Professional and scientific publications: i.e., abstracts, reviews, bibliographies;

2) Popular publications: a lay monograph, "Narcotics and Drug Abuse;" a series of four mass distribution flyers on Narcotics and Drug Addiction, Marihuana, Amphetamines, and Barbiturates; and fact sheets and articles on the problem and on research in the field for wide distribution including the high school and college press; and

3) Audio-visual materials: presentation of current information through exhibits and slides; film progress report items for TV broadcast and film showings; and development of a major documentary film on the nature and extent of the problem and the attack on it.

The increase of $9,000 for this activity includes $7,000 for annualization of the 1968 pay raise costs and $2,000 for an additional day of pay in 1969.

Program Management and Services

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
Personnel compensation and benefits	368	$3,131,000	368	$3,180,000	--	+49,000
Other expenses	--	1,905,000	--	1,795,000	--	-110,000
Total	368	5,036,000	368	4,975,000	--	-61,000

This activity includes the Immediate Office of the Director, the Offices of Program Planning and Evaluation, Program Liaison and Administrative Management.

Immediate Office of the Director

This office is responsible for planning, directing and administering the programs of the Institute.

Office of Program Planning and Evaluation

This office is responsible for development and coordination of the Institute's planning and program analysis activities. In addition it provides legislative reference services and advises on legislative matters in the field of mental health. Further, it administers the biometrics programs of the Institute.

The biometrics research program continues to provide a basic core of statistical data required for the implementation and continued surveillance of various aspects of the Institute's program. To meet the increasing demands for data for new programs, plans are being formulated for the establishment of a systematic, current base of information on psychiatric facilities from which surveys can be carried out readily. This will include the collection, processing and analysis of basic statistical data describing such facilities as community mental health centers, partial hospitalization facilities for the mentally ill and residential treatment centers for emotionally disturbed children, as well as similar activities now being carried out in relation to inpatient and outpatient facilities for the mentally ill. Psychiatric case registers are being used to coordinate and integrate data on the characteristics of patients coming under care in all mental health facilities within specific geographic areas. In addition to the use of registers for program planning and evaluation, increasing demands are being placed on them for studies and basic data related to some of the developing programs of the Institute, such as

alcoholism, drug abuse and epidemiology. Metropolitan demographic and epidemiologic studies are being continued to assess the relationship of such socioeconomic factors as income, educational level and occupation to the probability of entering into psychiatric care in specific population groups. Studies are being planned to develop methods of estimating the need for psychiatric facilities within defined geographic areas. Such methods are much in demand by those developing comprehensive community mental health programs. Also, in relation to these programs, major progress is being made in the development of a basic model for statistical analysis of the flow of patients through community mental health facilities. In the area of theoretical statistics and mathematics, research is being carried out on statistical problems in multivariate analysis and statistical inference, with particular emphasis on problems of multiple classification as applied to the classification of mental disorders, classification of symptoms and other attributes of ill individuals. Further studies are underway involving the application of mathematical techniques to research on biological processes affecting the brain.

Office of Program Liaison

This office is responsible for coordinating Institute activities with DHEW components, other Federal agencies, international groups, and with regional, state and local mental health agencies and citizen groups. It acts as the liaison between the Institute regional organization and other Institute program areas. As a result of the reorganization, it also performs grant application review and referral functions for the Institute.

Office of Administrative Management

This office is responsible for centralized services in financial management, management policy, personnel management, grants and contracts management, administrative services, and data processing activities. It has broad responsibility for the design, issuance, and implementation of administrative operating procedures for the conduct of Institute operations.

The net decrease of $61,000 in this activity results from a $210,000 reduction in anticipated reimbursements and a $6,000 decrease for nonrecurring costs, offset by increases of $39,000 for annualization of 1968 pay raise costs, $10,000 for one extra day of pay in 1969, $6,000 for annualizing the cost of positions which were new in 1968, and $100,000 for increased rental costs.

PUBLIC HEALTH SERVICE

Community Mental Health Resource Support

Amounts Available for Obligation

	1968	1969
Appropriation	$100,168,000	$87,300,000
Unobligated balance brought forward	45,379,819	45,000,000
Unobligated balance carried forward	-45,000,000	---
Total	100,547,819	132,300,000

Obligations by Activity

Page Ref.		1968 Estimate	1969 Estimate	Increase or Decrease
89	Grants for construction of community mental health centers	$45,379,819	$60,000,000	$ +14,620,181
92	Grants for staffing of community mental health centers	51,168,000	64,300,000	+13,132,000
93	Construction and operation of narcotic addict rehabilitation facilities	4,000,000	8,000,000	+4,000,000
	Total obligations	100,547,819	132,300,000	+31,752,181

Obligations by Object

	1968 Estimate	1969 Estimate	Increase or Decrease
Grants, subsidies, and contributions (Total obligations)	$100,547,819	$132,300,000	+31,752,181

JUSTIFICATION MATERIAL

PUBLIC HEALTH SERVICE

Community Mental Health Resource Support

Amounts Available for Obligation

	1968	1969
Appropriation.....	$100,168,000	$87,300,000
Total.....	100,168,000	87,300,000

Obligations by Activity

Page Ref.		1968 Estimate	1969 Estimate	Increase or Decrease
89	Grants for construction of community mental health centers.....	$45,000,000	$15,000,000	-$30,000,000
92	Grants for staffing of community mental health centers.....	51,168,000	64,300,000	+13,132,000
93	Construction and operation of narcotic addict rehabilitation facilities.	4,000,000	8,000,000	+4,000,000
	Total new obligational authority	100,168,000	87,300,000	-12,868,000

Obligations by Object

	1968 Estimate	1969 Estimate	Increase or Decrease
Grants, subsidies, and contributions (Total new obligational authority)	$100,168,000	$87,300,000	-$12,868,000

Summary of Changes

1968 enacted appropriation	$100,168,000
1967 unobligated balance brought forward	45,379,819
1968 unobligated balance carried forward	-45,000,000
1968 total estimated obligations	100,547,819
1969 estimated obligations	132,300,000
Total change	+31,752,181

Increases:	Base Positions	Base Amount	Change from Base Positions	Change from Base Amount
1. Grants for construction of community mental health centers	---	$45,379,819	----	$14,620,181
2. Grants for staffing of community mental health centers	---	51,168,000	---	13,132,000
3. Construction and operation of narcotic addict rehabilitation facilities	---	4,000,000	---	4,000,000
Total change requested	---	100,547,819	---	31,752,181

Explanation of Changes

1. Grants for construction of community mental health centers - An increase of $14,620,181 will allow the construction support for additional centers in 1969 bringing the total to 428 centers receiving construction assistance by 1970.

2. Grants for staffing of community mental health centers - An increase of $13,132,000 will provide staffing support for new community mental health centers to be initiated in 1969 and for continued support of centers already in operation.

3. Construction and operation of narcotic addict rehabilitation facilities - An increase of $4,000,000 will be used to continue and expand program development activities with major emphasis on developing model community-based comprehensive treatment programs for narcotic addicts within the community mental health center complex.

Summary of Changes

1968 enacted appropriation	$100,168,000
1968 total estimated obligations	100,168,000
1969 estimated obligations	87,300,000
Total change	-12,868,000

	Base		Change from Base	
	Positions	Amount	Positions	Amount
Increases:				
1. Grants for staffing of community mental health centers	---	$51,168,000	---	$13,132,000
2. Construction and operation of narcotic addict rehabilitation facilities	---	4,000,000	---	4,000,000
Total increases	---	---	---	17,132,000
Decreases:				
1. Grants for construction of community mental health centers	---	45,000,000	---	-30,000,000
Total net changes requested	---	---	---	-12,868,000

Authorizing Legislation

Legislation	1969 Authorization
Community Mental Health Centers Act	
Section 201--Construction of Community Mental Health Centers	$60,000,000
Section 224--Staffing of Community Mental Health Centers	
Initial grants	26,000,000
Continuation grants	"Such sums as may be necessary"
Narcotic Addict Rehabilitation Act of 1966	
Section 402(a)(2)--Construction and operation of treatment centers and facilities	No authorization in 1969

Proposals to extend this legislation beyond June 30, 1968 will be submitted.

COMMUNITY MENTAL HEALTH CENTERS ACT

Title II--Grants for Construction and Staffing of Community Mental Health Centers

Part 1--Construction of Community Mental Health Centers

Appropriation

Section 201. There are authorized to be appropriated, for grants for construction of public and other nonprofit community mental health centers, $35,000,000 for the fiscal year ending June 30, 1965, $50,000,000 for the fiscal year ending June 30, 1966, $65,000,000 for the fiscal year ending June 30, 1967, $50,000,000 for the fiscal year ending June 30, 1968, $60,000,000 for the fiscal year ending June 30, 1969, and $70,000,000 for the fiscal year ending June 30, 1970.

Part 2--Staffing of Community Mental Health Centers

Appropriation

Section 224. There are hereby authorized to be appropriated $19,500,000 for the fiscal year ending June 30, 1966, $24,000,000 for the fiscal year ending June 30, 1967, $30,000,000 for the fiscal year ending June 30, 1968, $26,000,000 for the fiscal year ending June 30, 1969, and $32,000,000 for the fiscal year ending June 30, 1970, to enable the Secretary to make initial grants to community mental health centers under the provisions of this part. For the fiscal year ending June 30, 1967, and for each of the seven succeeding years, there are hereby authorized to be appropriated such sums as may be

necessary to make grants to such centers which have previously received a grant under this part and are eligible for such a grant for the year for which sums are being appropriated under this sentence.

NARCOTIC ADDICT REHABILITATION ACT

Title IV--Rehabilitation and Posthospitalization Care Programs
And Assistance to States and Localities

Appropriation

Section 402(a)(2). To enter into jointly financed cooperative arrangements with State and local governments and public and private organizations and institutions with a view toward developing, constructing, operating, staffing, and maintaining of treatment centers and facilities (including post-hospitalization treatment centers and facilities) for narcotic addicts within the States.

Community Mental Health Resource Support

Introduction

The Community Mental Health Centers Program is the major national mental health program resource for stimulating, planning, and initiating state, local and individual action in the development of comprehensive mental health services in the communities of the nation. The grant programs provide support for the construction of new facilities or the expansion of existing ones, and for support, for an initial period, of professional and technical staff delivering new services.

Each Center program must assume responsibility for the mental health needs of the residents of a defined area; it must make its services readily accessible and available to all persons within that area; and it must assure continuity of care. The program is based upon scientific and professional knowledge that assures the effectiveness and feasibility of preventive treatment and rehabilitation programs in the community that promptly serve the individual and family in need; that prevent or decrease the need for costly long-term hospitalization and custodial care; and that accent the dignity and human value of the individual, and family and community life.

Participation in the program requires careful planning at state, regional and local levels. This is necessary in order to provide a division of the state into mental health service areas; to assure planning for adequate services and allocation of resources to all areas, including both metropolitan and rural areas; and to assign priorities of need based on evaluation of problems and resources. As of June 30, 1967, all 50 states, Puerto Rico and District of Columbia had approved State Plans.

Through June 30, 1967, the obligation of $133,028,000 for both construction and staffing grants enabled initiation of 258 new community mental health centers in forty-eight states, Puerto Rico and the District of Columbia. Both metropolitan and rural programs have been initiated. With each new community mental health center serving an average catchment area of 164,000 people, these centers will provide community services to areas with a total population of 40 million people. In 1968 it is estimated that obligations from the $45,380,000 available for construction and the $51,168,000 available for staffing will enable the initiation of 112 new community mental health centers, for a total of 370 through June 30, 1968. In 1969 the obligation of $45,000,000 of the $60,000,000 available for construction and new grants from the $64,300,000 for staffing will enable the initiation of 95 new community mental health centers for a total of 465 through June 30, 1969.

Grants for construction of community mental health centers

	1968 Estimate	1969 Estimate	Increase or Decrease
Grants for construction of community mental health centers.....	$45,380,000	$60,000,000	+$14,620,000

All centers funded under the program must provide five essential services: inpatient service, emergency services, partial hospitalization, outpatient care, and consultation and education services. Construction grants make provision for adequate physical facilities for these services, either facilities to house the entire program when none exist, or to expand or acquire existing facilities for new services that make possible development of a center program.

Funds are allotted to the states on the basis of population and per capita income. With the obligation of funds available in 1969 it is expected that 428 community mental health centers will have received construction support assistance since the beginning of the program.

Allocations of grant-in-aid funds for construction of community mental health centers

State or Territory	1967 Allocations	1968 Allocations*	1969 Allocations
Alabama	$1,127,805	$659,042	$659,042
Alaska	100,000	100,000	100,000
Arizona	426,116	259,961	259,961
Arkansas	661,194	374,599	374,599
California	4,043,589	2,479,620	2,479,620
Colorado	477,695	287,707	287,707
Connecticut	596,082	367,097	367,097
Delaware	103,608	100,000	100,000
District of Columbia	162,477	100,000	100,000
Florida	1,556,118	939,783	939,783
Georgia	1,310,055	764,977	764,977
Hawaii	172,364	103,196	103,196
Idaho	196,980	113,606	113,606
Illinois	2,349,631	1,406,652	1,406,652
Indiana	1,208,394	708,323	708,323
Iowa	708,080	403,229	403,229
Kansas	578,358	336,056	336,056
Kentucky	981,655	564,171	564,171
Louisiana	1,086,361	638,599	638,599
Maine	278,818	159,027	159,027
Maryland	806,745	502,853	502,853
Massachusetts	1,201,604	729,698	729,698
Michigan	1,957,368	1,167,194	1,167,194
Minnesota	912,550	529,518	529,518
Mississippi	869,459	494,815	494,815
Missouri	1,097,446	684,357	684,357
Montana	185,096	110,113	110,113
Nebraska	378,931	214,153	214,153
Nevada	100,000	100,000	100,000
New Hampshire	172,963	102,889	102,889
New Jersey	1,498,796	910,934	910,934
New Mexico	292,849	167,254	167,254
New York	3,891,318	2,363,424	2,363,424
North Carolina	1,491,856	882,066	882,066
North Dakota	177,357	107,186	107,186
Ohio	2,473,061	1,481,913	1,481,913
Oklahoma	703,186	408,885	408,885
Oregon	464,264	289,206	289,206
Pennsylvania	2,820,735	1,676,795	1,676,795
Rhode Island	220,947	127,896	127,896
South Carolina	851,383	495,212	495,212
South Dakota	200,875	114,946	114,946
Tennessee	1,190,569	691,294	691,294
Texas	2,888,542	1,743,601	1,743,601
Utah	268,282	163,751	163,751
Vermont	110,049	100,000	100,000
Virginia	1,215,884	713,612	713,612
Washington	714,321	428,058	428,058
West Virginia	539,860	321,071	321,071
Wisconsin	1,039,526	606,843	606,843
Wyoming	100,000	100,000	100,000
Guam	28,661	16,701	16,701
Puerto Rico	985,899	571,931	571,931
Virgin Islands	16,228	10,430	10,430
American Samoa	8,039	5,756	5,756
Total	$50,000,000	$30,000,000	$30,000,000

* In accord with HJR888, these funds will not be available for obligation until after July 1, 1968.

Grants for staffing of community mental health centers

	1968 Estimate	1969 Estimate	Increase or Decrease
Grants for staffing of community mental health centers.....	$51,168,000	$64,300,000	$13,132,000

The staffing grants provide for initial support of professional and technical staff, enabling communities to establish basic community mental health services, while permanent sources of financial support are developed. Each grant is made for a period of four years and three months. For the first 15 months Federal funds may support 75 percent of eligible costs of staff for new services. During each of the three succeeding 12-month periods the matching rate declines to 60 percent, 45 percent, and 30 percent of eligible costs.

In 1966 and 1967 awards were made for 130 new community mental health centers for a total obligation of $49,377,000. In 1968 it is expected that the $51,168,000 available will provide $20,121,000 for assistance to 85 new centers, and $29,060,000 for continuation grants for the 130 centers initiated in 1967 and 1966. In 1969, $22,079,000 will assist 84 new centers, and $42,221,000 will provide continuation grants for 215 centers. By the end of 1969, 299 centers will have received staffing grant assistance.

Distribution of grants for staffing of community mental health centers

	1968 Estimate		1969 Estimate		Increase or Decrease	
	No.	Amount	No.	Amount	No.	Amount
1. Noncompeting continuations..	130	$29,060,000	215	$42,221,000	+85	$13,161,000
2. New.....	85	22,108,000	84	22,079,000	- 1	-29,000
3. Total grants for staffing of community mental health centers.	215	$51,168,000	299	$64,300,000	+84	$13,132,000

Construction and operation of narcotic addict rehabilitation facilities

	1968 Estimate	1969 Estimate	Increase or Decrease
Construction and operation of narcotic addict rehabilitation facilities	$4,000,000	$8,000,000	+$4,000,000

During 1968 the funds available to implement Section 402 of the Narcotic Addict Rehabilitation Act of 1966 will be used to initiate program development activities. Major emphasis will be given to providing project grant support to develop model community-based comprehensive treatment programs for narcotic addicts within the community mental health center complex. Although strong interest and concern have been expressed by communities across the country in such a program, it is conservatively estimated that only four or five communities will be ready to initiate such model comprehensive treatment programs in 1968 at a cost of $2,800,000. These funds will support awards for construction, renovation, staffing, operation and maintenance of the facilities. The balance of 1968 available funds will be used to support specialized training programs, inservice training and conferences, epidemiology studies, clinical trials of addiction antagonists, and demonstration programs.

Continuation of the four or five initial awards made in 1968 will require only $2,500,000 in 1969 since the Federal share for staffing and maintenance declines 10% for each of five years after the first year of 90% Federal matching. However, supplemental funds totalling $500,000 will be awarded to these programs to expand activities and introduce program innovations after the first year of operation. An additional 4-5 communities will receive project grants in 1969 totalling approximately $2,500,000 for comprehensive treatment programs within the community mental health center system. Remaining funds for 1969 will support the continuation of specialized training for multi-disciplinary professional and para-professional personnel ($850,000); Inservice Training and Research Utilization Conferences ($100,000); Epidemiologic and Evaluation Studies ($850,000); Clinical Trials and Evaluations of Addiction Antagonists ($450,000); Demonstration Programs ($250,000). These programs are described in greater detail below.

Narcotic addiction is a particularly difficult problem to treat, requiring intensive care by a specialist well trained in the field. At this time, manpower has not been attracted to this work, partly because treatment facilities have not only been associated with enforcement agencies and procedures, but the few available facilities have been isolated geographically and physically from the mainstream of community services. The introduction of community-based treatment programs for narcotic addicts should alleviate this serious manpower problem. Moreover, pilot treatment efforts with ex-addicts show promise for expanded and creative use of this manpower resource. It will, however, require specialized training programs across the country to attract and train the multi-disciplinary professional and para-professional personnel these new community-based programs will require.

For those currently working in narcotic addiction programs, short-term intensive inservice training will inform them of the latest research findings and innovative treatment modalities. National and regional conferences will enable researchers and program staff to share problems and experiences. Such dialogues will not only identify new areas for research and experimentation, but will feed back into treatment programs advances in knowledge and treatment modalities.

Epidemiologic studies and surveys, which use existing methodologies as well as those which develop more accurate scientific methods of determining the true prevalence and nature of narcotic addiction, are needed for sound and effective program planning in communities with large addict population. Moreover, it will be through careful, objective evaluation of treatment and rehabilitation programs that the most effective approaches and techniques will be identified.

Additional research is needed for further clinical trials with known drug maintenance and antagonists such as methadone, cyclazocine, and nalloxone. Research on new antagonists as well as on modifications of agents currently being evaluated is urgently needed.

Grants funds will also be used to fund demonstration programs to (1) explore various approaches to prevention, (2) test intervention strategies that will modify or eliminate the addict subculture, and (3) explore ways in which the rehabilitated addict can become an agent of ghetto rehabilitation.

SUMMARY FISCAL YEAR 1969

Program Activity	Continuing Obligations	New and Supplemental Awards	Total
Model Comprehensive Treatment Programs	$2,500,000	$3,000,000	$5,500,000
Specialized Training Programs	400,000	450,000	850,000
Inservice Training and Research Utilization Conferences		100,000	100,000
Epidemiologic and Evaluation Studies	400,000	450,000	850,000
Clinical Trials and Evaluations of Addiction Antagonists	200,000	250,000	450,000
Demonstration Programs	100,000	150,000	250,000
Total			$8,000,000

THURSDAY, MARCH 14, 1968.

NATIONAL INSTITUTE OF MENTAL HEALTH

ST. ELIZABETHS HOSPITAL

SALARIES AND EXPENSES

BUILDINGS AND FACILITIES

WITNESSES

DR. STANLEY F. YOLLES, DIRECTOR
DR. BERTRAM S. BROWN, DEPUTY DIRECTOR
DR. PHILLIP L. SIROTKIN, ASSOCIATE DIRECTOR FOR PROGRAM COORDINATION
DR. DAVID W. HARRIS, ACTING SUPERINTENDENT, ST. ELIZABETHS HOSPITAL
LYLE C. VanMERE, CONSTRUCTION AND MAINTENANCE ENGINEER
M. K. MADDEN, EXECUTIVE OFFICER, ST. ELIZABETHS HOSPITAL
JAMES D. ISBISTER, EXECUTIVE OFFICER, NATIONAL INSTITUTE OF MENTAL HEALTH
JAMES D. LAWRENCE, FINANCIAL MANAGEMENT OFFICER, NATIONAL INSTITUTE OF MENTAL HEALTH
RAYMOND A. WILLIAMS, BUDGET OFFICER, ST. ELIZABETHS HOSPITAL
DR. WILLIAM H. STEWART, SURGEON GENERAL
CHARLES MILLER II, CHIEF FINANCE OFFICER, PUBLIC HEALTH SERVICES
JAMES B. CARDWELL, DEPUTY ASSISTANT SECRETARY, BUDGET

SALARIES AND EXPENSES

OBJECT CLASSIFICATION (IN THOUSANDS OF DOLLARS)

	1967 actual	1968 estimated	1969 estimated
Personnel compensation:			
Permanent positions	23,086	25,574	26,586
Positions other than permanent	636	784	956
Other personnel compensation	1,310	1,516	1,618
Special personal service payments	200	----------	39
Total personnel compensation	25,232	27,874	29,199
Personnel benefits	1,858	2,132	2,268
Travel and transportation of persons	55	69	104
Transportation of things	41	40	48
Rent, communications, and utilities	303	321	358
Printing and reproduction	33	32	32
Other services	467	504	587
Supplies and materials	3,900	4,027	4,227
Equipment	553	1,009	728
Lands and structures	69	141	357
Insurance claims and indemnities	8	1	1
Subtotal	32,519	36,150	37,909
Quarters and subsistence charges	—46	—46	—46
Total obligations	32,473	36,104	37,863

PERSONNEL SUMMARY

Total number of permanent positions	4,102	4,072	4,124
Full-time equivalent of other positions	151	184	216
Average number of all employees	3,796	3,973	4,145
Average GS grade	5.6	5.7	5.7
Average GS salary	$6,828	$7,230	$7,250
Average salary of ungraded positions	$5,405	$5,699	$5,692

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PROGRAM AND FINANCING (IN THOUSANDS OF DOLLARS)

Program by activities:			
Operating costs:			
1. Operation and maintenance	30,620	33,417	34,960
2. Training and education	1,028	1,200	1,373
3. Research	399	501	555
Total operating costs	32,047	35,118	36,888
4. Unfunded adjustment to total operating costs: Property or services transferred in without charge	−64	−55	−55
Total operating costs, funded	31,983	35,063	36,833
Capital outlay:			
1. Operation and maintenance	440	1,092	1,004
2. Training and education	4	4	17
3. Research	18	16	29
Total capital outlay	462	1,112	1,050
4. Unfunded adjustments to total capital outlay: Above capital assets transferred in without charge, net	−20	−20	−20
Total capital outlay, funded	442	1,092	1,030
Total operating costs, funded, and capital outlay, funded	32,425	36,155	37,863
Change in selected resources [1]	48	−51	
Total obligations	32,473	36,104	37,863
Financing:			
Receipts and reimbursements from—			
Federal funds	−1,515	−1,042	−674
Trust funds	−98	−125	−125
Non-Federal sources (Public Law 90-134)	−20,821	−24,206	−25,987
Unobligated balances lapsing	132		
New obligational authority	10,171	10,731	11,077
New obligational authority:			
Appropriation	10,171	9,751	11,077
Proposed transfer from other accounts for pay increases		980	
Relation of obligations to expenditures:			
Total obligations	32,473	36,104	37,863
Receipts and other offsets (items 11 to 17)	−22,434	−25,373	−25,786
Obligations affecting expenditures	10,039	10,731	11,077
Obligated balance, start of year	1,376	1,938	2,769
Obligated balance, end of year	−1,938	−2,769	−3,346
Adjustments in expired accounts	−13		
Expenditures	9,464	9,900	10,500
Expenditures are distributed as follows:			
Out of current authorizations	8,088	8,000	8,400
Out of prior authorizations	1,376	1,900	2,100

[1] Selected resources as of June 30 are as follows:

	1966	1967 adjustments	1967	1968	1969
Stores	627		597	586	586
Unpaid undelivered orders	479	−6	551	511	511
Total	1,106	−6	1,148	1,097	1,097

Buildings and Facilities

OBJECT CLASSIFICATION (IN THOUSANDS OF DOLLARS)

	1967 actual	1968 estimated	1969 estimated
ST. ELIZABETHS HOSPITAL			
Other services	289	561	252
Supplies and materials	7	8	3
Equipment	17		
Total obligations, St. Elizabeths Hospital	313	569	255
ALLOCATION TO GENERAL SERVICES ADMINISTRATION			
Printing and reproduction	1	18	41
Other services	261	458	1,408
Supplies and materials	3		
Lands and structures	345	1,396	3,486
Total obligations, General Services Administration	610	1,872	4,935
Total obligations	923	2,441	5,190

PROGRAM AND FINANCING (IN THOUSANDS OF DOLLARS)

	Costs to this appropriation					Analysis of 1969 financing			
	Total estimate	To June 30, 1966	1967 estimate	1968 estimate	1969 estimate	Deduct selected resources and unobligated balance, start of year	Add selected resources and unobligated balance, end of year	Appropriation required for 1969	Appropriation required to complete
Program by activities:									
1. Construction and equipment, continued treatment building (rehabilitation center)	7,130	414				6,716	6,716		
2. Miscellaneous improvements of existing facilities:									
(a) Air conditioning Dix Building	490			20	100	470	370		
(b) Air conditioning Nichols Building	675	7		68	100	600	500		
(c) Air conditioning geriatrics building	897	23	33	430	411	411			
(d) Other	12,738	6,322	817	1,452	3,893	2,845	254	1,302	
3. Construction and equipment, treatment and cafeteria building	4,386	4,385	1						
4. Construction and equipment, security facility	11,872		25		50	450	400		11,397
5. Construction and equipment, residential treatment center for adolescents and children	2,797			30	130	130			2,637
Total program costs	40,985	11,151	876	2,000	4,684	11,622	8,240	1,302	14,034
Change in selected resources [1]			47	441	506				
Total obligations			923	2,441	5,190				
Financing:									
Recovery of prior year obligations			−4						
Unobligated balance available, start of year			−10,429	−11,808	−10,604				
Unobligated balance available, end of year			11,808	10,604	6,716				
New obligational authority (appropriation)			2,298	1,237	1,302				
Relation of obligations to expenditures:									
Total obligations			923	2,441	5,190				
Receipts and other offsets (items 11 to 17)			−4						
Obligations affecting expenditures			919	2,441	5,190				
Obligated balance, start of year			709	687	74				
Obligated balance, end of year			−687	−74	−1,529				
Expenditures			941	3,054	3,735				
Expenditures are distributed as follows:									
Out of current authorizations			5	200	300				
Out of prior authorizations			936	2,854	3,435				

[1] Selected resources as of June 30 are as follows: Unpaid undelivered orders, 1966, $534,000 (1967 adjustments, −$4,000); 1967, $577,000; 1968, $1,018,000; 1969, $1,524,000.

Mr. FLOOD. The committee will come to order.

We will take up this morning St. Elizabeths Hospital, both "Salaries and expenses" and "Buildings and facilities." Dr. Yolles, the Director, will make the presentation.

Will you indicate the highlights of this statement for us and we will insert your entire statement in the record at this point.

General Statement

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

Statement by Director, National Institute of Mental Health
Public Health Service

on

"Saint Elizabeths Hospital"

Mr. Chairman and Members of the Committee:

It is with mixed feelings that I present the budget for Saint Elizabeths Hospital for the first time. On the one hand, I feel proud of the new association of the National Institute of Mental Health with Saint Elizabeths - an institution enjoying an international reputation; but on the other hand, having now completed an initial survey of the hospital, I feel dispirited - for even as an experienced observer of the mental health scene, I am somewhat shocked at what I observe.

I find it difficult to describe the condition of the Hospital without seeming to diminish or derogate the efforts of its staff over the years. This I do not wish to imply, for the staff of Saint Elizabeths have exerted Herculean efforts, against great odds, to improve the condition of the Hospital.

There does exist, however, a national program to improve the status of mental hospitals in the United States, and to change those hospitals into model community facilities. It is imperative, therefore, that Saint Elizabeths serve as a national demonstration - as an example of how such transformations can be accomplished. Indeed, NIMH has been

assigned the task of making Saint Elizabeths a model for the Nation - and by virtue of this charge, we have now come full circle: Similar goals were enunciated once before in the history of the Hospital - namely, over a century ago when the facility began its operation.

In the summer of 1852 - nine years before the presidency of Abraham Lincoln and the Civil War - Saint Elizabeths Hospital was established by act of Congress. Among the items included in the Civil and Diplomatic Appropriation Act of that year was the following: "To enable the Secretary of the Interior, under the direction of the President of the United States, to purchase a site in the neighborhood of Washington, and for the erection, furnishing and fitting up of an asylum for the insane of the District of Columbia and for the Army and the Navy of the United States, $100,000: Provided that the whole expense of purchasing the site, and of erecting, furnishing and fitting up the building shall not exceed the sum herein appropriated."

Known until 1916 as the Government Hospital for the Insane, Saint Elizabeths was invested from the start with the hopes of the Nation for a better fate for the mentally ill. "It is the desire of the President that the Hospital be a model institution, embracing all the improvements which science, skill and experience have introduced into modern establishments." Those words, penned by the Secretary of the Interior under President Millard Fillmore, were addressed to Dr. Charles E. Nichols, the Hospital's first Superintendent.

The first patient was received at the Hospital on January 15, 1855, and by March 12 of that year, 51 patients had been moved to the new

facility from the Maryland Hospital in Baltimore - to which law enforcement officials had been authorized to send "lunatics," as the mentally ill were popularly called, from the District of Columbia. Today, Saint Elizabeths provides treatment to approximately 7,500 patients annually, with 5,600 the current resident population. Over 2,500 patients - children and adults - are admitted each year.

In contemplating present conditions, it should be pointed out that throughout its history, with only marginal financial support, change and innovation and leadership have been demonstrated at the Hospital. Those responsible for Saint Elizabeths have not been without the vision of what might be:

.As far back as 1887, for example, the Hospital was one of the first mental institutions to give specific recognition to the relationship between physical and mental illnesses, employing as a regular staff member a world pioneer in the field of neuropathology.

.As early as 1872, there was concern about the medical-versus-legal approach to alcoholism, a subject of acute contemporary concern.

.Soon after the Civil War, occupational therapy - in this instance, farming - was instituted.

.The Hospital was a forerunner in the provision of psychiatric treatment for the criminally insane, establishing before 1900 special facilities and programs for that purpose.

.In 1907, a psychology laboratory was established - probably the first in the country.

.In 1920, there was established the Department of Internal Medicine, now known as the Medicine and Surgery Branch; this effort has given Saint Elizabeths the unique distinction of being the only public mental institution in the United States which is approved for rotating internship, and it was also in this Branch that for the first time in the Western Hemisphere, malaria was used therapeutically for patients suffering from general paresis.

.And, much more recently, Saint Elizabeths has been a leader in the development of specialized treatment techniques such as group psychotherapy, psychodrama, and art and dance therapy.

Despite the heroic and often successful efforts over the years by Saint Elizabeths staff, the more than century-old goal of the Hospital to provide optimum patient care and treatment is today far from realized; it is now the charge and the intent of the National Institute of Mental Health to reach this goal.

What is the environment today into which the thousands of mentally ill come, many of them for years on end? Although there are variations from one building to another, overcrowding and understaffing characterize the Hospital's dilemma, and it is clear that none of our goals, however, are possible of achievement without sharply increased effort and support. Knowledge and dedication must be matched with the means for developing facilities, programs and staff.

.A third of the buildings that comprise Saint Elizabeths were constructed in the 19th century - three of them, erected before

the Civil War, now housing 725 patient beds. In 1945, almost a quarter century ago, the United States Public Buildings Service recommended the replacement of all of these facilities. We must finally act on those recommendations.

.Saint Elizabeths provides a ratio of 70 total staff members - including dishwashers and grounds keepers - for every 100 patients. In terms of certain professional staff such as psychiatrists and psychologists, the ratio sinks to less than 1 per 100 patients. This pattern must change.

.Judged by criteria set by the American Psychiatric Association, the Public Health Service, and the Bureau of the Budget, Saint Elizabeths is drastically overcrowded. This condition must be erased.

.Saint Elizabeths carries on its rolls 2,500 patients admitted over 15 years ago, 1,500 of them over 25 years ago. While many are hard core, chronic patients, the fact is that, overall, the Hospital includes over 2,800 patients who might now return to the community if only appropriate services and facilities were available and integrated with the Hospital. This neglect must be ended.

.Individual psychotherapy - in one form or another still a core treatment - is hardly practiced. Five resident physicians and their training officer are known to share one office - with no quarters available for private interaction with patients.

.There is little integration or continuity of programs - so that, for example, when a patient is ushered into foster-home care in the community, he is largely cut off from whatever previous therapeutic contacts he enjoyed with physicians or psychologists on the staff.

.Drug therapy - stimulated, supported and demonstrated by NIMH as a potent resource in the treatment of the mentally ill - has not been fully exploited, often because of lack of funds. The judicious use of psychoactive drugs requires not only adequate funds, but sufficient staff, properly trained.

.Physically and psychologically, the Hospital is in many ways a walled fortress - without rewarding contacts with the outside community, the society from which the patient came, and to which he ought one day return. Facilities for patients returning to the community are inadequate - as are mechanisms for following those who do so. As a result, the Hospital often functions as a holding operation. The geriatric patient, for example, is admitted to the Hospital without hope of rehabilitation; he enters to die.

.The environment in which the patient lives is often one which works to destroy whatever resources he has left for healing and growth. The Hospital is largely structured for bedcare - with accomplishment measured by the degree to which a patient remains quiet and out of trouble. Hospital dress is gray and uniform, and the typical patient is without locker space. As if to prove that his future is totally hopeless, his toilet is programmed to flush automatically.

.Perhaps symbolically, the Hospital operates the only remaining coal-driven steam locomotive in the East, used to haul coal for heating the 105 buildings that make up the facility. The sight of the locomotive, rumbling across the mile-long tract that spans the 300 acre Saint Elizabeths grounds, is a potent reminder of our need to bring the Hospital forward into the mid-20th century.

In assuming responsibility for Saint Elizabeths, the NIMH is acutely aware of the gap that exists between present reality and future possibilities - of the need to make the Hospital part of the tide of change in mental health care that our country has witnessed in recent years. Ours is not simply a vision of change that is only theoretically feasible - that has had no test in actuality. Rather, our goals are defined by what we, with the support of the Congress, have in recent years shown to be possible: improvements in facilities; innovations in patient care and treatment; and the training of adequate staff. Most important, such changes have been the stimulus for the development of comprehensive community mental health facilities across the country.

I have emphasized the limitations of the Saint Elizabeths facility, but I want to underscore its strengths as well. Our intent is to build on its positive features, to use them as starting points for further development. I have, therefore, organized three major task forces to survey the existing operations of Saint Elizabeths Hospital and to begin setting in motion plans for its future. These

task forces are designed to propose both short- and long-range proposals toward the development of an active community mental health program centered at the Hospital; alternative approaches to hospital care and treatment; and research and training programs.

Certain needs are already clear:

.First: Saint Elizabeths must expand both its training and research programs, relating them more closely to the needs of the Hospital. Experience has taught us that teaching-hospitals and those with strong research programs are at an advantage in attracting and retaining high quality personnel. Efforts to introduce new concepts of care and treatment also depend for their success, in part, on research capabilities - on the demonstration of new approaches, and on the rigorous evaluation of alternative treatment modes. Finally, a complementary relationship between research and service programs will satisfy one of our greatest needs in the clinical area - a closer interaction between scientific personnel working in the laboratory and clinicians working on the ward, concerned with the day-to-day treatment of mentally ill patients.

.Second: Attempts to integrate the Hospital's programs with the mental health activities of the community must be enlarged significantly. Systematic assignment of patients within Saint Elizabeths now corresponds to the four existing D.C. mental health catchment areas. The further development and expansion of this system will help satisfy a number of pressing needs: the ultimate alignment of all Saint Elizabeths Hospital programs with community mental health facilities;

improved communications between D.C. mental health officials and admission and treatment staff of Saint Elizabeths Hospital; and the laying of groundwork for linking inpatient treatment and community follow-up care.

.Third: Ultimately, the Hospital as a whole must be transformed into a modern mental health facility. The transfer of responsibility for Saint Elizabeths to the National Institute of Mental Health was, in fact, accomplished for the purpose of providing a national demonstraction of the conversion of a large and old mental hospital into a contemporary community mental health center.

At this time, I cannot provide a complete short - and long-rante schedule of improvements to be effected. We must carefully analyze the requirements in view of today's community needs; we must study buildings, personnel, programs and relationships to the community. In the coming months we will have available to us the recommendations of the most expert professionals in the country on which to base a proposal for the new program.

For over two decades, the National Institute of Mental Health- responsible for the Nation's total mental health effort - has directed its energies toward the development of thousands of far-flung institutions and programs in this country and around the world. Now, our new mandate brings us to our own community, and renders us directly responsible for the first time for the welfare of a mentally ill patient.

There is little need to search for new words by which to express our ultimate goals. On her desk still standing at the Hospital, Dorothea Dix wrote in 1855 that the object of Saint Elizabeths shall be

"the most humane care and enlightened curative treatment of the insane of the Army and Navy of the United States and of the District of Columbia." The aims of a mental hospital have never been better stated.

From the outset, it was expected that the institution would provide a criterion by which other efforts in mental health would be judged. In 1860, over 100 years ago, the Board of Visitors, in their report to the Secretary of the Interior, said: "If this institution is in truth, to ever so small an extent, an exponent of American knowledge in philanthropy, its position is in that respect a highly responsible one. It will have some influence upon the character of other similar institutions of the country, and that influence ought in time to be large and good. It will have its weight, however small, in determining the estimate our own people will form of the character and benefits of their own Government, and it will also affect the judgment citizens or subjects of other countries and governments, traveling or sojourning in this country, will form in respect to the character of American institutions and the practical merits of the American form of Government."

As Saint Elizabeths moves further into its second century of service, we must insure at last that the vision of those who labored before us is permanently realized.

In conclusion, Mr. Chairman, the request for Saint Elizabeths Hospital, Salaries and Expenses is $37,863,000 for 1969 as compared with an operating level of $36,104,000 in 1968, an increase of $1,759,000. Of the requested increase $1,506,000 will be allocated for operation and maintenance of the hospital, $186,000 for training and education and $67,000 for research. The request for Buildings and Facilities at Saint Elizabeths Hospital is $11,906,011 for 1969 as compared with an operating level of $13,044,853 in 1968, a decrease of $1,138,842.

ST. ELIZABETHS ROLE AS A MODEL HOSPITAL

Dr. YOLLES. It is with mixed feelings that I present the budget for St. Elizabeths Hospital for the first time. On the one hand, I feel proud of the new association of the National Institute of Mental Health with St. Elizabeths, but I must say I was shocked when I took a close look at the condition of the hospital. Without going into any of the details of the opening statement, the National Institute of Mental Health has been charged for a number of years with the responsibility of aiding in the development of mental health programs in the United States and, especially since 1963, with aiding the mental hospitals to improve their facilities.

St. Elizabeths has existed since before the Civil War and it was established in 1852 as a model mental institution for the Nation. Dorothea Dix suggested that the object of St. Elizabeths was to be "the most humane care and enlightened curative treatment of the insane of the Army and Navy of the United States and of the District of Columbia." I must say in 1968 it is not a model for the Nation and it should be. This is a hospital of both national and international reputation of the highest order, but it is not living up to its potential at the present time in terms of staff and in terms of its facilities.

We were asked by the Department of Health, Education, and Welfare when the transfer was made to the National Institute of Mental Health to make this a national demonstration of the conversion of an old style hospital into a modern community-based mental health facility. We hope to carry this out provided we get help from the Department, from the Congress, and from the citizenry.

St. Elizabeths will eventually take over area D and provide direct services on a community basis to that part of the city. With the help of the citizenry and the help of all concerned we propose to convert St. Elizabeths into a model for the Nation and show the States that when we have an institution directly under our supervision we can do some of the things we have been urging the States to do.

Mr. Chairman, if there are any particular questions about the operation of the hospital, I am sure Dr. Harris or Mr. Madden, who know the details, will be glad to answer them.

SUMMARY OF BUDGET REQUEST

Mr. FLOOD. Your total budget for "Salaries and expenses" for 1968 is $36,104,000, and you are requsting $37,863,000 for 1969. That is an increase of $1,759,000. The appropriation accounts, however, for less than one-third of the budget of the hospital, with most of the remainder coming from the District of Columbia.

How long have you been in this job you have, Dr. Harris?

Dr. HARRIS. I have been in this job since last September, Mr. Chairman.

TRANSFER OF HOSPITAL TO THE DISTRICT OF COLUMBIA

Mr. FLOOD. I am sure you know that last year we indicated in our report that a program should be worked out to transfer the institution to the District of Columbia. You say this transfer to the National Institute of Mental Health is an initial step in this direction?

means there would be the same number of employees as patients, the employees working roughly 8 hours a day and the patients being there 24 hours a day.

Mr. FLOOD. I will repeat my question: How does it compare with the average State institution and how does it compare with the best State institution?

Dr. YOLLES. May I answer that? I think St. Elizabeths' patient-to-staff ratio is slightly above average for State institutions but it is not to be considered an appropriate ratio for a model or demonstration institution. There are some institutions that far exceed this ratio, particularly in terms of professional persons to patients. The latter is a more critical ratio.

Mr. FLOOD. You have a number of other changes in your budget for 1969 but generally speaking they are moderate and they are pretty well explained in the justifications anyway. Is there anything else you would like to say about the other changes?

Dr. HARRIS. I do not believe so.

AVERAGE DAILY PATIENT POPULATION

Mr. FLOOD. There is a table on page 128 of the justifications giving statistics on what you call average daily patient population (in-hospital). In order to give a more complete picture will you provide a table giving similar statistics for 1967, estimated 1968, and estimated 1969 for outpatients? You can do that for the record.

Dr. YOLLES. Yes, sir.

(The information follows:)

ST. ELIZABETHS HOSPITAL

Average number of patients in outpatient status

Actual 1967	1,767
1968 estimate	1,773
1969 estimate	1,818

BUILDINGS AND FACILITIES

Mr. FLOOD. With reference to the "Buildings and facilities" part of the budget, you are requesting $1,302,000 compared to the present year's appropriation of $1,237,000. This request covers a group of rather routine items, and your justifications give a pretty complete picture. Do you want to make any comments about any of those?

Dr. HARRIS. I do not think so, Mr. Flood.

Mr. FLOOD. Your justifications are clear on these, I think.

All right, thank you very much.

Dr. YOLLES. Thank you, sir.

Dr. HARRIS. Thank you.

Dr. YOLLES. This is the first step; that is correct.

Mr. FLOOD. How is that a step in that direction; the National Institute of Mental Health is still HEW?

Dr. YOLLES. That is correct. There remains a great deal of work to be done before St. Elizabeths can be considered a model community-based facility which will adequately handle the daily problems of one-fourth of the city of Washington.

Mr. FLOOD. This is supposed to be the first step in this transfer to the District of Columbia. The transfer to the National Institute of Mental Health is a transfer within HEW. What is the step?

Dr. YOLLES. The step is working with the people of the District of Columbia and the people in area D so St. Elizabeths becomes integrated into the mental health plan of the District of Columbia. The comprehensive mental health plan worked out for the District of Columbia 3 years ago was for the use of St. Elizabeths for area D, but a great deal needs to be done before we can take an old-style mental hospital and convert it to to health institution for area D. We need a demonstration of how you take a somewhat old-style mental hospital and transform it into a modern community-based facility. At the same time we are demonstrating this we are preparing for this hospital to serve the District of Columbia and it will be transferred eventually as we get the necessary personnel, facilities, and programs.

Mr. FLOOD. What is the second step?

Dr. YOLLES. When the hospital was transferred Secretary Gardner indicated the hospital eventually would be transferred to the District of Columbia. The time element was left open but we felt it would take 10 or so years before we would have the hospital at a stage to transfer it to the District of Columbia.

Mr. FLOOD. That is the final step?

Dr. YOLLES. That is the final step. The present step is going on now. We have a number of representatives working with people from the District of Columbia. In addition to having a mental health center at the hospital, the District plans to establish a community health center in close proximity to the mental health center at St. Elizabeths.

Mr. FLOOD. You are talking about 10 years for the completion of this program?

Dr. YOLLES. That is right.

PATIENT-EMPLOYEE RATIO

Mr. FLOOD. The largest increase you have for 1969 is an increase of 172 in the average employment. According to your justifications this will bring the patient-employee ratio from 74 employees per 100 patients in 1968 to 80 per 100 in 1969. How bad is the present ratio? Is it bad?

Dr. HARRIS. You mean is 74 per 100 a bad ratio?

Mr. FLOOD. Yes.

Dr. HARRIS. I think there are places where it is worse.

Mr. FLOOD. How does it compare with the average State institution and how does it compare with the best State institution?

Dr. HARRIS. I think we have some figures on that. What we are aiming for is, at a minimum, a 1-to-1 ratio. I do not mean each patient would have a member of the staff with him all the time. One-to-one

JUSTIFICATION MATERIAL

PUBLIC HEALTH SERVICE

Salaries and Expenses, Saint Elizabeths Hospital

Amounts Available for Obligation

	1968	1969
Appropriation	$9,751,000	$11,077,000
Proposed transfer from "Mental Health Research and Services" to cover pay costs	980,000	...
Reimbursements:		
Other accounts	1,042,000	674,000
Trust fund accounts	125,000	125,000
Non-Federal sources	24,206,000	25,987,000
Total	36,104,000	37,863,000

Obligations by Activity

Page Ref.		1968 Estimate Pos.	1968 Estimate Amount	1969 Estimate Pos.	1969 Estimate Amount	Increase or Decrease Pos.	Increase or Decrease Amount
108	Operation and Maintenance	3,988	$34,383,000	4,035	$35,889,000	+47	+$1,506,000
121	Training and Education	42	1,204,000	45	1,390,000	+ 3	+186,000
124	Research	42	517,000	44	584,000	+ 2	+ 67,000
	Total obligations	4,072	36,104,000	4,124	37,863,000	+52	+1,759,000

Obligations by Object

	1968 Estimate	1969 Estimate	Increase or Decrease
Total number of permanent positions	4,072	4,124	+ 52
Full-time equivalent of all other positions	184	216	+ 32
Average number of all employees	3,973	4,145	+172
Personnel compensation:			
Permanent positions	$25,573,555	$26,585,955	+$1,012,400
Positions other than permanent	784,445	956,445	+ 172,000
Special personal service payments	...	39,000	+ 39,000
Other personnel compensation	1,516,000	1,618,000	+ 102,000
Total personnel compensation	27,874,000	29,199,400	+ 1,325,400
Personnel benefits	2,132,200	2,267,800	+ 135,600
Travel and transportation of persons	68,800	103,800	+ 35,000
Transportation of things	40,000	48,000	+ 8,000
Rent, communications and utilities	321,500	358,500	+ 37,000
Printing and reproduction	32,000	32,000	---
Other services	503,500	586,500	+ 83,000
Supplies and materials	4,027,000	4,227,000	+ 200,000
Equipment	1,009,000	728,000	- 281,000
Lands and structures	141,000	357,000	+ 216,000
Insurance claims and indemnities	1,000	1,000	---
Subtotal	36,150,000	37,909,000	+ 1,759,000
Deduct charges for quarters	-46,000	-46,000	---
Total obligations by object	36,104,000	37,863,000	+ 1,759,000

Summary of Changes

1968 enacted appropriation	$9,751,000
Transfer from Mental Health Research and Services	980,000
Reimbursements	25,373,000
1968 total estimated obligations	36,104,000
1969 estimated appropriation	11,077,000
Reimbursements	26,786,000
1969 total estimated obligations	37,863,000
Total change:	
Appropriation	+ 346,000
Reimbursements	+1,413,000
Total	+1,759,000

	Base		Change from Base	
	Positions	Amount	Positions	Amount
Increases				
A. Built-in				
1. Annualization of:				
a. Civilian pay increases:				
P.L. 90-206	--	$703,000	--	$286,000
Wage board	--	268,000	--	120,000
b. PHS Commissioned Officer pay increase P.L. 90-207	--	9,000	--	3,000
2. Average salary adjustments	--	---	--	175,000
3. Additional holiday pay (Inauguration day)	--	375,000	--	47,000
4. Increased FICA	--	48,000	--	3,000
5. Adjustments in minimum salary rates for nurses and psychologists	--	---	--	220,000
6. Grade level increases for security nursing assistants	--	---	--	126,000

	Base		Changes from Base	
	Positions	Amount	Positions	Amount
7. Payments to employees' compensation fund	--	$40,000	--	$5,000
8. Increased electricity consumption attendant to rewiring program	--	212,000	--	10,000
9. Transfer of activities previously carried under Mental Health Research and Services	--	---	14	140,000
Total built-in increases	--	---	14	1,135,000
B. Program				
1. Additional permanent positions with 40% lapse as initial phase of proposed five year staffing improvement program	--	---	38	199,000
2. Additional (25) unclassified trainee positions for expansion of intern and resident training program	--	---	--	137,000
3. Improvement in summer employment program	--	111,000	--	39,000
4. Increased cost of incentive awards program .	--	10,000	--	10,000
5. Remuneration for patients	--	---	--	39,000
6. Travel program improvements	--	43,300	--	31,500
7. Increased motor vehicle rentals	--	55,500	--	11,500
8. Increased cost of postage	--	14,000	--	3,000
9. Additional cost of program of repairs to buildings and facilities	--	139,000	--	41,000
10. Improvement in employee training program	--	26,000	--	20,000

	Base		Changes from Base	
	Positions	Amount	Positions	Amount
11. Increased payments to research subjects	--	$13,000	--	$10,000
12. Funds for cleaning and fire-proofing of drapes in several patient buildings	--	---	--	10,000
13. Supply program improvement	--	4,027,000	--	198,000
Total program increases ..	--	---	38	749,000
Decreases				
A. Pay in 1968 in excess of 52-week base	--	120,000	--	60,000
B. Equipment replacements	--	1,150,000	--	65,000
Total changes requested	--	---	52	1,759,000

Built-in increases

1. Annualization of pay increases granted in October 1967. Partial year costs in 1968 are provided for by a proposed transfer of funds from Mental Health Research and Services.

   a. The cost of General Schedule pay increases (P.L. 90-206) is estimated at $989,000 for a full year in 1969. Partial year costs of $703,000 are provided for in 1968. Wage board rate increases effected in October 1967 for employees serving in prevailing rate system positions are estimated to cost $388,000 for a full year. Partial year costs in 1968 are estimated at $268.000.

   b. Pay increase costs (P.L. 90-207) for Public Health Service Commissioned Officers on the staff of Saint Elizabeths Hospital are estimated at $12,000 for a full year. Partial year costs in 1968 are estimated at $9,000.

2. Funds required to cover the cost of average salary increases resulting from grade changes (position reclassifications, etc.) and within grade advancements effected during the past fiscal year.

3. Funds to cover premium pay costs for the additional holiday (Inauguration Day) occurring in FY 1969.

4. Mandatory Federal Insurance Contributions Act payments relative to Social Security tax increases scheduled for January 1, 1969.

5. Funds to cover mandatory salary increases resulting from Civil Service Commission changes in minimum rates and rate ranges for nurses and psychologists effective July 2, 1967.

6. Additional costs related to adjustments in grade levels and salary ranges for nursing assistants serving in security oriented positions effective August 27, 1967.

7. Increased mandatory payment to Employees' Compensation Fund required under provisions of P.L. 86-767 and based on computations of the Bureau of Employees' Compensation, Department of Labor.

8. Increased cost of electricity related to higher consumption rates resulting from on-going rewiring and electrical improvement programs.

9. Transfer of allocation for research support performed at Saint Elizabeths Hospital.

Program increases

1. 38 new permanent positions (with first year lapse of 40%) representing initial phase of a proposed five-year program of staffing improvement in treatment, training and research areas.

2. 25 additional unclassified trainees (interns and residents in medical and associated disciplines) for training under the Hospital's expanded Professional Training and Education Program.

3. Funds to provide for some expansion and improvement in the Hospital's summer employment program which serves as a valuable source of training and recruitment of potential mental health personnel.

4. Additional funds to cover current costs of employees' incentive awards program which in recent years has expanded substantially in scope, coverage and benefits.

5. Funds for the initiation of a pilot program of remuneration (token monetary rewards) for a selected group of patients involved in rehabilitative industrial therapy assignments, such program to serve as a valuable motivational tool for return of patients to the community.

6. Additional travel fund requirements related to increased use of bus tokens by patients involved in rehabilitative activities, initiation of program of reimbursements to employees (principally maintenance personnel) for use of their personal vehicles in performance of duties on station, and a modest increase for staff attendance at professional meetings.

7. Funds to cover recently effected increases in General Services Administration Motor Pool rental rates and provide for the rental of an additional passenger vehicle and truck to meet expanded program requirements.

8. Additional postage costs related to the increase in first class mail rates.

9. Higher cost of projects included in the Hospital's proposed 1969 phase of a continuing program of repair and maintenance of buildings and facilities.

10. Additional amount required to (a) meet the increased fees of training and educational institutions and (2) restore employee training activities to previously authorized levels.

11. Funds to provide a substantial increase in the number of normal research subjects available for participation and service in connection with expanding behavioral studies underway in the Hospital's Research Program areas.

12. Funds to cover the cleaning and fireproofing of functional drapery installations in several patient treatment buildings.

13. Increased funds to correct supply deficiencies in several areas and meet more adequately the sharply increasing demands for materials related to expanding programs and activities.

Decreases

A. Decrease of one day in the cost of payments for days in excess of 52-week base.

B. Decrease in equipment items requiring replacement in FY 1969.

Explanation of Transfers

	1968 Estimate	1969 Estimate	Purpose
Transfer from:			
"Mental Health Research and Services, National Institute of Mental Health"	$980,000	---	Proposed transfer to cover additional costs due to 1968 pay increases.

NARRATIVE JUSTIFICATIONS

Introduction

Saint Elizabeths Hospital (1) provides treatment and care for the mentally ill who are either beneficiaries of the Federal Government or residents of the District of Columbia which reimburses the Hospital for its patients, (2) trains persons in the medical, nursing and associated disciplines concerned with the treatment of psychiatric patients, and (3) conducts and cooperates with others in scientific research activities dealing with mental illness.

Programs of the Hospital are financed by Federal appropriations covering treatment and care of Federal beneficiaries and by reimbursements made to the Hospital for services rendered other patient groups, principally residents of the District of Columbia. Federal appropriations to the Hospital are of the indefinite type, under which the Hospital receives in appropriated funds the difference between the amount of reimbursements actually received during the fiscal year, on account of patient care provided by the Hospital, and the total program costs approved by the Congress for the year. Reimbursement rates for reimbursable patient groups other than the District of Columbia are based on a prorata share of the total program costs. Charges to the District of Columbia are based on the estimated mean (or average) cost per patient day of the upper ten percent of the states. A table reflecting estimated receipts from the foregoing sources for fiscal years 1968 and 1969 is shown on page 127.

The functions of the Hospital are carried out under the following three activity headings:

1. Operation and Maintenance
2. Training and Education
3. Research

Justifications for budget changes proposed in 1969 are covered by activity in the narrative material which follows. Explanation of those changes common to all activities is given in detail under Activity 1, with only appropriate citations made under the other two activity headings.

1. Operation and Maintenance

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
Personnel compensation and benefits	3,988	$28,421,550	4,035	$29,679,050	+47	+$1,257,500
Other expenses	--	6,001,450	--	6,249,950	--	+ 248,500
Subtotal	3,988	34,423,000	4,035	35,929,000	+47	+ 1,506,000
Deduct charges for quarters	--	-40,000	--	-40,000	--	--
Total	3,988	34,383,000	4,035	35,889,000	+47	+ 1,506,000

General Statement

This part of the 1969 estimates covers the general operation and maintenance activities of the Hospital. The primary function carried on under this activity heading is the treatment and care of mentally ill patients. Obligation data for the activity are based on an estimated average "in-hospital" patient load of 5,400 in fiscal year 1968 and 5,200 in 1969. Detailed data on actual and estimated average daily patient population in Saint Elizabeths Hospital is furnished on page 128.

The budget proposed for this activity in 1969 provides principally for coverage of several built-in or mandatory operating cost increases such as the annualization of pay raises and other increases in the Hospital-wide average salary. In addition, certain essential program improvements are provided for, mainly in the areas of new positions, equipment replacement and procurement of necessary supplies. Average employment will increase measurably in 1969 as a result of the restoration of funds lapsed to cover increases in average salary and the provision of new positions. When applied to the projected lower patient load, this will result in an upward adjustment of the patient/employee ratio from 74 employees per 100 patients in 1968 to an estimated 80 per 100 in 1969. This action will permit desirable improvements in the standards of patient treatment and care. Specific changes in funding levels are set forth in the following narrative.

PERSONAL SERVICES

The 1968 personal services budget proposed for the Operation and Maintenance Activity provides for total obligations of $29,679,050, an increase of $1,257,500 over the amount anticipated for the purpose in fiscal year 1968. The increase covers the following changes:

Annualization of General Schedule (P.L. 90-206) and Public Health Service Commissioned Officers (P.L. 90-207) Pay Increases $279,000

Salary increases authorized under the provisions of the Postal Revenue and Federal Salary Act of 1967 (P.L. 90-206) and amendments to Title 37 of the United States Code (P.L. 90-207) effected in October 1967 will cost Saint Elizabeths Hospital an estimated $1,001,000 annually. Of this cost, $712,000 covering the partial year increases in 1968 is provided for in the current year budget. An additional sum of $289,000 will be required in 1969 to cover the full year cost of these increases. Of the $289,000 total, $279,000 is required for positions covered by this activity, with the balance applicable to the Training and Research activities.

Annualization of Wage Board Increases $120,000

Wage board hourly rate increases granted in October 1967 to employees serving in prevailing rate system positions will cost the Hospital an additional $388,000 per year. An amount of $268,000 to cover the partial year cost of these increases is included in the budget for the current fiscal year. An additional $120,000 will be required in 1969 to cover full year costs.

Increase in Average Salary $163,800

An additional $175,000 ($163,800 of which is attributable to this activity and the balance to the Training and Research programs) is required in 1969 to restore approximately 35 manyears of employment and relieve the severe strictures placed upon the Hospital's staffing program by unavoidable increases in the average salary of graded positions. The average salary has increased, despite every effort of restraint and control, because of (1) the increasing numbers of employees who have qualified for higher grades on the basis of training, experience, and assumption of more complex duties, and (2) personal service costs attributable to within-grade step increases which have not been offset by staffing turnover. The additional sum requested will permit the Hospital to meet these increased costs and restore its staffing program to more nearly normal operating levels.

Additional Holiday Pay $47,000

An additional amount of $47,000 will be required in 1969 to cover the increased cost of premium payments to employees required to work on holidays. The need for the increase arises as the result of the additional holiday (Inauguration Day) which occurs in fiscal year 1969.

Increase in Social Security Contributions $2,300

Under the provisions of the Federal Insurance Contributions Act as amended, the employer's share of the contributions to Social Security will increase from its present level of 4.4 percent to 4.9 percent, effective January 1, 1969. Although relatively few (274) Hospital employees are involved, the scheduled change in rates will be sufficient to increase the Hospital's share by $3,000 for the six months it will be in effect in FY 1969. Of this amount, $2,300 is applicable to this activity.

Higher Salaries for Nurses and Psychologists $210,000

The Civil Service Commission has increased the minimum salary rates and rate ranges for psychologists and nurses. Both actions were effected early in the current fiscal year, with the result that the full-year cost of the increases must be funded from 1968 personal service moneys and compensated for through delays in the filling of authorized vacancies. These actions will cost the Hospital $220,000 per year, with $210,000 of the amount attributable to this activity and the balance of $10,000 required for the training and research activities covered separately in their justifications.

Reclassification of Security-Oriented Nursing Assistant Positions $126,000

An amount of $126,000 is required to cover the full-year costs in FY 1969 of one-grade increases authorized under current Civil Service Commission standards for 270 nursing assistant positions assigned to the treatment and care of the Hospital's security patients. Current year costs of the up-gradings are being met by delay in the filling of presently authorized jobs.

The up-gradings apply to nursing assistants who work in maximum or medium security areas housing patients who are (1) admitted as a result of criminal proceedings or (2) treated in a security setting because of a tendency toward dangerous or assaultive behavior. Patients of this type present the nursing employee with particularly complicated treatment problems, the handling of which require specialized skills over and above the basic ones required for a psychiatric nursing assistant in a non-security area. A recent detailed classification review of the positions involved indicated performance and ability requirements that were (a) substantially greater than those of other Hospital nursing assistant positions and (b) most similar to those of CSC Series 007 Correctional Officer, which called for grade levels one or two steps higher than the regular nursing assistant position. Accordingly, the Hospital reclassified the security positions one grade higher.

Payments to Employees' Compensation Fund $5,000

An additional amount of $5,000 is included in the Hospital's 1969 budget requests for mandatory payments to the Employees' Compensation Fund. This payment, covering the cost of benefits received by Hospital employees during fiscal year 1967, is required under the provisions of Public Law 86-767 (5 U.S.C. 785), and is based upon computations of the Bureau of Employees' Compensation, Department of Labor.

New Permanent Positions $161,500

The expansion of staff has failed to keep pace with the vastly increased potential of the Hospital made possible by advances in the field of psychiatry and related therapies. Much of the staffing problem has been the result of long-standing uncertainties relative to the future of the Hospital, and there has been an understandable reluctance to invest heavily in an institution whose future role in the national mental health picture was unclear. A definite role for Saint Elizabeths Hospital has now been established with the transfer of the Hospital to the National Institute of Mental Health, a move made for the purpose of strengthening the Hospital to permit it to serve as a national demonstration for the conversion of a large old-style mental institution into a modern community-based mental health facility.

The role of a demonstration center was proposed by the Hospital several years ago and the requirements for its achievement were determined in several studies and analyses, all of which disclosed the need for substantial staffing increases in all areas. Some limited progress has been made in meeting these needs, but this institution is still a long way from attainment of the personnel levels required for fully effective execution of its mission. An appraisal of the completed staffing studies indicates the need for a minimum staffing ratio of one employee per patient. Based on the FY 1968 estimated average in-hospital patient load of 5,400, the Hospital would require 1,412 additional permanent positions (exclusive of research and training staff) to reach the desired ratio of one-to-one. Although attainment of this ratio will be met in part by continued reductions in patient load, there still remains an immediate need for a substantial increase in staff. Many patients in the Hospital are not receiving effective treatment because of personnel shortages. A patient's illness does not remain static in the absence of proper treatment, and it is not uncommon for a patient to regress into a chronic state if timely and adequate treatment is not made available. It is essential therefore that every patient in the Hospital be given the fullest and earliest opportunity for recovery.

Saint Elizabeths Hospital proposes to achieve fully adequate staffing levels within the next five years. To plan to do so in a shorter period would be unrealistic in view of the substantial numbers of new personnel required and inherent recruitment and training problems. To propose a longer period would delay unnecessarily the provision of improved treatment opportunities for many patients. For projection purposes, the Hospital proposes to use a one-to-one employee/patient ratio as a minimum acceptable staffing standard - a standard supported by a comprehensive unit-by-unit personnel study made by the Hospital several years ago. Since patient load is an important factor in this standard, and inasmuch as a sharp reduction in patient load is one of the Hospital's principal goals, it follows that changes in patient population will have a definite effect on the ultimate size of staff. It is, therefore, not possible for the Hospital to state specifically the exact number of new positions required. However, based on currently authorized staffing levels and projected patient loads, additional personnel requirements will be in the magnitude of at least 1,200 to 1,400 positions.

As a first phase of its proposed five-year staffing improvement program, Saint Elizabeths Hospital in 1969 requests authorization of an additional 38 positions. Of this total, 33 are requested for partial relief of understaffing in the Operation and Maintenance Activity, with the remaining 5 proposed for strengthening of the Training and Research activities, the latter positions being justified separately under those activity headings. Although but a small part of total needs, the proposed new staff will enable the Hospital to correct some of its most critical personnel deficiencies. New positions, lists of which are furnished on page 126 are summarized below:

Cost and Distribution of New Positions

Type	Pos.	Amount
Medical and allied	6	$73,608
Nursing and ward	9	81,513
Other	18	86,318
Total base salary costs	33	241,439
Less 40% lapse	..	93,439
Net base salary costs	..	148,000
Other compensation	..	2,000
Total personnel compensation	..	150,000
Total personnel benefits	..	11,500
Total positions and 1969 costs	33	161,500

Improvement of Summer Employment Program $39,000

An amount of $39,000 is included in the 1969 budget estimates for the Hospital's regular summer employment program. In response to pressures for economy, the Hospital was required in 1964 to reduce this program from 100 employees to 31. Summer staffing has been held at the lower figure since that time except for the special employment, beginning in 1966, of additional persons under the President's Youth Opportunity Campaign. The funds requested will increase the regular summer staff to a total of 60 employees, thereby providing (1) better continuity of service during vacation periods, (2) wider experience and training opportunities for persons interested in the field of mental health, and (3) additional sources of recruitment for permanent staff.

Incentive Awards Program Improvement $10,000

A total of 109 Hospital employees earned and received incentive awards during fiscal year 1967. However, in order to cover the cost of these awards, it was necessary to supplement the existing program with over $8,000 from other areas. The Hospital proposes to increase its incentive awards program in 1969 from a currently budgeted level of $10,000 to a total of $20,000, an amount which will permit an average of 120 awards per year for suggestions and superior work performance. Many tasks performed by Hospital personnel are highly repetitious, often involving the use of expensive equipment and large quantities of costly supplies. Even a small improvement or innovation in the performance of such tasks can result in meaningful savings. The incentive awards program represents a relatively inexpensive means of encouraging these savings.

Remuneration of Patients $39,000

Under the rehabilitation program, the Hospital proposes to pay a token remuneration of $2.50 per week to those patients who work on industrial therapy assignments for a minimum of fifteen hours per week. An estimated 300 patients would be eligible for remuneration under a pilot program which would commence in FY 1969. Based on payments of $2.50 per patient per week, the cost of the initial program in 1969 would be approximately $39,000. This sum has been included in the 1969 budget requests for initiation of the program.

Change in funding for research support $140,000

Funds are requested in the amount of $140,000 to provide for activities at Saint Elizabeths Hospital previously carried on under an allocation of funds from the Mental Health Research and Services account of NIMH. Of this total, $113,000 is personal

services and provides for the following 14 permanent positions to support joint NIMH-SEH activities at the Hospital:

Grade	Title	No. Pos.
GS-14	Psychologist	1
GS-10	Nurse	1
GS- 5	Nursing Assistant	4
GS- 4	Nursing Assistant	3
WB-11	Electrician	1
WB-10	Fixed Industrial Equipment Mechanic	3
WB- 4	Housekeeper	1
	Total	14

In addition to personal services, the transfer of funds includes $27,000 for telephone services, electricity, contractual services, and supplies to provide support for joint NIMH-SEH research activities at Saint Elizabeths Hospital. There is, of course, a corresponding reduction in the Mental Health Research and Services appropriation.

Payments in excess of 52 week base ..... -$58,100

The decrease in the number of days in fiscal year 1969 will reduce the amount required for payments in excess of the 52 week base by an estimated $60,000, of which $58,100 is applicable to the Operation and Maintenance activity.

OTHER EXPENSES

Obligations for other expenses proposed in the 1969 budget for this activity total $6,249,950, an increase of $248,500 over the levels anticipated in the current fiscal year. The specific items of increase are as follows:

Travel $30,500

An additional $30,500 in travel funds is requested to (1) permit some measure of improvement in staff participation at meetings of professional groups, (2) meet an increasing need for bus tokens for patients' use in connection with the Hospital's expanding rehabilitation programs, and (3) provide funds to reimburse employees who utilize their own automobiles for the conduct of government business. The ability to attend meetings and gatherings of professionals for the purpose of keeping abreast of developments in the various medical and nursing disciplines is extremely important to both staff and the Hospital. Funds presently available for this purpose are extremely restrictive, permitting less than 40 percent of the staff members, who could reasonably be expected to benefit, to attend one such meeting a year. The Hospital proposes to increase its attendance at meeting budget for this activity by $9,500, thus making it possible for an additional 70 staff members to attend at least one meeting a year. The second item of increase ($3,000) is to cover the additional cost of bus tokens used primarily in connection with patient rehabilitation programs. Of this amount $1,500 is required to meet a modest expansion in the program and $1,500 to cover the higher cost of tokens relative to recently authorized local fare increases. The balance of the requested increase ($18,000) is to provide reimbursement to employees utilizing their own automobiles for the conduct of government business. A substantial number of employees use their personal automobiles to transport themselves and appropriate tools and equipment on the 336 acre Hospital site. The funds requested will enable the Hospital to meet its obligation to this employee group.

Motor Vehicle Rentals $11,500

Funds are requested in FY 1969 to provide for (1) an increase in GSA rental rates ($9,000), and (2) rental of one additional station wagon and one additional truck. In February 1967 the General Services Administration increased rental rates for passenger motor vehicles by an average of 1.4 cents per mile and the rates for certain types of trucks by an average of three cents per mile. The Hospital is absorbing the higher costs in 1968 by foregoing most of the additional passenger vehicle rentals justified and approved in the 1968 budget and by reducing services and diverting funds from other sources. An additional $9,000 is requested in 1969 to fund the rate increases and restore motor vehicle services to the 1968 authorized levels. In addition the Hospital requires a passenger vehicle with a capacity between that of a sedan and a small bus to provide for numerous

situations in which groups of eight or nine persons travel to the same destination (e.g. patients and escorts to court, special treatment centers off campus, etc.) An amount of $1,500 to provide for the rental of a nine passenger station wagon is requested for this purpose. The Hospital also proposes to rent one additional truck in 1969 for the transport of employee uniforms between the Laundry and various buildings on the Hospital grounds. For many years the Hospital has been authorized (24 U.S.C. 185) to maintain uniforms prescribed for employees by the Superintendent. Due to a past lack of resources, however, the service could only be extended to female employees, whose uniforms were easier and cheaper to clean. The Hospital proposes to remedy this long standing inequity in 1969 by requesting the necessary resources (manpower, equipment, etc.) to extend the service to its male employees - principally nursing assistants. A survey of available transportation indicates that the additional laundry and dry cleaning work load will require one additional truck on a full time basis.

Postage $3,000

An amount of $3,000 is requested for an increase in postage rates related to the recently enacted Postal Revenue and Federal Salary Act of 1967. The additional funds will be applied to the official correspondence of the Hospital and to the outgoing mail of its patients.

Electricity $10,000

A program of replacement and modernization of basic electrical facilities throughout the Hospital has been underway for several years. As a result of this program, the electricity consumption rate for the Hospital has increased approximately 5% annually and is expected to continue to do so until the rewiring program is completed. An additional $10,000 has been included in the budget to cover this anticipated increase in cost.

Buildings and facilities repairs $41,000

An additional $41,000 is requested in 1969 to carry on a continuing program of repair and general maintenance of Hospital buildings and facilities. The current year budget provides $139,000 in contractual service funds for maintenance and repair work, principally road resurfacing, roofing repairs, exterior painting of certain buildings, replacement of brickwork in boilers and incinerators, and floorcovering repairs and replacement. In 1969 the Hospital must expand its efforts with respect to work upon roofing, road resurfacing and brickwork replacement (+$26,000). In addition, the Hospital proposes to undertake badly needed repairs to its steam locomotive (+$15,000). The locomotive is used to haul large shipments of coal at a cost per ton substantially lower than similar shipments by truck.

Employee training $20,000

An increase of $20,000 in employee training funds is requested, primarily to correct slippage in the program brought about by tuition increases of recent years which have not been matched by corresponding increases in the size of the training budget.

Cleaning and fireproofing of drapes $10,000

Funds in the amount of $10,000 are requested in order to enable the Hospital to establish a regular cycle for the cleaning and maintenance of its functional drapes. A regular maintenance program of this type is expected to yield dividends in terms of increased safety and useful life. During FY 1969 the Hospital proposes, as the first phase of the program to clean and fireproof the stage and window draperies and cubicle dividers in two of its newer buildings (the Physical Medicine and Rehabilitation Building and John Howard Pavilion) and in Hitchcock Hall, the structure used as an auditorium and as a center for psychodrama activities.

Check processing $500

Obligations for check processing services rendered by the central payroll office are expected to increase by $500 to cover staffing increases proposed for 1969.

Supplies and materials $197,000

A total of $4,209,000 is requested in FY 1969 to provide more nearly adequate levels of supplies and materials for Hospital operations under this activity heading. The request, which represents a net increase of $197,000 over the amount allocated for the purpose in the current fiscal year, gives appropriate consideration to such factors as (1) changes in the in-patient and outpatient loads, (2) needs generated by program changes and improvements, (3) needs resulting from improvements made in the physical plant, and (4) a need to restore funds for previously authorized supply items which had to be diverted in order to finance urgent but unbudgeted needs in other program areas.

A breakdown of actual and estimated obligations by major supply category is shown in the following statement. Amounts are stated in thousands:

	1968				
	Budget	Program Changes	Revised Program	1969 Estimate	Change
Food	$2,041	-$26	$2,015	$1,952	-$63
Patients' clothing ...	336	..	336	326	- 10
Drugs and medicines ..	450	..	450	450	..
Medical supplies	150	...	150	176	+ 26
Coal and fuel oil	313	+ 53	366	408	+ 42
Other supplies	779	- 84	695	897	+202
Total	4,069	- 57	4,012	4,209	+197

As stated above, several urgent but unbudgeted needs have arisen during the current year which forced the Hospital to realign certain of its current 1968 balances, both within and outside of the supply account. The FY 1968 column of this budget reflects these adjustments, with the result that the total funds available for all types of supplies this year ($4,012,000) is $57,000 less than the amount authorized under the FY 1968 budget ($4,069,000). Accordingly, $57,000 of the $197,000 increase requested is, in fact, for restoration of the supply program to its 1968 authorized level. The Hospital is aware that the normal procedure in such cases would be to justify these amounts under the accounts affected. However, due to the fact that the increases were distributed over numerous small areas while the decrease affected only one major account (i.e. supplies), it appears simpler and more practical to discuss the reprogramming actions on a consolidated basis. The fact that the supply account was selected as the source of necessary funds in no way implies that this area was of a lower priority than other Hospital programs. Aside from personal services, supplies and materials represent the only object classification of any appreciable size (equipment funds vary sharply from year to year) in which a temporary adjustment could be made. The funds diverted from this account were used in a variety of areas, but principally to meet unavoidable cost increases related to rentals, check processing charges, telephones and various contractual services. In view of the fact that the increases were distributed over numerous small areas while the decrease affected only one major account (i.e. supplies), the Hospital, for the sake of simplicity, is requesting funding for the additional operating costs as a restoration item under the supply account.

A reduction of one day (from 366 to 365) in 1969 and an estimated decrease of 200 in the average daily patient load are expected to reduce requirements for food and patients' clothing by $63,000 and $10,000 respectively. Obligations in 1969 are estimated at $1,952,000 for food, and $326,000 for patients' clothing.

The program increases requested reflect efforts by the Hospital to improve its treatment and supportive programs through the provision of such items as disposable medical supplies, more adequate materials for such laboratory activities as cancer testing, organ scanning and toxicology, and supplies for such treatment-related activities as occupational and recreational therapy. The request also provides for unavoidable cost and consumption increases related to coal and fuel, increases in the need for maintenance and industrial items related to the Hospital's ongoing program of miscellaneous improvements, and a variety of service connected items (e.g. dietary, housekeeping, linens, etc.) too numerous to mention in detail.

Equipment ..... -$100,000

The current year budget provides a total of $1,150,000 for all types of equipment (object classes 31 and 32). Of this amount, $1,120,000 is attributable to this activity. The FY 1969 budget proposes a total program of $1,085,000 of which $1,020,000 (or $100,000 less than the 1968 level) is for Operation and Maintenance. The total request for FY 1969 consists of $843,000 for replacements and $242,000 for new or additional items - all of which is directed toward improvements in standards of patient treatment, care, safety and comfort, and toward more efficient execution of other hospital activities.

Replacements: A tabulation of Hospital equipment items whose useful life is expected to expire during FY 1969 indicates a total replacement cost of $843,000. Of this amount, $486,000 is for relatively small movable (object class 31) items, and $357,000 is requested for fixed (object class 32) equipment, normally associated with structures. It is the policy of the Hospital to replace worn out equipment before its continued use becomes hazardous, inefficient or uneconomical.

New and additional items: In addition to the replacement of existing equipment, there is a continuing need for considerable amounts of new and additional (i.e. non-replacement) items. Obligations for 1969 are distributed by activity as follows:

Operation and Maintenance ...	$192,000
Training and Education	20,000
Research	30,000
Total	242,000

Of the $192,000 requested for this activity, $50,000 is required for expansion of dry cleaning and pressing services in the Hospital Laundry in order to provide for the maintenance of uniforms of certain male Hospital employees - principally nursing assistants. An amount of $45,000 is requested for the purchase of laboratory equipment, principally for improved services in the area of toxicology, and in

the study of brain tissue. The sum of $25,000 is requested for improvements in Hospital standards of sanitation and cleanliness - principally through the acquisition of housekeeping equipment. The remaining $72,000 is allocated among several operating programs and includes such items as radiographic apparatus, an audiometer, tonographic and electronic test equipment, exercise devices, portable oxygen equipment, autoclaves, and food service and maintenance items.

2. Training and Education

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
Personnel compensation and benefits	42	$1,124,450	45	$1,291,650	+3	+$167,200
Other expenses	--	85,550	--	104,350	--	+ 18,800
Subtotal	42	1,210,000	45	1,396,000	+3	+ 186,000
Deduct charges for quarters	--	-6,000	--	-6,000	--	---
Total	42	1,204,000	45	1,390,000	+3	+ 186,000

General Statement

The Training and Education Program of Saint Elizabeths Hospital provides multidisciplinary clinical training for professional and associated personnel engaged or interested in mental health activities. Principal objective of the program is to increase the number and improve the skills of persons serving in medical, nursing and ancillary disciplines concerned with the treatment and rehabilitation of the mentally ill.

The program provides internships and residencies (with stipends) in many of the medical specialties (e.g. psychiatry, neurology, pathology, general medicine), in dentistry, psychology, psychodrama, chaplaincy, occupational therapy, etc. Formal affiliation programs in psychiatric nursing are offered to students of other hospitals or training institutions. In addition to full-time programs, externships and other forms of part-time or short-term training are offered to medical students, graduate nurses, social workers, law enforcement and public safety personnel, and others. In total, the Hospital expects to provide training on either a full-time or part-time basis to approximately 1,600 individuals in the current year and 1,700 in the budget year. In addition to adding to the nation's resources of trained mental health personnel, the training and education program serves the Hospital as a source of recruitment for scarce-category medical officers and other related professional staff.

Changes in the obligation levels for the Training and Education Activity in fiscal year 1969 are set forth as follows:

PERSONAL SERVICES

The 1969 personal services budget for this activity provides for total obligations of $1,291,650, a net increase of $167,200 over funds available for the purpose in the current fiscal year. The principal items of increase are as follows:

1.	Net cost of three new permanent positions ..	$20,000
2.	Additional trainees	136,500
3.	Annualization of pay increase costs	6,000
4.	Increase in Social Security	700
5.	Higher salaries for nurses	5,000
6.	Reduction in payments in excess of 52 week base	-1,000
	Total	167,200

Items 3 through 6 represent increases common to other Hospital budget activities. Detailed explanations appear under Activity 1 (Operation and Maintenance) and are not repeated here.

Three additional permanent positions are requested (item No. 1) as an initial step toward long-range development of the Hospital's training potentials. The additional positions will be utilized to (1) enhance the quality of supervision for psychiatric residents, (2) increase the contributions by medical staff to the teaching of non-physician trainees at the Hospital, (3) permit expansion of teaching activities for medical students at the undergraduate level, (4) increase the Hospital's training output in the scarce category field of psychodrama, and (5) improve the quality of instruction provided for affiliate student nurses.

The Hospital (as item No. 2) proposes to increase the number of trainees in the intern and resident training program from the current authorized level of 124 man years to a total of 149. The additional trainees proposed are in the following categories:

Category	Number	Annual Stipend	Total Stipend
1st Year Psychology Intern	2	$4,248	$8,496
2nd Year Psychology Intern	2	4,481	8,962
3rd Year Psychology Intern	2	4,973	9,946
1st Year Psychology Resident	1	5,760	5,760
2nd Year Psychology Resident	1	7,459	7,459
Neurology Resident	1	6,941	6,941
Opthalmology Resident	1	7,770	7,770
Chaplain Intern	1	4,973	4,973
Chaplain Resident	1	5,748	5,748
Occupational Therapy Intern	1	2,688	2,688
Recreational Therapy Intern	1	2,695	2,695
Psychodrama Intern	2	4,248	8,496
Hospital Administrative Resident	1	4,248	4,248
Behavioral Science Intern	5	4,973	24,508
Behavioral Science Resident	3	7,770	23,310
Total man years and costs attributable to personnel compensation	25		132,000
Personnel benefits	-		4,500
Total increase	25		136,500

As in the case of permanent staff, the Hospital requests increases in this area as a first step toward fulfillment of its role as a national demonstration center. The additional trainee positions will contribute to the nation's reserve of personnel trained in psychiatric disciplines, and serve as a source of recruitment for permanent staff.

OTHER EXPENSES

Obligations proposed for other objects under this activity total $104,350, or $18,800 over current year levels. The increased funding is required for (1) staff travel related to health professions training programs (+$500); (2) check processing charges associated with the proposed additional trainees (+$300); (3) additional supply needs, particularly for films and video tape (+$3,000); and (4) audio-visual equipment items necessary for efficient operation of a clinical training program (+$15,000).

3. Research

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
Personnel compensation and benefits	42	$460,200	44	$496,500	+2	+$36,300
Other expenses	--	56,800	--	87,500	--	+ 30,700
Total	42	517,000	44	584,000	+2	+ 67,000

General Statement

Under this activity heading Saint Elizabeths Hospital plans, develops, and implements research programs and projects appropriate to its function as a major Federal psychiatric institution; coordinates all Hospital activities involving scientific and clinical research into the causes, prevention and treatment of mental illness; and cooperates with other organizational components of the National Institute of Mental Health in the development and execution of joint and mutually dependent clinical research operations. The research program of Saint Elizabeths Hospital, in recognition of its national scope and importance, is 100% Federally financed through direct congressional appropriations.

The ultimate goal of the Hospital's research activities, which are intimately linked with related programs of clinical care and training, is better to understand the causes of mental disorders and the factors bearing upon their development, treatment, and insofar as possible, their prevention. The Hospital's activities are conducted in close association with the Division of Special Mental Health Research Programs, which along with the Hospital is also an organizational unit of the National Institute of Mental Health. The complementary nature of this relationship meets one of the primary needs of clinical research - a close interaction between scientific personnel working in laboratory areas and psychiatrists working at ward level concerned with the daily treatment problems of mentally ill patients.

Items of increase proposed for the research program in fiscal year 1969 are set forth below:

PERSONAL SERVICES

The 1969 personal services budget for this activity provides for total obligations of $496,500, a net increase of $36,300 over funds available for the purpose in the current fiscal year. The principal items of increase are as follows:

1. Two new permanent positions	$15,000
2. Annualization of 1968 increased pay costs	6,000
3. Increase in average salary	11,200
4. Higher salaries for psychologists	5,000
5. Reduction in payments in excess of 52 week base	- 900
Total	36,300

Items 2 through 5 represent increases which are common to other of the Hospital's budget activities. Detailed explanations appear under Activity 1 (Operation and Maintenance) and are not repeated here.

Two additional permanent positions are requested (Item No. 1) in order to achieve better utilization of the Hospital's large and varied patient population as subjects for study and research, and to increase research capabilities in the field of operant conditioning. The new positions will be utilized to study and identify problem areas which impede the recovery of significant segments of the patient population.

OTHER EXPENSES

Obligations for other objects total $87,500 in 1969, or $30,700 more than current year levels. Of this amount, an additional $500 is allocated to travel, in order to raise the program to a level sufficient to permit at least one trip per year for each member of the professional research staff. An amount of $200 is required to finance check processing charges associated with average salary increases and new staff. The sum of $10,000 is requested in order to increase the use of paid normal or "control" research subjects. This group is particularly valuable in the field of operant conditioning and comprises an indispensable part of many research projects. Finally, $20,000 is requested for the purchase of equipment. Of this amount, $15,000 is for the replacement of several small items of electronic and other research apparatus which are either obsolete or no longer serviceable. The remaining $5,000, when added to the current year funding level of $25,000, will be used principally for the purchase of an 8-channel physiograph for the monitoring of physiological variables, and for desk calculators with special features for the more advanced forms of statistical work.

REIMBURSEMENT DETAIL

	Estimate 1968	Estimate 1969	Change (+) or (-)
Reimbursements for services performed (patient care):			
Veterans Administration	$536,800	$112,300	- $424,500
U. S. Soldiers Home	75,700	77,200	+ 1,500
Public Health Service (Indians)	25,200	28,100	+ 2,900
U. S. Nationals	303,400	337,000	+ 33,600
U. S. Prisoners	100,900	119,400	+ 18,500
Soc. Sec. (Medicare payments) .	125,000	125,000	---
Subtotal	1,167,000	799,000	- 368,000
Payment received from non-Federal sources:			
Patient care:			
District of Columbia	24,141,000	25,922,000	+1,781,000
Officers' board	3,294	2,920	- 374
Cafeteria sales	58,486	58,327	- 159
Sale of scrap	3,220	3,753	+ 533
Subtotal	24,206,000	25,987,000	+1,781,000
Total reimbursements	25,373,000	26,786,000	+1,413,000

Per diem rate:	1968	1969	Change
District of Columbia	$14.47	$15.95	+$1.48
Other	17.24	19.24	+ 2.00

STATEMENT OF AVERAGE DAILY PATIENT POPULATION
(In-Hospital)

	1967 Actual	1968 Estimate	1969 Estimate
Reimbursable			
Public Health Service (Indians)	4	4	4
D. C. (Residents)	3,742	3,546	3,374
D. C. (Vol. and Non-Protesting)	363	387	402
D. C. (Prisoners)	518	574	626
D. C. (Jury Trial)	79	75	72
U. S. Soldiers Home	12	12	11
Veterans Administration	193	85	16
U. S. Nationals	49	48	48
U. S. Prisoners	16	16	17
Reimbursable Totals	4,976	4,747	4,570
Nonreimbursable			
U. S. Army	129	122	117
U. S. Coast Guard	11	10	10
D. C. Nonresidents	332	326	317
U. S. Marine Corps	9	7	6
U. S. Navy	44	41	37
Public Health Service	10	9	8
Virgin Islands	111	105	103
Miscellaneous	37	33	32
Nonreimbursable Totals	683	653	630
Total Patients	5,659	5,400	5,200

Amounts Available for Obligation

	1968	1969
Appropriation	$1,237,000	$1,302,000
Unobligated balance brought forward	11,807,853	10,604,011
Total	13,044,853	11,906,011

Obligations by Activity

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
Construction and equipment, continued treatment building (rehabilitation center)	--	---	--	---	--	---
Miscellaneous improvements of existing facilities:						
Air-conditioning Dix Building	--	$33,000	--	$457,000	--	+$424,000
Air-conditioning Nichols Building	--	---	--	600,100	--	+600,100
Air-conditioning geriatrics building	--	833,037	--	---	--	-833,037
Other	--	1,544,805	--	3,552,900	--	+2,008,095
Construction and equipment, treatment and cafeteria building	--	---	--	---	--	---
Construction and equipment, security facility	--	---	--	450,000	--	+450,000

Obligations by Activity (Continued)

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
Construction and equipment, residential treatment center for adolescents....	--	$30,000	--	$130,000	--	+$100,000
Total obligations.....	--	2,440,842	--	5,190,000	--	+2,749,158
Unobligated balance carried forward.....	--	10,604,011	--	6,716,011	--	-3,888,000
Total obligations and balance.....	--	13,044,853	--	11,906,011	--	-1,138,842

Obligations by Object

	1968 Estimate	1969 Estimate	Increase or Decrease
SAINT ELIZABETHS HOSPITAL			
Other services	$560,976	$252,000	-$308,976
Supplies and materials	8,000	3,000	-5,000
Total obligations, Saint Elizabeths Hospital	568,976	255,000	-313,976
ALLOCATION TO GENERAL SERVICES ADMINISTRATION			
Printing and reproduction	18,000	41,000	+23,000
Other services	458,000	1,408,000	+950,000
Lands and structures	1,395,866	3,486,000	+2,090,134
Total obligations, General Services Administration	1,871,866	4,935,000	+3,063,134
Total obligations	2,440,842	5,190,000	+2,749,158

Summary of Changes

1968 enacted appropriation		$1,237,000
1969 estimated appropriation		1,302,000
Total change	+	65,000

For program items

Increases

Miscellaneous facility improvements proposed for FY 1969	1,302,000

Decreases

Estimated cost of miscellaneous facility improvements authorized in FY 1968	1,237,000
Total net change requested	+ 65,000

Explanation of Changes

The Hospital's continuing facilities improvement program consists of projects which vary in nature, type, and cost from year to year. The higher appropriation estimate for 1969 results from a combination of these factors.

NARRATIVE JUSTIFICATIONS

This appropriation account covers the construction and facility improvement programs of Saint Elizabeths Hospital. An appropriation of $1,302,000 is requested in 1969 to finance the following items, all of which come under the Hospital's continuing program of miscellaneous improvements of existing facilities:

1.	Rewiring and extension of electrical facilities ..	$717,000
2.	Screening in patient buildings	50,000
3.	Replastering of Hospital buildings	50,000
4.	Renovation of sanitary and storm sewer facilities.	293,000
5.	Replacement of coal fired boilers	87,000
6.	Replacement of elevator in C.T. Kitchen	75,000
7.	Addition to Que Building	30,000
8.	Plumbing and heating modernization and improvement	-0-
	Total miscellaneous improvements	1,302,000

Rewiring and extension of electrical facilities $717,000

An amount of $717,000 is requested in 1969 for the Hospital's continuing program of replacement, extension and modernization of basic electrical facilities. This program was first funded in 1963, and has been executed principally through contracts placed by the Public Buildings Service. Appropriations were requested and received annually until 1968, when an unavoidable slippage in work scheduling prompted the Hospital to suspend, temporarily, its annual requests for additional funding. The purpose of the suspension was to permit full utilization of unobligated balances before requesting additional funds. Consultations with Public Buildings Service indicate that it will now be possible to resume requests for funding, and to obligate new funds promptly. Accordingly, a request for funding has been placed in this budget to undertake the fifth increment of this program. Funds requested will provide for (1) badly needed rewiring and relighting in several patient buildings, where inadequate circuitry and inadequate light levels create fire hazards and materially impede patient treatment programs, and (2) improvement and extension of street lighting, as a means of enhancing the security and safety of patients and employees.

Screening in patient buildings $50,000

The removal of wooden-frame, household-type screening in patient buildings and the installation of heavy duty, all metal screens is a continuing operation. An amount of $50,000 is requested in 1969 for the sixth increment of this multi-year program. The new screening reduces maintenance costs, provides greater security, resists patient abuse, and offers more adequate insect protection.

Replastering of Hospital buildings $50,000

The 1969 budget includes a request for $50,000 to finance the second increment in a continuing program of replacement of old and unsafe plaster

in several buildings. In recent years incidents involving falling plaster have caused serious concern for the safety of patients. The cause of these incidents has been a combination of deterioration due to aging, temperature and humidity changes, and chemical decompostion of the plaster itself - a characteristic of early plaster mixing techniques. The element of danger inherent in occurrences of this nature makes it obvious that spot repairs of areas already damaged do not constitute a satisfactory solution of the problem. Recognizing this fact, the Hospital has surveyed its ceiling areas and has undertaken a systematic program of plaster replacement on an individual building basis. The work will consist of removal of the old ceiling plaster along with its wood lath base, and application of a light, durable, gypsum-base plaster to a metal mesh base.

Renovation of sanitary and storm sewer facilities $293,000

During the current year, the Hospital will undertake an engineering study leading to the development of recommendations for necessary improvements in its 17 miles of sanitary and storm sewer facilities. This study (financed with funds approved in 1968) is expected to be completed early in 1969, at which time the Hospital will be in a position to move ahead with the development of detailed plans and specifications. In order to proceed with this project in a timely manner, an amount of $293,000 is requested for 1969 in order to provide necessary funding for the planning phase. A large portion of the Hospital's sewer system is approximately 100 years old and badly in need of overhaul. Overt failures have already started to occur. There are also indications that the present capacity of the storm sewers is inadequate to meet needs. In addition to these immediate problems, the proximity of the Hospital to the Anacostia River makes it entirely possible for seepage from a ruptured sewer line to reach the river, if the break is not discovered and checked. Furthermore, it is possible that seepage from a sanitary line could contaminate adjoining property, or run into storm drainage lines, and then into water courses running through residential areas. Situations of this type are difficult, if not impossible, to detect on an ad hoc basis. Only a systematic overhaul and repair program can avoid problems of this nature.

Replacement of coal fired boilers $87,000

An amount of $87,000 is requested for the development of detailed plans and specifications leading to the replacement of four coal fired boilers and related auxiliary equipment. Three of the units are now 35 years old, and the fourth was purchased second hand in the early 1940's. All have far exceeded their normal life span and, due to their age and condition, can be operated at only two-thirds of their rated capacity. Many repair parts are no longer available and must be fabricated at considerable expense. Furthermore, unless replacement is undertaken within the next three to four years, all of these units will require

major rebricking and overhaul - an expensive alternative which would only forestall the outright collapse of the system, and would not make possible any restoration of the steam pressure to its former rated capacity. The Hospital regards the replacement work as a two phase operation, with the planning stage to be funded in 1969 and the actual replacement work to be financed and undertaken in 1970.

Replacement of elevator in C.T. Kitchen.....$75,000

The Hospital requests $75,000 for replacement of the elevator in a structure designated as the C.T. Kitchen and Cafeteria Building, a facility housing a kitchen and twelve cafeterias, and providing food service for approximately 1,200 patients. The present elevator is approximately 35 years old. The extensive use of water, detergents and solvents in the food preparation and service areas has resulted in seepage into the elevator shaft, and extensive corrosion of metal parts. Repairs are frequent and costly, the latter due to the fact that many replacement parts are no longer available and must be custom made at considerable expense. Whenever failures occur, food service personnel must transport, on stairways, several hundred pounds of food and serving equipment. This practice is regarded by all as dangerous and inefficient. The proposed replacement unit will be especially adapted to resist water and corrosion.

Addition to Que Building $30,000

An amount of $30,000 is requested to permit the enclosure of a sun porch located on the second floor of a patient treatment structure designated as Que Building. The enclosure is required to provide space for such group activities as recreational and occupational therapy, religious services, psychodrama, instruction in domestic science, and other rehabilitative work. At the present time, Que Building is totally lacking in suitable space for conduct of these programs. The building houses approximately 200 patients of both sexes, all ages, and a wide variety of temperaments. As an admission facility, it offers high quality intensive treatment on both a group and individual basis. The successful performance of this function has been seriously hampered by space limitations, however. The proposed addition will offer a relatively simple and inexpensive solution to the problem through the utilization of a second floor area which is already structurally designed to withstand the additional stress.

Plumbing and heating modernization and improvement ..... -0-

Since 1965 the Hospital has requested and received annual appropriations for a continuing project involving a major overhaul of its plumbing and heating facilities. The work is based upon a detailed survey of plumbing facilities undertaken with funds provided in 1963, and a comprehensive inspection of the heating system throughout the Hospital, conducted by Hospital engineers. The work is being executed principally through

contracts placed by the Public Buildings Service. Additional appropriations will be requested before the work in complete. However, a number of factors beyond the control of the Hospital have caused a slippage in work scheduling of approximately one year. Accordingly, the Hospital proposes to defer requests for the funding of the next increment of this project until fiscal year 1970, in order to bring project work schedules in line with current funding.

THURSDAY, MARCH 14, 1968.

NATIONAL HEALTH STATISTICS

WITNESSES

THEODORE D. WOOLSEY, DIRECTOR, NATIONAL CENTER FOR HEALTH STATISTICS
DR. PHILIP S. LAWRENCE, ASSOCIATE DIRECTOR, NATIONAL CENTER FOR HEALTH STATISTICS
LOUIS R. STOLCIS, EXECUTIVE OFFICER, NATIONAL CENTER FOR HEALTH STATISTICS
DR. WILLIAM H. STEWART, SURGEON GENERAL
CHARLES MILLER, CHIEF FINANCE OFFICER, PUBLIC HEALTH SERVICE
JAMES B. CARDWELL, DEPUTY ASSISTANT SECRETARY, BUDGET

OBJECT CLASSIFICATION (IN THOUSANDS OF DOLLARS)

	1967 actual	1968 estimated	1969 estimated
Personnel compensation:			
Permanent positions	3,149	3,764	4,314
Positions other than permanent	94	103	115
Other personnel compensation	66	83	99
Total personnel compensation	3,309	3,950	4,528
Personnel benefits	274	339	394
Travel and transportation of persons	266	279	385
Transportation of things	24	17	18
Rent, communications, and utilities	477	347	404
Printing and reproduction	204	200	218
Other services	440	368	398
Project contracts	619	510	820
Services of other agencies	1,942	2,122	2,128
Supplies and materials	51	69	73
Equipment	1,338	72	136
Subtotal	8,944	8,274	9,501
Quarters and subsistence charges	−1		
Total obligations	8,943	8,274	9,501

PERSONNEL SUMMARY

Total number of permanent positions	441	473	536
Full-time equivalent of other positions	12	12	13
Average number of all employees	415	437	489
Average GS grade	7.3	8.1	8.1
Average GS salary	$7,954	$9,040	$9,087

PROGRAM AND FINANCING (IN THOUSANDS OF DOLLARS)

Program by activities:			
National vital and health statistics (total program costs, funded) [1]	7,533	8,274	9,501
Change in selected resources [2]	1,410		
Total obligations	8,943	8,274	9,501
Financing: Unobligated balance lapsing	369	43	
New obligational authority (appropriation)	9,312	8,317	9,501
Relation of obligations to expenditures:			
Total obligations (affecting expenditures)	8,943	8,274	9,501
Obligated balance, start of year	1,626	3,168	3,222
Obligated balance, end of year	−3,168	−3,222	−3,513
Adjustments in expired accounts	91		
Expenditures	7,492	8,220	9,210
Expenditures are distributed as follows:			
Out of current authorizations	6,706	6,215	7,212
Out of prior authorizations	786	2,005	1,998

[1] Includes capital outlay as follows: 1967, $1,338,000; 1968, $72,000; 1969, $136,000.
[2] Selected resources as of June 30 are as follows: Unpaid undelivered orders, 1966, $1,342,000; 1967, $2,752,000; 1968, $2,752,000; 1969, $2,752,000.

Mr. FLOOD. Now we have the National Health Statistics of the Public Health Service. The presentation will be made by Mr. Theodore D. Woolsey, Director of the National Center for Health Statistics.

BIOGRAPHICAL SKETCH OF PRINCIPAL WITNESS

I see you have a biographical sketch, Mr. Woolsey, which we will insert in the record at this point.

(The biographical sketch follows:)

BIOGRAPHICAL SKETCH

Name: Theodore D. Woolsey.

Position: Director, National Center for Health Statistics.

Birthplace and date: Paris, France; March 4, 1913.

Education: Yale University: B.A. 1936; graduate work, Johns Hopkins School of Hygiene and Public Health, 1940–42.

Experience: Statistician in charge of Current Mortality Sample, Division of Vital Statistics, Bureau of the Census, Department of Commerce, March 1942 to January 1944; Chief, Special Surveys Section, National Office of Vital Statistics, Office of Surgeon General, PHS, FSA, 1946–47; Supervisory Statistician, Morbidity and Health Statistics Branch, Division of Public Health Methods, PHS, DHEW, 1947–56; Assistant Director, U.S. National Health Survey, Division of Public Health Methods, PHS, DHEW, 1956–60; Chief, National Health Survey Division, NCHS, PHS, DHEW, 1960–63; Deputy Director, NCHS, PHS, DHEW, 1963–67; Director, NCHS, PHS, DHEW, 1967 to present.

Major committee experience: Surgeon General's Advisory Committee on the U.S. National Health Survey, 1957–65; Task Force for Study of Data Reporting and Statistical Services, reported to Surgeon General, July 1950; Advisory Committee on Epidemiology and Biometry, November 1956 to September 1960; Chairman, Committee on Sampling Techniques in Public Health Statistics, November 1948 to November 1954; Subcommittee on National Morbidity Survey, February 1951 to January 1954; Advisory Committee to the Community Action Studies Project, December 1962 to December 1966; Federal Council on the 1970 Census, August 1965–; Chairman, Career Service Board for Mathematicians and Statisticians, DHEW, 1967–.

Association membership: Member, Washington Statistical Society, American Public Health Association (fellow), the American Statistical Association (fellow), Population Association of America, and other professional societies.

Important recent publications: "Measuring the Nation's Health; Some Principles and Findings." Paper presented at the first national congress on the socioeconomies of health care, sponsored by the American Medical Association at Chicago, Ill., January 22, 1967. "Morbidity in Relation to Smoking Habits, Some Preliminary Findings From the Health Interview Survey." American Journal of Public Health, volume 56, No. 12, December 1966, pages 9–16. "Classification of Population in Terms of Disability," September 10, 1965. (Contributed for the United Natitons World Population Conference, Belgrade, Yugoslavia, 1965.) "The National Health Survey—a Resource for Research in Long-Term Care." Gerontolcgist, volume 4, No. 2, part II, June 1964.

Mr. FLOOD. I see you have a prepared statement. How do you wish to proceed?

Mr. WOOLSEY. I would like to read the statement if I may, but first I would like to introduce Dr. Philip S. Lawrence, on my right, the Associate Director of the National Center for Health Statistics, who I do not think has appeared here before; and Mr. Louis R. Stolcis, on my left, who has been coming before the committee for a number of years.

Mr. FLOOD. Yes. All right, go ahead.

General Statement

Mr. Woolsey. Mr. Chairman and members of the committee, this is the first time I have appeared before you to present testimony on the appropriation for National Health Statistics, though for a number of years I sat here by the side of my predecessor, Dr. Forrest E. Linder, the first Director of the National Center for Health Statistics. I was Dr. Linder's Deputy until he retired last fall and was named to succeed him. I am a strong believer in the power of reliable statistics to help us guide our affairs more effectively, and this power is particularly in demand when administrators are having to make hard choices about how best to use limited resources. We are asking for increased support in four program areas this year, and all four relate to this criterion.

NATIONAL SURVEY OF FAMILY GROWTH

The first of these is in the area of family planning. You are aware that programs have now been launched by the Federal Government to increase the availability of family planning services and information. This is an area of high priority in the Department and the whole health community. Resources are increasing but are still limited.

Mr. Flood. Are you aware of the number of Federal agencies, bureaus, and departments now engaged in this business of family planning?

Mr. Woolsey. No, I am not, except I know the Children's Bureau and the welfare people are very heavily engaged in it and within the Public Health Service too. There are quite a number of activities in this area.

It is the responsibility of the Center to provide reliable statistics on the overall need for such services, to find in which population groups the need is greatest, and to show the extent to which the programs are meeting their goals. We are proposing a national survey that will supply statistics on these subjects. It will also give some indication of what is likely to happen to the birth rate—a matter of critical importance to planners, economists, manufacturers, and others.

MEASURES OF HEALTH IN THE CITIES

The critical problems of the cities have led to a marked increase in demand for measures of health of the people in the centers of the cities. Our sample surveys do not now provide this detail, and until recently the cost of classifying births and deaths to provide it has been prohibitive. However, technological developments and the proximity of the 1970 census now make possible a start on this urgent problem. We propose to develop data on causes of death and infant mortality for the three calendar years, 1969–71, for subcommunities within the largest cities. In a subsequent year we shall ask for resources to broaden this support, but the need to start now is occasioned not only by the urgency of the situation but also by the requirement that 1969 data be included in the analysis.

COMPREHENSIVE STATISTICS ON HOSPITAL UTILIZATION AND HEALTH MANPOWER

The need for comprehensive hospital patient statistics has grown significantly since enactment of comprehensive health planning legislation and the Social Security Amendments of 1965. To supply information on utilization trends, occupancy rates, average charges, length of stay by diagnosis, and so forth, we propose to expand the sample of hospitals participating in our present survey from 450 in 1968 to 600 in 1969, and to begin to collect on a full scale statistics on patient charges and sources of payment.

A closely related need is for data on health resources, particularly in the area of manpower where shortages exist in almost every category. The Center's responsibility is to provide accurate information on the existing supply and its changing demographic and geographic characteristics. We have made a start on this but badly need to expand our efforts in 1969, particularly in the area of data processing and analysis.

Better data in both these areas, we are convinced, will help to improve planning, decisionmaking, and evaluation of effort in the health care services programs.

ASSISTANCE TO STATE STATISTICAL ACTIVITIES

The comprehensive health planning and Public Health Service Amendments of 1966 place a heavy responsibility for planning upon the States. Hard facts about existing State health problems are an absolute necessity for effective planning, but the State statistical programs are by no means able to respond to this need at present. We have a close cooperative relationship with the States in the Federal-State vital statistics system and have had numerous requests for help from the States, particularly in up-grading the quality of their statistical personnel, in launching surveys, and in moving into the computer age. Furthermore, the Federal Government is completely dependent upon the States for the reliability and efficiency of the birth and death registration systems.

Therefore, we propose significant expansion of our present program in two areas. First, we would offer at our field installation a series of training courses designed to improve the skills of State and local government personnel in health statistics collection and analysis—practical courses of a type not given in universities. These would include sampling and survey methods, vital records maintenance, data processing, and so forth. The courses would be supplemented by State or regional workshops and by assistance to States in planning their own training courses.

Second, we intend to increase our small present program of direct technical assistance to the States. We would use both Center personnel and outside consultants to provide advice in any area of NCHS competence and responsibility.

Also, as a part of this effort to help the States we hope in 1969 to appoint a statistical representative in three of the nine regional offices.

SUMMARY OF BUDGET

The total estimate for National Health Statistics for 1969 is $9,501,000, an increase of $1,227,000 over the 1968 level.

I shall be glad to answer any questions the committee may have.

Mr. FLOOD. I have looked over your justifications very carefully, I do not see new problems in 1969 that you do not have in 1968. There is no new legislation that would be adding to your workload. And, of course, the budget problems are just as great or greater for 1969 than for 1968. So why should you have an increase?

Mr. WOOLSEY. The fact is we are not concerned with legislation in the future here, we are concerned with legislation in the past. There has been, as you know, quite a large amount of new health legislation that has been coming up in the last few years and this legislation has produced an unprecedented demand for health statistics. We have been working our heads off trying to keep up with the demands for statistics as a result of the legislation that is already on the books. In view of the fact that the planning and statistical needs lag behind the new programs, we tried to get the jump on this last year and brought before this committee, for example, this same family growth survey, but at that time it was seen fit not to include it within the program. Now we are coming back with the full support of everybody in the Department and we need to have these data because the programs are now rolling. The same is true of comprehensive health planning. This is already in existence. The States are crying for help and we are in a position of doing our level best to meet this demand. Regional medical programs, again, is legislation already on the books. We have had numerous occasions in the past year when regional medical programs have turned to us for help and we are simply not in a position to give it to them. We do have national statistics but they need data in much more detail than we can provide.

What we are doing is reacting to a demand that has been created as a result of past legislation and not legislation in the future. We are in a sense like a firm producing a product. We are turning out statistics to help people visualize their problems and to determine whether or not they are making any progress in resolving them. We are just trying to keep up with the demand for the product. So it is past legislation and not future legislation that is creating this demand.

Mr. CARDWELL. Mr. Chairman, it is axiomatic, it seems, that the toughter the problem the tighter the budget. These people are really at the frontier providing our Department basic data as to the extent to which we should move in the area. We need data on manpower and on the operation of hospitals. These are areas the Department is grappling with and trying to find the solution for, and I know of no better contribution we can make than support this particular program.

Mr. FLOOD. You are making a special plea for this shop?

Mr. CARDWELL. I think it is a good shop.

Dr. STEWART. One part of the increase covers statistics that tie in with the 1970 census.

HEALTH STATISTICS ANALYSIS

Mr. FLOOD. Will you take a look at the first paragraph at the top of page 148 of your justifications. Let me read it to you:

IN-DEPTH SOCIOECONOMIC STUDIES RELATING TO HEALTH

Beginning in 1969 the health statistics analysis program proposes to broaden its activities by relating health data to more refined socioeconomic variables and developing health indices that can be used in the measurement of current health problems for the Department's program of social indicators. It is also proposed to extend this program to include more theoretical analyses of measurable health trends than can be expected to result from the various action programs.

Marvelous.

Mr. WOOLSEY. I think your criticism of the language used is well taken.

Mr. FLOOD. I do, too.

Mr. WOOLSEY. But this is a very small but important part of our program. We decided in the early days of the establishment of the center that we needed to have one small office concerned solely with analyses on a problem-oriented basis, not having to do with management of surveys and vital statistics and so on, but thinking of the problems in the country and trying to pull together all the data on these problems and producing data for the Surgeon General and others on that. This little office is doing that job. We call it health statistics analysis.

One of the trends that has occurred in recent years is that everybody is thinking in terms of dollars and cents in health problems and we hear a lot about cost-benefit analyses and things of that sort.

Mr. FLOOD. Yes. I have been on the Defense Subcommittee for about 20 years.

Mr. WOOLSEY. This is permeating the health field as well. So this particular small item here is designed to provide us with some skills on our staff which we do not now have, and those are economists.

Mr. FLOOD. Economists?

Mr. WOOLSEY. Yes. We need an economist to help us interpret some of these data.

Mr. FLOOD. So do we.

Mr. WOOLSEY. I mean a professional economist to help interpret some of these data and particularly to make estimates of cost to the economy of particular diseases and things of that sort. We might have used clearer language to bring that out.

INTERNATIONAL ACTIVITIES

Mr. FLOOD. On page 166 you say:

Internationally, the Center will continue through research, training, advice, and assistance, to provide support to developing countries in their vital and health statistics programs.

How much do you spend on this activity?

Mr. WOOLSEY. This is under the Public Law 480 funds, plus a training program of our own that we operate. Public Law 480 funds are for the activities overseas; $61,500 is the amount we have budgeted, sir.

Mr. FLOOD. Mr. Michel.

NATIONAL SURVEY OF FAMILY GROWTH

Mr. MICHEL. I want to apologize for my tardiness. I have not had an opportunity to look over your entire statement but having looked at the justifications I see you are asking $449,000 for a national survey of family growth. Will this be a duplication of any other federally funded program?

Mr. WOOLSEY. No; it is in no way a duplication of any other federally funded program. There have been surveys done in the past on a one-time basis by universities and there was one financed by a contract from the Public Health Service, but what is now needed——

Mr. MICHEL. Do you know what happened to the one contracted for by the Public Health Service?

Mr. WOOLSEY. The work is now being completed, I think.

Mr. MICHEL. That is what prompted to me ask this question because I knew that one was underway. Are you going to proceed on this thing without having any knowledge of what the other program was about?

Mr. WOOLSEY. Several previous studies were done before that contract which gave us a lot of information. We have an expert in that field that worked on the Growth of American Family Studies.

Mr. MICHEL. Was he one of those involved in that original contract?

Mr. WOOLSEY. No. I think the contract was a one-time study and is being wound up.

APPLIED STATISTICS TRAINING INSTITUTE

Mr. MICHEL. How much do you plan to spend on the Applied Statistics Training Institute?

Mr. WOOLSEY. $426,000.

Mr. MICHEL. Will this involve only people in the health field?

Mr. WOOLSEY. Health and demography, which is becoming more and more closely associated with health. These are State people. The disciplines would be in health and demography.

MARGIN OF STATISTICAL ERROR

Mr. MICHEL. Yesterday in another subcommittee in the area of agriculture where they also do a lot of statistical work—and it may be the measurements can be more accurately assessed there than here—but I asked the question What were the statistical projections in 1 year and what were the real statistics a year later? There was a margin of error of about 2 percent. The problem is that we as a Federal Government let everybody know we are the big fact-finding organization and we as much as infer everybody can rely on our statistics as being good and sound. Do you have any standards in your shop or any means of judging how good your predictions or prognostications are?

Mr. WOOLSEY. First, I should say the Center as a matter of policy——

Mr. MICHEL. I appreciate we are talking about different areas here.

Mr. WOOLSEY. We have stayed out of the area of long-range projections. I do not mean our data are not used for these long-range projections, but we are by and large trying to provide statistics about the existing situation. In this Family Growth Survey, for example, one of the purposes is to provide some indication of what is going to happen to the birth rate.

POPULATION PROJECTIONS

Mr. MICHEL. This is an area which prompts my question, too. I just read an article in U.S. News & World Report in the past week concerning what we thought would be a booming population in the year 2000. If you look at the actuarial tables for social security and so on, they would be very dependent on what happens to our population growth in the future. But if they boom up all the time we get to the point where things top out and start the other way.

Mr. WOOLSEY. We supply most of the data used by the Bureau of the Census for making population projections that are so widely used. After all, the growth of the population is made up of the births minus the deaths with adjustment for net migration. We feed that data to the Bureau of the Census and they use that in their projections. When they make projections on populations they make three projections, one based on the assumption there is high fertility, one based on the assumption there is moderate fertility, and one based on the assumption there is low fertility, and the user makes his decision as to which he will use. Usually they settle on the moderate fertility. But everybody would like a little better information on which way the birth rate is going to go. It has been demonstrated by the previous studies I have mentioned that it is possible by asking questions of the families as to what their future plans are, just as you ask people how many automobiles they will purchase, they can tell you their plans about children. Obviously it is not exact. They may change their ideas if their circumstances change or if we have a war or something, but we can produce statistics on the trend, and that kind of information is extremely important in guiding people as to whether to use the high projections or the moderate projections or the low projections that the Bureau of the Census gets out.

NATIONAL CENTER FOR APPLIED STATISTICS

Mr. MICHEL. Getting back to the National Center for Applied Statistics, how many people do you expect to train in the coming year?

Mr. WOOLSEY. For example, in the fiscal year 1969 we expect to train 120 State workers in cause-of-death coding. That is one special area we have to make an effort in because everybody is shifting over to a new international classification of causes of death.

Mr. MICHEL. What is that based upon?

Mr. WOOLSEY. The estimate is based on correspondence we have had with the States.

Mr. MICHEL. Do you anticipate all 50 States will be participating?

Mr. WOOLSEY. Yes. We have had letters from all of them indicating they are interested in sending people to this program.

In addition to that we expect to train in the first half of the year in areas like demography, sampling and survey methods, vital records maintenance, mortality analysis and measurement, and so forth, 110 people; and in the second half of the year we would step it up to 130 students. In addition to that we will have workshops and other courses in which we expect to have another 120 people. So all told we expect during 1969 to have given some training to 360 people at that school.

Mr. MICHEL. Will the cost of training these people be shared?

Mr. WOOLSEY. No, except the travel would have to be borne by the States, but we would not charge any tuition.

Mr. MICHEL. The Federal Government would assume the entire cost of this training?

Mr. WOOLSEY. Yes. These are short-term courses.

Mr. MICHEL. Would any of the States, as reluctant as they are to raise money for these programs, be amenable to raising money for part of the cost of this training?

Mr. WOOLSEY. I do not know.

Mr. MICHEL. Is this our first venture in this field?

Mr. WOOLSEY. It is similar to the one where they trained epidemiologists. We modeled our program after the CDC program in Atlanta.

Mr. MICHEL. In that area do the States bear any part of the cost?

Mr. WOOLSEY. I do not think so.

Mr. MICHEL. That is all.

Mr. FLOOD. Mr. Hull?

HEALTH STATISTICS ON SMOKING

Mr. HULL. You indicate that the household interview survey will sponsor an annual current population survey supplement on smoking habits over the next 5 or 10 years. What is the anticipated cost of this supplement program?

Mr. WOOLSEY. I do not have that but I can get it for you.

Mr. HULL. Will you supply it for the record?

Mr. WOOLSEY. Yes, sir.

(The information follows:)

On the basis of past experience, the annual supplement to the current population survey will cost approximately $52,000. Data collection activities will cost $47,000 and data processing services will cost $5,000.

SMOKING HABITS AND HEALTH CHARACTERISTICS

Mr. HULL. In addition, the justifications state that—

Plans are underway to include questions in the 1969 or 1970 survey that will again relate smoking habits to health characteristics.

What is the anticipated cost of this undertaking?

Mr. WOOLSEY. I will have to supply that.

(The information follows:)

On the basis of past experience, the additional cost of this undertaking is estimated to be approximately $10,000. The additional field costs will be small ($5,000) since the smoking habits part of the interview averages about 3 minutes per interview and only about 50 percent of those covered in the interview have data to report.

Mr. HULL. What is its purpose?

Mr. WOOLSEY. We look upon the matter of cigarette smoking as a factor related to health like many others that we study, such as occupation and environment and so forth. It is our responsibility to study health and factors related to health, and with all of the interest that has been generated by the Surgeon General's report on smoking and health, we were getting inquiries about the relationship of morbidity and disability to smoking. All the previous studies were on mortality, the death rate, related to smoking. We want to relate morbidity and

disability to smoking habits in terms of what kind of a relationship is shown here.

Mr. HULL. On May 1, 1967, a pamphlet, entitled "Cigarette Smoking and Health Characteristics," was published. Would you indicate for the record the cost of the health interview survey upon which this report was based, and will you include the cost of the actual survey and the cost of the data processing necessary to complete the report?

Mr. WOOLSEY. I think you should understand that this is part of a larger survey. What we have done in this health interview survey has been to ask questions related to morbidity and disability and health insurance coverage and things of that sort, and from time to time we have added questions to the interview to keep it responsive to the need for statistics, and smoking was one of the things we added. It would be difficult to get the marginal cost of that supplement.

Mr. HULL. I understand that this health interview survey made use of the home interview technique. Would you please explain that technique and what information you have or whether or not there have been any studies made to determine the accuracy of such method in health interview situations. What is the reliability of such survey technique?

Mr. WOOLSEY. The method used is essentially that used for the decennial census. We ask questions of the families about their own health. There are obvious limitations in this sort of thing, but we have been one of the leaders in studying what the reliability of the statistics is. We do not expect the families to give us a precise diagnosis or anything of that sort, but we do believe on the basis of our studies that the families can pass to a skilled interviewer reliable information about the diseases that have been treated by physicians, because what you are asking them to do is not to diagnose themselves but rather to tell you what the physician told them, and to the extent they know and understand what the physician told them, they can pass this information on to an interviewer.

That obviously does not extend to telling you exactly which heart valves are involved in heart disease or anything like that, but they can tell you the general nature of the illness.

We also find that minor illnesses tend to be forgotten by the families, but illnesses that involve medical care and restricted activities—these are reliably related in the interview surveys. Interview surveys are widely used and have been the basis for all the data gathered since the beginning of the Republic in the decennial censuses, except now they are beginning to switch over to mail questionnaires.

Mr. HULL. I understand that 60 percent or more of the information relating to male smokers was obtained by "proxy" responses. Would you please explain that?

Mr. WOOLSEY. When we go into a house to interview, we interview all of the adults there, each one for himself. In other words, if you were present in the household at the time of the interview, we would ask the questions of you. If the wife was present we would ask the questions of the wife. However, if there is at the time an absent member of the household—and this is usually the husband who is away at work at the time of the survey—then we will ask the questions of a closely related member of the household, not a distantly related member. Often we will ask the wife about the husband's health or smoking

habits. In 60 percent of the cases for adults we are gathing the information from the person himself, and in the remaining cases the situation usually is that we are gathering the information from the wife about her husband who is away at work. That is the usual situation.

Mr. HULL. Do you know of any studies on the reliability of such second-hand health information?

Mr. WOOLSEY. Our own studies. There isn't any question you get slightly less information from the wife about the husband than you get from the husband about himself. Our own studies indicate this and we have been very free in publishing these data. We have a series of reports that deal with this question, and most of the critics of the survey use our own reports as the basis of their criticism.

Mr. HULL. Is it true that most of the people actually interviewed were women?

Mr. WOOLSEY. Most of the people actually interviewed are women, yes.

Mr. HULL. Then most of the information obtained in regard to women was by face-to-face interview and would be considered as first-hand information. Is that correct?

Mr. WOOLSEY. Yes.

Mr. HULL. Is it true that according to your findings, females who have ever smoked have fewer heart conditions and hypertension than those who never smoked?

Mr. WOOLSEY. I do not remember in great detail, but we did find in the statistics in that survey that there was some tendency for the people who smoked very little, less than half a pack a day, to have lower illness rates than those who had never smoked. We suspect a reason for that. We suspect the possible reason for it is that some people may, because of their health, have failed to take up smoking as a habit. On the other hand, the data showed that as the amount of smoking went up from one-half to one pack and from one to two packs, the amount of illness was higher than for those who never smoked. It was just the people who smoked less than half a pack a day who seemed to be the healthiest of all.

Mr. HULL. In fact, if the data were taken at face value, smoking in moderate amounts would have to be recommended as a preventive against heart disease?

Mr. WOOLSEY. I think that would be a misinterpretation of our data. We cannot help it if people misinterpret our data. I would think if somebody concluded from these data that they were better off smoking, it would be a misinterpretation.

Mr. HULL. How do you square this with the statement on the front page of the survey:

> In general, persons who have ever smoked cigarettes reported higher rates of heart conditions . . .

This is not correct, is it?

Mr. WOOLSEY. As I recall it, the only finding that aroused curiosity in this respect was that people who smoked very little had lower rates of illness than those who never smoked.

Mr. HULL. In general, women who have ever smoked cigarettes do not report higher rates of heart condition.

Mr. Woolsey, in this report there are two statements that seem to me to have much importance to the accurate and proper interpretation of what the report in fact shows. On page 1 there is this statement:

> * * * Where an estimated number or the numerator or the denominator of a rate or percentage is small, the sampling error may be high.

Then, on page 4, there is this statement:

> Although estimates for the category, more than two packs a day, are small, it was retained as a separate category as indicative of extreme smoking behavior.

Since much has been made of the "disability" and illness of the "heavy smokers" in this country, it would seem to me to be important to know just what the two sentences I have read to you mean. Do they not indicate that there were actually too few smokers of two packs a day or more to really draw any conclusions from these numbers?

Mr. WOOLSEY. No; because I think one has to judge these data on the basis not only of just the pure size of the sample but also on the consistency of the results. It is true we generally caution people in our reports that they should look at the appendices that indicate the sampling errors and so on, because when you are dealing with data from a sampling survey you can be misled by small cells, we call them, a figure based on very few persons, and we caution them about that.

On the other hand, in the case of people who smoked two or more packs a day the results were extremely consistent, and when you see data that are very consistent from one place or another, then you say there is some information coming through here and that is why we published those reports.

STATISTICAL ASSOCIATION

Mr. HULL. In "Cigarette Smoking and Health Characteristics," no claim is made that the statistical association shown demonstrated any causal connection, and on page 6 it is stated that the data "cannot establish any existing relationship as a causal one." Do you agree with that statement?

Mr. WOOLSEY. Yes.

Mr. HULL. Then I take it you do not agree with the various pamphlets that have been distributed which claim or imply that "Cigarette Smoking and Health Characteristics" proves a causal connection between smoking and any disease?

Mr. WOOLSEY. If you take this survey by itself, if this were the only evidence one had, I doubt that anybody would attribute any significance to it; but the fact is that over the years, under a great many auspices and with many types of surveys, people have been showing up exactly the same kind of associations. The point is that while no one of these gives the concrete single piece of proof you need, nevertheless as they all accumulate the weight of the evidence tends to become stronger and stronger.

It is a philosophical question of what you accept as proof. I would say one survey or one study by itself would not constitute proof and in fact to get proof from a single survey you would have to do an experiment on human beings, which is an impossible thing to do; but in the

absence of that what the scientist has to do is to build up the evidences of association from as many different sources as he can and under as many different auspices, and if they all prove to be in the same direction, then the weight of the evidence becomes overwhelming.

CHRONIC DISEASES AND SMOKING

Mr. HULL. Mr. Woolsey, I understand that some of the chronic conditions reported in the study were not even in the survey questionnaire. Is this true? For instance, hardening of the arteries and heart trouble apparently became arteriosclerotic heart diseases in the report, pages 10 and 11. The word "emphysema" does not even appear in the questionnaire but the report cites "bronchitis and/or emphysema."

Mr. WOOLSEY. They do appear in the questionnaire because what we do in the questionnaire is we read a list of conditions to the families and ask if they have had any problem with this, that, or the other condition.

As I said earlier, if they have had a doctor's care for that condition and if a doctor has told them what was wrong with them, if he said, "Now you have heart disease," we believe that person can pass on to us that information. And those diseases you mentioned are included in the checklist that we read to the families.

Mr. HULL. Mr. Woolsey, in terms of this survey, what conditions are considered to be chronic conditions?

Mr. WOOLSEY. Our definition of a chronic condition, which is contained in the back of each one of these reports, is any condition which has been present for 3 or more months or which is listed on that list of diseases that are presumed to be a priori chronic; such as arteriosclerosis, or hardening of the arteries.

Mr. HULL. Do you consider chronic such things as hemorrhoids, mental illness, arthritis or rheumatism, hernia, prostate trouble?

Mr. WOOLSEY. These are considered chronic.

Mr. HULL. How about cleft palate, missing fingers, hand or arm, toes, foot or leg, clubfoot, any conditions present since birth?

Mr. WOOLSEY. I believe you are reading from the check list we use in the survey?

These are the things we ask the family.

Mr. HULL. These are all chronic?

Mr. WOOLSEY. Yes, sir

Mr. HULL. Why would these diseases be correlated against smoking habits, Mr. Woolsey?

Mr. WOOLSEY. At this place I am not sure without studying the figures, which of them are.

Mr. HULL. If you can, give me the answer in the record.

Mr. WOOLSEY. All right, sir.

(The information requested follows:)

No attempt was made nor was time spent in correlating these conditions with cigarette smoking. They are only enumerated in the appendix of the report as examples of chronic impairments collected in the regular survey.

Mr. HULL. Is it the belief of the Public Health Service that hemorrhoids, hernia, cleft palate, and conditions present since birth are the direct result of the smoking habits of the person who had these conditions?

Mr. WOOLSEY. Whether this is the belief of the Public Health Service or not I don't know, sir. All that this report does is to point up some relationships that were observed in our data. The question of interpretation of those in terms of cause and effect relationships and all that kind of thing is something I think we would have to leave to the medical scientists to work out.

Mr. HULL. Would you not consider such a correlation a waste of time and money?

Mr. WOOLSEY. No, sir; I believe that these facts provide clues and evidence that then need to be followed up in all kinds of additional studies. I think we may well find within these studies evidence that will lead to a need for new research, and will result in additional findings.

Mr. HULL. Thank you, Mr. Chairman. Thank you, Mr. Woolsey.

Mr. FLOOD. Mr. Laird?

Mr. LAIRD. No questions.

Mr. FLOOD. Mr. Natcher?

Mr. NATCHER. No questions.

Mr. FLOOD. Thank you. For a statistician, you are a pretty articulate fellow.

JUSTIFICATION MATERIAL

PUBLIC HEALTH SERVICE

National Health Statistics

Amounts Available for Obligation

	1968	1969
Appropriation	$8,317,000	$9,501,000

Obligations by Activity

Page Ref.		1968 Estimate Pos.	1968 Estimate Amount	1969 Estimate Pos.	1969 Estimate Amount	Increase or Decrease Pos.	Increase or Decrease Amount
153	Vital statistics	201	$2,471,000	235	$3,110,300	+34	+$639,300
156	Health interview statistics	72	2,164,400	72	2,133,800	--	-30,600
158	Health examination statistics	72	1,276,600	72	1,265,100	--	-11,500
160	Health resources statistics	80	1,659,300	92	1,839,100	+12	+179,800
163	Health statistics analysis	25	354,000	27	372,800	+2	+18,800
165	Professional and technical assistance	23	348,700	38	779,900	+15	+431,200
	Total obligations	473	8,274,000	536	9,501,000	+63	+1,227,000
	Unobligated balance, reserve	19	43,000	---	----	-19	-43,000
	Total, obligations and reserve	492	8,317,000	536	9,501,000	+44	+1,184,000

Obligations by Object

	1968 Estimate	1969 Estimate	Increase or Decrease
Total number of permanent positions	473	536	+63
Full-time equivalent of all other positions	12	13	+1
Average number of all employees	437	489	+52

Personnel compensation:			
Permanent positions	$3,764,000	$4,313,900	+$549,900
Positions other than permanent	103,000	115,000	+12,000
Other personnel compensation	83,000	99,000	+16,000
Total personnel compensation	3,950,000	4,527,900	+577,900
Personnel benefits	339,300	393,600	+54,300
Travel and transportation of persons	279,000	385,000	+106,000
Transportation of things	17,000	18,000	+1,000
Rent, communications and utilities	346,900	404,000	+57,100
Printing and reproduction	200,000	218,000	+18,000
Other Services	368,300	397,500	+29,200
Project contracts	510,100	819,600	+309,500
Services of other agencies	2,121,700	2,128,400	+6,700
Supplies and materials	69,300	72,600	+3,300
Equipment	72,400	136,400	+64,000
Total obligations by object	8,274,000	9,501,000	+1,227,000

Summary of Changes

1968 enacted appropriation	$8,317,000
Unobligated balance, reserve	-43,000
1968 total estimated obligations	8,274,000
1969 estimated obligations	9,501,000
Total change	+1,227,000

	Base		Changes from Base	
	Positions	Amount	Positions	Amount
Increases				
A. Built-in				
1. Annualization of new positions authorized in 1968 for 80% of year	--	---	--	$35,200
2. Annualization of 1968 Pay Act (P.L. 90-206 and P.L. 90-207)	--	---	--	66,000
3. Increase in pay above stated annual rate (260 days in 1968; 261 in 1969)	--	---	--	18,600
4. Computer maintenance services for purchased computer configuration	--	---	--	25,000
B. Program				
1. Expand the vital statistics program:				
a. Launch a National Survey of Family Growth	--	---	20	449,000
b. Provide small area residence allocations of births and deaths	108	$993,800	14	179,000

Summary of Changes (con't)

2. Expand the health resources statistics program:				
a. Provide comprehensive national hospital data..	34	752,300	7	86,200
b. Compile comprehensive national data on manpower statistics.....	20	368,100	5	110,300
3. Begin in-depth socio-economic studies relating to health.....	--	---	2	20,700
4. Initiate new programs of State assistance.....	--	---	15	426,000
Total program increases.....	--	---	63	1,271,200
Total Increases.....	--	---	63	1,416,000
Decreases				
A. Built-in				
1. Non-recurring computer rental.....	--	---	--	-189,000
Total net change requested.....	--	---	+63	+1,227,000

Explanation of Changes

National Survey of Family Growth $449,000

It is proposed that the National Center for Health Statistics undertake a biennial National Survey of Family Growth in 1969. The survey would collect information specific to the needs of Federal programs providing services and information on family planning. Through this survey it will be possible to estimate the number of married women in need of family planning services, the characteristics of these women, and how the number changes as family planning programs take effect. It will also be possible to forecast changes in the birth rate and, hence, learn about those segments of the population we should expect to experience population growth. Also data will be obtained on the social and economic conditions under which children grow to adulthood since such data are of national concern and high importance to planners of public health programs.

Revised 2/19/68

Summary of Changes (con't)

Residence Allocation of Births and Deaths 179,000

New computer techniques now make it possible to provide detailed demographic and geographic data from birth and death certificates. This comprehensive data is needed by federal, State and local programs to more accurately identify the frequency of vital events for specific areas within cities, and thus to obtain measures of health for the most disadvantaged areas.

Provide Comprehensive National Hospital Data 86,200

The development of the hospital discharge survey will continue to be a major area of program growth since national patient statistics are urgently needed for studying utilization trends, as well as planning for the efficient use of these medical care facilities in the future. In terms of program impact, comprehensive hospital data are necessary to provide core data for hospital occupancy rates, average daily rates, average daily hospital charge, and average length of stay. The need for comprehensive hospital data has become increasingly critical since enactment of the Social Security Amendments of 1965 which authorized health insurance for the aged and grants to States for medical assistance. Additional resources are necessary to code, process and publish the detailed survey data.

Provide Comprehensive National Data on Manpower Statistics..... 110,300

In view of the probable shortages in many health manpower occupations and the increased national concern for the provisions of more health care, there is an increasing need for quality health manpower statistics for planners and administrators of public health programs. Significant areas of augmented activities include the development of statistics and methodologies for evaluating the supply and capabilities of personnel in the allied or paramedical health manpower fields. Specific research objectives include the design of samples for manpower surveys, pilot tests of survey techniques and questionnaire designs for eliciting the highest quality of survey data.

The 1969 request is intended to permit the program to meet the types of needs described above, to carry on a more efficient and effective program, and to process more comprehensive manpower statistics.

Explanation of Changes (con't)

In-Depth Socioeconomic Studies Relating to Health..... 20,700

Beginning in 1969 the health statistics analysis program proposes to broaden its activities by relating health data to more refined socioeconomic variables and developing health indices that can be used in the measurement of current health problems for the Department's program of social indicators. It is also proposed to extend this program to include more theoretical analyses of measurable health trends than can be expected to result from the various action programs.

Initiate New Programs of Assistance to State Vital and Health Statistics Activities..... 426,000

As a primary means of improving the quality of the State and local vital and health statistics offices and personnel, the Center proposes to establish an Applied Statistics Training Institute in 1969. This institute will have a four-fold approach to training: (1) training courses in applied statistics theory and practice; (2) workshops to meet specific local or regional health statistics problems; (3) colloquiums to interchange and expand knowledge; and (4) direct assistance to States in planning training courses which relate to pressing or highly unique needs. As a second major activity to assist the States in improving their vital and health statistics programs and registration systems, the Center proposes to provide direct technical consultation to State and local vital statistics offices, covering subject areas such as mortality, disability, design of a sample survey, disease classification, and data collection systems. Also, since the Center has been somewhat hampered in its total pattern of relationships with the States because there has been no Regional Office representative to cover vital and health statistics program interests, it is proposed to begin staffing such positions on a trial basis.

GENERAL STATEMENT

The formulation of sound public policy depends heavily upon the availability of objective information. Since its inception in August 1960, the National Center for Health Statistics has sought to provide such information in the areas of vital and health statistics to serve the needs of those who use its data increasingly in formulating decisions of national importance.

The Center utilizes two basic types of mechanisms to produce national vital and health statistics. The first of these is a group of nationwide health surveys; the second is the vital statistics program based on the tabulation and analysis of data derived from certificates of birth, death, marriage, and divorce. Through these mechanisms the Center develops data providing (a) measures of health; (b) measures of the use of health services; (c) measures of health resources; and (d) basic demographic measures related to population growth and family formation and dissolution. The Center also provides assistance to others in the field of health statistics in such areas as survey design, statistical sampling and data processing methodology. Increasingly, the Center has necessarily become involved in training activities because of the great shortage of experienced health statisticians. And, finally, the Center has always placed heavy emphasis on methodological research to improve data collection and analytical techniques.

During the past year the Center has continued to emphasize its responsibilities for providing valid, scientific data to its professional publics on a current basis. Attention again was focused on the production, publication and effective distribution of reports, with the result that 36 publications were printed during 1967 in the Vital and Health Statistics series. In addition, monthly reports, annual summaries, the Vital Statistics of the United States, state definitions, life tables, four handbooks, and a number of complex and detailed questionnaires and forms were published.

In 1967 the data processing laboratory at Research Triangle Park, North Carolina, became staffed with the levels planned for that year and began providing comprehensive data preparation activities for the Center. In 1968 plans are underway to perform experimental research on data processing equipment and systems for coding and recoding statistical data directly on magnetic tape. This effort eventually could lead to the elimination of punched cards and provide more accurate and efficient methods for preparing statistical input data.

In continuing to improve and strengthen its organization the Center has abolished the Division of Health Records Statistics and transferred its basic functions to other divisions carrying on related programs. The narrative justification in this document reflects this reorganization.

The 1969 estimate reflects a net increase of $1,227,000 over 1968. This results from a $189,000 decrease for non-recurring computer rental and mandatory and program increases of $1,416,000. Program increases are proposed in the areas of vital statistics, health resources statistics, health statistics analysis, and professional and technical assistance. These program increases will enable the National Center for Health Statistics to meet the highly important needs of researchers and planners for substantive data relating to population dynamics; to provide more detailed demographic and geographic data available from birth and death certificates; to begin in-depth socioeconomic studies relating to health; to process and compile more comprehensive national data on manpower statistics; to provide increased levels of professional staff and computer services for producing national hospital data; and to establish a professional and technical assistance program designed to improve the validity, sophistication, and timeliness of national vital statistics. The National Survey of Family Growth was included in the 1968 budget but its funding was deferred. Since the need now appears even more critical, budgetary support is again requested. The narrative justification which follows presents the Center's requirements within six major program areas.

NATIONAL HEALTH STATISTICS

Justification

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
Personnel compensation and benefits:						
Vital statistics	201	$1,685,500	235	$2,000,600	+34	+$315,100
Health interview statistics	72	686,300	72	696,900	---	+10,600
Health examination statistics	72	694,900	72	707,600	---	+12,700
Health resources statistics	80	699,200	92	792,000	+12	+92,800
Health statistics analysis	25	270,300	27	295,200	+2	+24,900
Professional and technical assistance	23	253,100	38	429,200	+15	+176,100
Total personnel compensation and benefits	473	4,289,300	536	4,921,500	+63	+632,200
Other expenses	---	3,984,700	---	4,579,500	---	+594,800
Total	473	8,274,000	536	9,501,000	+63	+1,227,000

VITAL STATISTICS

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
Personnel compensation and benefits.....	201	$1,685,500	235	$2,000,600	+34	+$315,100
Other expenses...	--	785,500	--	1,109,700	--	+324,200
Total	201	2,471,000	235	3,110,300	+34	+639,300

The individual States have primary responsibility for maintaining registration systems for vital events. State laws govern the data requirements of vital registration certificates, provide for the enforcement of registration, and determine many of the procedures to be followed in State offices.

One of the most successful efforts in Federal-State cooperation has been in the area of vital statistics. Through cooperative efforts with the States, the Center administers a vital statistics program for the improvement and standardization of vital registration systems and for the analysis and publication of national data.

The technique of sampling records of births and deaths and following up to gather additional data has provided unique statistical information in the past year. For example, a mortality survey to study the relationships between smoking habits and certain causes of death is now in its second year of data collection, and a new national natality survey was begun covering topics relating to prenatal and postnatal care, employment of the mother, and other family and health-related items. Reports from the previous natality surveys are in progress on the subjects of prenatal vists, employment of mother during pregnancy, and birth weight variability.

In 1967 the Center also completed the decennial revision of standard certificates of birth, death, fetal death, marriage, and divorce or annulment. These certificates were printed and distributed to all State health departments with the recommendation that they be adopted in January 1968. In addition, a series of handbooks which explain the new standard certificates was developed and is being sent to the State vital statistics offices for distribution to all persons who are responsible for completing vital records. Use of the new forms is being encouraged in order to provide effective standardization of both the format and content of vital data.

During the past year, program efforts continued to be directed toward improving the quality of national vital statistics data. Specialized handbooks on reporting births and deaths were published and distributed to hospitals, physicians, medical examiners, coroners, and funeral directors. As part of continuing efforts to familiarize local officials with the procedures of vital registration and to emphasize the importance of registration data, two additional handbooks will be developed in 1968 for marriage license clerks and divorce court clerks. Also, a filmstrip on birth registration procedures is being prepared for the use of hospital personnel.

The National Survey of Family Growth

The social and economic problems that result from excessive and unwanted childbearing are widely recognized as matters of national concern. The Federal government's commitment to aid in alleviating these problems at the source has been stated by President Johnson in these words:

> "We have a growing concern to foster the integrity of the family, and the opportunity for each child. It is essential that all families have access to information and services that will allow freedom to choose the number and spacing of their children within the dictates of individual conscience." 1/

Programs have been launched by the Federal government to increase the availability of family planning services and information, and still more massive support to these activities will be given in 1969. It is essential that these programs be guided by adequate information concerning the number of couples who are unable to control their fertility to the extent they want to, their social and economic characteristics, the severity of the problems they face, and whether or not the efforts to help them are succeeding.

One of the primary functions of the proposed National Survey of Family Growth is to meet this need for information on factors affecting the number and spacing of children. This survey program is also intended to provide data that will help to improve forecasts of births, which are highly important for planning to meet future needs for facilities such as schools, recreation centers, roads, hospitals, and many kinds of public services.

In addition to these specific purposes, the survey program is intended to further the study of the complex factors that influence family growth in our society. Surveys conducted in the postwar period have emphasized the need for continued research on this topic as the conditions affecting couples' plans for family growth change.

1/ Special Message to Congress on Health and Education, March 1, 1966.

The National Survey of Family Growth is proposed as a continuing program planned on a two-year cycle. The first year would be concentrated on the collection of information from a sample of women in the reproductive years of life, and the second year would be devoted to the analysis and publication of the results. The conduct of methodological studies and planning for the next survey will take place throughout each two-year period. By the third fiscal year, the survey program would be fully operative. Data collection activities would overlap fiscal years.

Although it is too early to foresee with clarity the full range of reports that would emerge from the proposed survey program, three basic reports are planned for each two-year cycle.

1. An analysis of factors affecting current trends in the birth rate;

2. An analysis of trends and differences in the ability to control fertility in accordance with couples' desires;

3. Trends in ability to control fertility in certain groups where unwanted childbearing is common.

In addition to these basic reports, there will be others on special topics.

Twenty new positions and $449,000 are requested in 1969 to permit the Center to implement the National Family Growth Survey. Ten of the requested positions will serve the direct professional needs of the program, four others will provide data processing services, and the remainder will be necessary to provide publication functions, statistical advisory services, and administrative support.

Small Area Residence Allocations of Births and Deaths

Birth and death registration is carried on as a local function under State requirements. Copies of certificates are furnished to the Center in the form of microfilm records. The State records are coded, punched, and entered on computer tape to produce National and State vital statistics data.

In the past limited standard demographic information, technical problems, and unavailable geographic population data prevented the effective use of birth and death data to measure the health status of people in sub-communities within large cities. However, technological developments and the proximity of the 1970 census now make it possible to measure progress in combatting health problems in these areas by computing (1) mortality rates by cause of death and (2) infant birth and death rates for areas disadvantaged by poverty.

By matching address information from vital records against census population information for small areas, it will be possible to provide health statistics for these sub-communities and thereby assist health planning in disadvantaged areas.

In order to provide small area data on births and deaths it would be necessary to accumulate the records for three calendar years, starting in 1969, and to purchase access to the census address register for 1970. Detailed population data for small geographic areas will also be required from Census to serve as the base for computation of vital rates.

Fourteen positions and $179,000 are requested in 1969 to permit the Center to implement the project on small area residence allocations of births and deaths. Three of the requested positions will serve the direct professional needs of the program, ten others will provide data processing services, and one position will be necessary to provide administrative support.

Other adjustments to the Vital Statistics program include mandatory increases of $35,200 for the annualization of positions approved for 1968; $10,200 for computer maintenance services; $7,300 for personnel compensation above the stated annual rate, and $21,900 to annualize the costs of the 1968 Pay Act. Computer rental savings of $63,300 associated with the purchase and installation of a more advanced computer configuration are also reflected.

HEALTH INTERVIEW STATISTICS

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
Personnel compensation and benefits.....	72	$686,300	72	$696,900	--	+$10,600
Other expenses...	--	1,478,100	--	1,436,900	--	-41,200
Total.....	72	2,164,400	72	2,133,800	--	-30,600

Since its inception in July 1957, the Health Interview Survey has continued to provide reliable and comprehensive data relating to the health and demographic characteristics of the civilian noninstitutionalized population of the United States. By means of a continuing population survey coupled with periodic supplementary surveys, this program has been able to report trend statistics as well as timely data concerning the incidence and prevalence of illness, accidental injuries and disability, and the utilization of medical, dental and hospital services.

Nine reports were published in 1967, bringing the total reports published by this program to 93. Topics covered during the year included: cost and acquisition of prescribed and nonprescribed medicines; cigarette smoking and health characteristics; characteristics of persons with impaired hearing; health characteristics by geographic region, large metropolitan areas, and other places of residence; and acute conditions, incidence, and associated disability. Studies of new statistical methodology included evaluations of the interview response on health insurance compared with insurance records and the interview data on chronic conditions with information derived from medical records.

By expanding the scope and design of the health interview survey in 1967, it became possible to more accurately identify population groups with health problems, provide greater detailed data on the geographic distribution of morbidity, and assist others in the development of interview techniques.

Much of the present research and data collection is being directed toward the determination of the effects of the Medicare program. Information on the utilization of home care services and on convalescence following hospitalization is being collected for persons 55 years and older. Data on the utilization and costs of medical care, in terms of physician visits and hospitalization, are being gathered for this segment of the population as well as for younger persons.

During 1968 program efforts will continue to exploit the household interview mechanism to produce health estimates for small areas, such as cities and States, in addition to the national data now produced. Three separate experimental techniques are being explored in the development of synthetic estimates of health characteristics by States. In addition, the survey will also provide selected health statistics information for 22 metropolitan areas instead of the eight formerly covered.

An experimental survey research operation has been established at the Center's field data processing laboratory. Its purpose is to pretest questions and new types of questionnaires. Interviewers have been employed, trained and presently are conducting household interviews. Among the subject matter areas included in these interviews are the development of a more accurate and precise way to obtain disability information, as well as testing questions designed to elicit more detail on digestive conditions. Findings of these pretests will be analyzed and evaluated to develop new procedures for collecting more reliable health data through the household interview technique.

In an effort to measure changes in smoking habits, the household interview survey will sponsor an annual Current Population Survey supplement on smoking habits over the next five or ten years. In addition, plans are underway to include questions in the 1969 or 1970 survey that will again relate smoking habits to health characteristics.

During 1967 Center officials reevaluated the reimbursable arrangement with the Census Bureau for statistical data activities associated with the basic household interview survey. It was decided that more effective and economical data preparation services could be provided at the Center's own field laboratory at Research Triangle Park, North Carolina. However, because the Census Bureau has provided the basic data preparation services since the inception of the health interview survey, the 15 positions involved had never been requested or provided through the budget process. Since absorption is not possible, adjustment of personnel authorization was required. This necessary adjustment has been reflected in the 1968 and 1969 columns of the 1969 budget schedules. The additional positions will be filled at the GS-3 level. The net cost to the Federal government as a result of this action will not increase since funds formerly used for contractural services will now be used to fund these permanent positions. Monetary savings could be expected to result ultimately.

Adjustments to the Health Interview Statistics program include mandatory increases of $3,300 for computer maintenance services; $3,000 for personnel compensation above the stated annual rate; and $13,800 to annualize the costs of the 1968 Pay Act. Computer rental savings of $50,700 associated with the purchase and installation of a more advanced computer configuration are also reflected.

HEALTH EXAMINATION STATISTICS

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
Personnel compensation and benefits.....	72	$694,900	72	$707,600	--	+$12,700
Other expenses...	--	581,700	--	557,500	--	-24,200
Total.....	72	1,276,600	72	1,265,100	--	-11,500

The Health Examination Survey is designed to measure the prevalence of specific medical and dental diseases and secure distributions of certain physical and physiological measurements. Like the health interview statistics program, it is based on a probability sample of the civilian, noninstitutionalized population. Through direct examination and clinical tests it provides the only source of national morbidity data that includes untreated and previously nonrecognized diseases.

Specific age segments of the population are examined in separate studies known as cycles. As different age groups are studied in successive cycles, new examination procedures are devised and equipment modified so that the total examination process is orderly and obtains a balance of data reflecting the most significant health problems for the group. Persons selected as part of the national sample undergo a standardized examination conducted by professional staff members in specially equipped mobile centers which serve as the site for conducting the examination.

The first cycle, concerned with the adult population, 18-79 years old, was completed in December 1962. It examined 6,672 persons at 42 locations within the continental United States. Through June 1967, a total of 26 reports on the first cycle have been released to the public on such subjects as blood pressure, visual acuity, glucose tolerance, heart disease and dental conditions.

The second cycle concerned with children 6-11 years of age, was completed in December 1965. During the period a total of 7,129 children were examined at 40 locations. Data obtained from these examinations are being analyzed and publications relating to child growth and development will begin to be released during 1968.

The third examination survey cycle has as its target population the noninstitutionalized youths, 12-17 years of age. It is planned to examine approximately 7,000 youths during the four year period which began in March 1966. Although the method of sampling and the general plan of data collection is similar to that used in the other cycles, specialized data related to various aspects of adolescent growth and development are being collected. The sample design provides that approximately one-third of the children who were included in the second cycle also will be included in the third cycle program, thereby supplying data on a sub-set of more than 2,000 children who have been examined twice. This data will enable a comparison of changes observed on a cross-sectional population with a smaller group on which changes may be observed longitudinally. Examinations were conducted at 11 locations throughout the United States during 1967.

Adjustments to the Health Examination Statistics program include mandatory increases of $4,400 for computer maintenance services; $3,000 for personnel compensation above the stated annual rate; and $12,100 to annualize the costs of the 1968 Pay Act. Computer rental savings of $31,000 associated with the purchase and installation of a more advanced computer configuration are also reflected.

HEALTH RESOURCES STATISTICS

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
Personnel compensation and benefits.....	80	$699,200	92	$792,000	+12	+$92,800
Other expenses...	--	960,100	--	1,047,100	--	+87,000
Total.....	80	1,659,300	92	1,839,100	+12	+179,800

The Health Resources Statistics program is concerned with planning and executing a program to develop national statistics on health resources including manpower and facilities, hospital care, and the health of the institutionalized population. In addition, the activities of the health resources program include research on data collection methodology, publication of reports, development of improvements in data quality and reliability, and evaluation of the effectiveness with which the statistical product meets user needs.

Health Manpower Statistics

Health manpower statistics activities include statistical studies using data from primary or secondary sources to determine the numbers, geographic location, age, and other characteristics of persons in the various health manpower occupations. Data is also provided on health manpower resources for programs of the Public Health Service, other Federal agencies, and other agencies concerned with the development and delivery of health care services.

During 1967, the first comprehensive report on health manpower resources was published. This report assembles basic statistics on each of approximately 150 health professions and occupations grouped into 34 categories. Topics discussed are occupational duties, the current manpower supply by State, employment trends, and, where appropriate and available, information on the type of practice or specialization. Also included are statistics on educational requirements, number of schools, students and graduates, and the location of schools offering formal programs.

Final processing of a national survey of all licensed pharmacists was also underway during 1967. A questionnaire, mailed in conjunction with State notices for license renewal, obtained information on geographic location, age, employment status, and other characteristics of the approximately 120,000 pharmacists in the United States. Data collection has been completed and the data are being processed and analyzed. The results of the survey will be published in 1968.

Also, final processing of the results of a joint study with the Council of State Governments on State licensing laws, regulations, and practices for 25 health occupations was underway during 1967. The data was collected by a mail survey of State agencies which requested information on the organization, responsibilities, staffing, and financing of the licensing agency, as well as licensing requirements and numbers of licenses issued. The data have been compiled and are being verified with State and professional organizations, with a report scheduled for publication in early 1968.

In view of the probable shortages in many health manpower occupations and the increased national concern with the provision of more health care surveys through the medium of these health manpower sources, there is an increasing need for quality health manpower statistics for planners and administrators of public health programs. The health manpower program will continue to collect and provide statistical data for publication and for specialized uses of Departmental programs. Significant areas of augmented activities for the program include the development of statistics and methodologies for evaluating the supply and capabilities of personnel in the allied or paramedical health manpower fields. Specific research objectives include the design of samples for manpower surveys, pilot tests of survey techniques and questionnaire designs for eliciting the highest quality of survey data.

The 1969 request for 5 additional positions and $110,300 is intended to permit the program to meet the types of needs described above, to carry on a more efficient and effective program, and to process more comprehensive manpower statistics. One additional statistician is needed to increase the analytical resources required for the program. It is estimated that four positions will be necessary to process the workload related to the expanding data collection activities and to provide permanent data processing services.

Health Facilities Statistics

The program of health facilities statistics is concerned with developing and directing statistical studies using data from primary or secondary sources to determine the numbers, geographic location, size, types of services, health of patients or inmates, and other characteristics of establishments which provide medical, nursing, domiciliary care and other types of health care services. The results are analyzed and published in a continuing series of reports.

The program includes the development and maintenance, on a current basis of a national register of all hospitals and institutions to provide current establishment statistics and to serve as a sampling list for a variety of surveys. This national register, the MFI (Master Facility Inventory), is a listing by name, address, and selected basic characteristics of the country's hospitals, nursing homes, and custodial-care and correctional institutions. The MFI is kept current by adding new health facilities through the mechanism of the ARS (Agency Reporting Service) and deleting defunct or consolidated facilities through a biennial mail survey.

During 1967, the agencies in the ARS were contacted and a revised MFI was established. The facilities on this MFI were surveyed and the results are being processed. Also, developmental work is underway on an automated computer system capable of updating the MFI and processing related surveys.

As a prelude to more extensive surveys of inpatient and outpatient health facilities, a study of State licensing laws, regulations, and practices pertaining to health facilities was undertaken by contract. Data from the 1963 and 1964 surveys of nursing homes were analyzed and eight reports have been published through 1967. The reports include data on the chronic conditions of residents in nursing and personal care homes as well as the number and type of work experience of employees in these homes.

During 1968 and 1969, survey activities will be expanded to include new sources of health facilities such as medical laboratories, blood banks, outpatient clinics, and other local health facilities. Data from these new sources will permit the program to obtain a more complete picture of the total health resources of the Nation.

Hospital Discharge Survey

The Hospital Discharge Survey is a continuous survey of hospital patient records from noninstiutional short-stay hospitals designed to provide data on levels and trends of morbidity, charges for hospital care, and hospital utilization. It provides the only representative national statistics on hospital patients based on patient records.

Survey data obtained through the collection and analysis of hospital patient statistics include frequencies and population rates by diagnosis, type of operation, length of stay, size and other characteristics of the hospitals, as well as demographic characteristics of the patients. Starting in 1968 the hospital charges to the patient by type of services rendered and sources of payment will be obtained. Since this is a continuing survey, trend statistics are produced and analyzed.

During 1967, the hospital discharge survey of 300 hospitals generated 140,000 abstracts of medical records. Several survey reports on the utilization of short-stay hospitals during 1965, based on 100,000 abstracts, were published and distributed in 1967. More reports are expected to be published during 1968.

The development of the hospital discharge survey will continue to be a major area of program growth since national patient statistics are urgently needed for studying utilization trends, as well as planning for the efficient use of these medical care facilities in the future. To develop more reliable national and regional data on short-stay term hospital visits, approximately 150 additional hospitals will participate in the survey during 1968, bringing the total number of hospitals participating in the survey to 450. About 150 more hospitals are scheduled for induction during 1969. In 1970, it is planned to increase the number to approximately 700, ten percent of the short-stay hospitals in the country.

The need for comprehensive hospital data has become increasingly critical since enactment of the Social Security amendments of 1965 which authorized health insurance for the aged and grants to States for medical assistance. Additional resources are necessary to code, process and publish detailed survey data: six positions are requested to provide data processing services and one position is necessary to provide publication services. Thus, a total increase of 7 new positions and $86,200 is requested in 1969 to expand this program.

Other adjustments to the Health Resources Statistics program include mandatory increases of $3,800 for computer maintenance services; $3,000 for personnel compensation above the stated annual rate; and $11,700 to annualize the costs of the 1968 Pay Act. Computer rental savings of $35,200 associated with the purchase and installation of a more advanced computer configuration are also reflected.

HEALTH STATISTICS ANALYSIS

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
Personnel compensation and benefits.....	25	$270,300	27	$295,200	+2	+$24,900
Other expenses...	--	83,700	--	77,600	--	-6,100
Total.....	25	354,000	27	372,800	+2	+18,800

The health statistics analysis program plans and conducts statistical activities providing for the analysis of health data in much greater depth than is possible in the more production-oriented statistical programs of the Center. It provides guidance to public health programs on problems associated with disease classification and coordinates national proposals for the revision of the International Classification of Diseases (ICD).

During 1967, the index and tabular list of inclusions for the forthcoming Eighth Revision of the International List of Diseases and Causes of Death were prepared. The tabular list is now in the process of being printed; the index will be completed during 1968. Rules for classifying the underlying cause of death were updated and new rules for coding associated causes of death and causes of fetal death were developed.

In conjunction with fulfilling the ICD commitment, Center staff participated in conferences with representatives of the United Kingdom, Denmark, Sweden, West Germany, and the World Health Organization to agree on principles of multiple cause tabulation. It is expected that multiple cause coding will start with data year 1968 and continue in succeeding years. From this data it will be possible to establish interrelationships between primary diseases and other conditions existing at the time of death. Likewise, the development of more comprehensive data from fetal death certificates will assist researchers in further reducing mortality in the perinatal period.

With increased interest in the problem of infant mortality in the United States, the need for factual data has increased. Two monographs were published in 1967 -- one on an "International Comparison of Perinatal and Infant Mortality in the United States and Six West European Countries." Other monographs are expected to be published during 1968.

A major project still underway is the development of a health index suitable for measuring the state of the nation's health. This is of particular importance as a part of the Department's program of social indicators requested by the President. An analytical review of the problems of health measurement and the construction of experimental health indices are being undertaken.

Other projects underway include international studies of general mortality trends; a study of infant mortality in the United States to determine the validity of reported demographic data on death certificates; and a study on the evidence of life observed at the time of delivery.

Beginning in 1969 the health statistics analysis program proposes to broaden its activities by relating health data to more refined socioeconomic variables and developing health indices that can be used in the measurement of current health problems. It is also proposed to extend this program to include more theoretical analyses of measurable health trends than can be expected to result from the various action programs. A series of studies will be conducted on the social and economic correlates of health, the impact of social and economic factors on health, and the economic cost of disability from disease and injury. Also to be considered are studies of demographic changes and their effect on the national economy and social structure. Two new positions and $20,700 are requested in 1969 for these purposes.

Other adjustments to the Health Statistics Analysis program includes a mandatory increase of $1,200 for personnel compensation above the stated annual rate; $2,000 for computer maintenance services; and $3,400 to annualize the costs of the 1968 Pay Act. Computer rental savings of $8,500 associated with the purchase and installation of a more advanced computer configuration are also reflected.

PROFESSIONAL AND TECHNICAL ASSISTANCE

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
Personnel compensation and benefits.....	23	$253,100	38	$429,200	+15	+$176,100
Other expenses...	--	95,600	--	350,700	--	+255,100
Total.....	23	348,700	38	779,900	+15	+431,200

The professional and technical assistance program includes a variety of functions designed to maintain and improve the broad field of vital and health statistics, both nationally and internationally. Nationally, a significant responsibility of the program involves establishing and fostering professional relationships with State and local health departments and educational institutions through a number of mechanisms. Among these are the provision of secretariat services to the Public Health Conference on Records and Statistics, encouraging improvements in the vital and health statistics programs of the States, and direct technical assistance to States and local areas in all aspects of vital and health statistics. Included also are the enhancement of the broad profession of health statistics, particularly through contacts with the research and academic communities, and explanations of the program of the Center through the media of visits and lectures.

Internationally, activities of the program include direction and general support for research projects in foreign countries under the special international research program. In addition, technical advice is provided on the development of health statistics and registration programs and training is provided in statistics, demography and registration for foreign nationals from developing nations. The basic work of the special international research program is supported by the Scientific Activities Overseas appropriation.

Nationally, professional and technical assistance will continue to be provided to State and local vital and health statistics offices during 1968. In addition, continuing efforts will be made to enhance the profession of applied health statistics through working relationships with universities and other professional institutions. Internationally, the Center will continue, through research, training, advice, and assistance, to provide support to developing countries in their vital and health statistics programs.

New Programs of State Assistance

Significant among the major problems being encountered by State vital and health statistics offices is the chronic and increasing shortage of trained registrars and health statisticians. In many States this problem is becoming so acute that it threatens the basic registration systems of the States and at the same time forces the States to neglect the development of meaningful and timely analyses of health statistics data for purposes of health planning and assessment. To compound the problem, this crisis is occurring at the same time that the State's need for health statistics competence is being magnified by the requirements of the Comprehensive Health Planning and Public Health Service Amendments of 1966.

Further, since there is no Federal legislation which requires State participation in the vital statistics system, the Federal production of the Vital Statistics of the United States is dependent on Federal-State cooperative relationships. The quality of the basic records produced by the State vital registration systems determines the underlying quality of the Federal data produced.

Numerous State requests, supplemented by resolutions from the Public Health Conference on Records and Statistics, have been received for assistance in improving the caliber of vital and health statistics employees and the quality of State registration systems and vital and health statistics programs. State attempts to provide adequate training for their employees have been largely unsuccessful. Frequently employees have lacked the background necessary for admission to academic institutions. Compounding the problem is the fact that most Schools of Public Health do not include applied health statistics courses in their curricula. Many States lack adequate funds for training or have found that it is impracticable to conceive a complex training program for a limited number of employees.

As a primary means of improving the quality of the State and local vital and health statistics offices and personnel, the National Center for Health Statistics proposes to establish an Applied Statistics Training Institute. It will have a four-fold approach to training. Of greatest significance will be a broad variety of training courses in applied statistics theory and practice which will be provided at Research Triangle Park, North Carolina. Courses will cover topics of vital concern to State offices to improve (1) registration systems and (2) vital and health statistics collection and analysis. Included as initial offerings in response to specific State requests will be demography, sampling and survey methods, vital records maintenance, mortality analysis and measurement, data collection, systems analysis, health statistics program planning and processing techniques. These courses will be available first to employees of State and local health departments and where appropriate to others in the health field. Courses will not duplicate academic programs available in colleges and universities, nor will they replace courses which States and local areas now provide more effectively for themselves.

Supplementing the classroom training will be three other training methods: workshops in States or regions to meet specific local or regional health statistics problems; colloquiums, participated in jointly by professional groups and vital and health statistics employees, to interchange and expand program knowledge; and direct assistance to States in planning training courses of their own which relate to pressing or highly unique needs.

As a second major activity to assist the States in improving their vital and health statistics programs and registration systems, the Center proposes in 1969 to develop a new program specifically conceived to provide direct technical assistance to State and local health statistics offices. Although the States have frequently and vigorously requested such assistance, it has not been possible to supply it except on an extremely limited basis.

The basic goal will be to make direct consultation available on both short and long term bases, covering subject areas such as mortality, morbidity, disability, statistics of health services utilization, statistics of manpower and health facilities and marriage and divorce statistics. Direct consultation will be available also in professional techniques such as design of a sample survey, vital records registration, disease classification, data collection systems, statistical analysis, quality control methods, and computer methods. To carry out this program most effectively, on request States will be assisted in conducting overall program reviews to identify their most pressing needs. Assistance will be provided also in response to specific limited needs.

The Center has been hampered in its total pattern of relationships with the States because there has been no Regional Office representative to cover vital and health statistics program interests. In 1969, it is proposed to begin staffing such positions on a trial basis in three regional offices.

Fifteen new positions and $426,000 are requested in 1969 to permit the Center to implement these programs. Twelve of the requested positions will serve the direct professional needs of the program, and the remainder will be necessary to provide overall direction and administrative support. Of the dollar resources requested, personnel compensation and benefits are estimated to cost $172,300; travel, $95,000; office space rental and communication and utilities are estimated to cost $100,000; project contracts for developing, compiling and evaluating course material are estimated to cost $35,000; and supplies, printing and equipment are estimated to cost $23,700.

Other adjustments to the Professional and Technical Assistance program include a mandatory increase of $1,100 for personnel compensation above the stated annual rate; $1,300 for computer maintenance service; and $3,100 to annualize the costs of the 1968 Pay Act. Computer rental savings of $300 associated with the purchase and installation of a more advanced computer configuration are also reflected.

THURSDAY, MARCH 14, 1968.

NATIONAL LIBRARY OF MEDICINE

WITNESSES

DR. MARTIN M. CUMMINGS, DIRECTOR, NATIONAL LIBRARY OF MEDICINE
SCOTT ADAMS, DEPUTY DIRECTOR
DR. RUTH M. DAVIS, ASSOCIATE DIRECTOR, RESEARCH AND DEVELOPMENT
DAVID F. KEFAUVER, ASSOCIATE DIRECTOR, EXTRAMURAL PROGRAMS
GEORGE F. RUSSELL, JR., ACTING EXECUTIVE OFFICER
DR. WILLIAM H. STEWART, SURGEON GENERAL
CHARLES MILLER, CHIEF FINANCE OFFICER
JAMES B. CARDWELL, DEPUTY ASSISTANT SECRETARY, BUDGET

OBJECT CLASSIFICATION (IN THOUSANDS OF DOLLARS)

	1967 actual	1968 estimated	1969 estimated
Personnel compensation:			
Permanent positions	2,949	4,516	4,670
Positions other than permanent	61	123	198
Other personnel compensation	10	30	55
Total personnel compensation	3,020	4,670	4,923
Personnel benefits	239	374	389
Travel and transportation of persons	88	218	298
Transportation of things	5	26	25
Rent, communications, and utilities	131	335	363
Printing and reproduction	209	313	334
Other services	85	164	236
Project contracts	2,315	3,281	3,516
Services of other agencies	188	247	326
Payment to "National Institutes of Health management fund"	548	743	653
Supplies and materials	107	214	378
Equipment	348	309	1,189
Grants, subsidies, and contributions	5,284	17,113	10,686
Total obligations	12,568	28,006	23,316

PERSONNEL SUMMARY

Total number of permanent positions	397	536	546
Full-time equivalent of other positions	6	12	20
Average number of all employees	344	477	493
Average GS grade	7.3	8.1	8.1
Average GS salary	$7,954	$9,040	$9,087

PROGRAM AND FINANCING

[in thousands of dollars]

Program by activities:			
1. Grants:			
(a) Construction		10,000	1,250
(b) Training	812	1,143	1,433
(c) Special scientific projects	33	120	200
(d) Research	582	1,261	2,288
(e) Library resources	3,339	3,537	2,800
(f) Regional medical libraries	105	680	2,415
(g) Publications support	413	372	300
Total, grants	5,284	17,113	10,686
2. Direct operations:			
(a) Library operations	3,673	4,536	7,050
(b) Toxicology information	51	952	1,472
(c) National Medical Audiovisual Center		1,762	1,962
(d) Research and support contracts	429	235	405
(e) Review and approval of grants and contracts	435	744	731
(f) Program direction	1,195	1,560	1,704
Total, direct operations	5,783	9,789	13,324
Total program costs, funded [1]	11,067	26,902	24,010
Change in selected resources [2]	1,501	1,104	−694
Total obligations	12,568	28,006	23,316
Financing:			
Comparative transfers from other accounts	−51		
Unobligated balance available, start of year	−3,034	−10,567	−4,171
Unobligated balance available, end of year	10,567	4,171	27
Unobligated balance lapsing	141	64	
New obligational authority	20,192	21,674	19,172
New obligational authority:			
Appropriation	20,192	19,912	19,172
Transferred from other accounts		1,762	
Appropriation (adjusted)	20,192	21,674	19,172
Relation of obligations to expenditures:			
Total obligations	12,568	28,006	23,316
Receipts and other offsets (items 11 to 17)	−51		
Obligations affecting expenditures	12,517	28,006	23,316
Obligated balance, start of year	3,310	8,098	23,606
Obligated balance, end of year	−8,098	−23,606	−31,922
Adjustments in expired accounts	−47		
Expenditures	7,682	12,498	15,000
Expenditures are distributed as follows:			
Out of current authorizations	5,886	6,357	6,100
Out of prior authorizations	1,796	6,141	8,900

[1] Includes capital outlay as follows: 1967, $348,000; 1968, $309,000 1969, $1,189,000.
[2] Selected resources as of June 30 are as follows: Unpaid undelivered orders, 1966, $1,714,000 (1967 adjustments, −$47,000); 1967, $,3,168,000; 1968, $4,272,000; 1969, $3,578,000.

Mr. FLOOD. Now we have the National Library of Medicine and the presentation will be made by Dr. Martin M. Cummings, the Director of the National Library of Medicine. I see you have a biographical sketch here—we will place in the record at this point.

(The biographical sketch follows:)

BIOGRAPHICAL SKETCH

Name: Martin Marc Cummings.

Position: Director, National Library of Medicine.

Birthplace and date: Camden, N.J., September 7, 1920.

Education: B.S., Bucknell University, 1941; M.D., Duke University School of Medicine, 1944; mixed internship, Boston Marine Hospital, 1944–45; assistant resident, medicine, Boston Marine Hospital, 1945–46.

Experience: Director, National Library of Medicine, 1964 to present; DHEW representative on the Committee on Science and Technological Information (COSATI) of the Federal Council on Science and Technology, 1965 to present;

associate director for research grants, NIH, 1963; chief, Office of International Research, NIH, 1961–63; consultant, Office of the Director, NIH, 1960–61; consultant to Department of Medicine and Surgery, Veterans' Administration, 1959–61; chairman and professor, Department of Microbiology, Universsity of Oklahoma School of Medicine, Oklahoma City, Okla., 1959–61; chairman, Panel on Sarcoidosis, National Research Council, National Academy of Sciences, 1958–60; chairman, Committee on Medical Research, National Tuberculosis Association, 1958–59; director, Research Service, Veterans' Administration Central Office, Washington, D.C., 1953–59; special lecturer in microbiology, George Washington University School of Medicine, Washington, D.C., 1953–59; chief, Tuberculosis Research Laboratory, Veterans' Administration Hospital, Atlanta, Ga., 1949–53; associate professor of bacteriology, 1953, and instructor through associate professor of medicine at Emory University School of Medicine, Atlanta, Ga., 1948–53; director, Tuberculosis Evaluation Laboratory, Communicable Disease Center, U.S. Public Health Service, Atlanta, Ga., 1947–49; commissioned officer, U.S. Public Health Service, served in New York, Minnesota, Michigan, and Denmark, working with diseases of the chest and bacteriology.

Association memberships: American Academy of Microbiology, Inc.; American Federation for Clinical Research; American Society for Clinical Investigation, emeritus member; American Thoracic Society and National Tuberculosis Association; Association of American Medical Colleges; Medical Library Association; National Association on Standard Medical Vocabulary, honorary member; the Society of the Sigma XI; American Documentatiton Institute; Council of Biology Editors, Inc., the Royal Society of Medicine; one of 12 permanent members of the Federal Library Committee; Science Information Council, National Science Foundation; Association of Research Libraries, Automation Committee; Pacific Science Association, U.S. Panel, standing committee on the Communication of Scientific Information; consultant to the Special Joint Committee on Libraries in International Education (Association of Research Libraries, Spec. Libraries Association, the Council of National Library Associations and the American Library Association); consultant, American Hospital Association, Committee on Library Services for Hospitals; board of directors, Gorgas Memorial Foundation; board of directors, Council on Biological Science Information, NRC, NAS, board of visitors of the medical center of Duke University.

Special awards, citations, or publications: VA Distinguished Service Award; DHEW Superior Service Award; more than 70 articles on subjects ranging from tuberculosis to information retrieval systems; coauthor of a textbook on tuberculosis and contributor to four medical texts.

Mr. FLOOD. Please proceed, Dr. Cummings.

GENERAL STATEMENT

HEALTH INFORMATION ROLE OF THE NATIONAL LIBRARY OF MEDICINE

Dr. CUMMINGS. Mr. Chairman and members of the committee, the National Library of Medicine has been the major health information resource in the United States for more than a century. It contributes to the improved health of the Nation by providing timely access to the constantly expanding mass of health information for practitioners, researchers, educators, and students in the health sciences. The expanding national investment in medical research and the delivery of health services has accelerated publication and utilization of information in the health sciences. While this committee meets today, more than 1,000 new medical articles are being published.

The NLM has long been in the forefront of the development of new and better methods for collecting, organizing, processing, and disseminating health information. We pioneered in the establishment of the Medical Literature Analysis and Retrieval System (MEDLARS) which contains more than 750,000 augmented bibliographic citations in a high-speed computer memory. With this system we produce "Index

Medicus," which each month indexes over 15,000 current journal articles, as well as special recurring and demand bibliographies. To derive more benefits nationally from this system, the Library supports six university-based decentralized MEDLARS search centers. Even this application of modern technology, however, will not be sufficient to meet the growing demands of health information users. This fact has been recognized by the Congress and the executive branch and the Library has been given a mandate to design and operate improved systems for the processing and delivery of health related information.

I am pleased to report that we have made significant progress during the last year toward achieving these ends.

BIOMEDICAL COMMUNICATIONS NETWORK DESIGN

Pursuant to the recommendations of the House Appropriations Committee report, 1967, and the Rogers Special Subcommittee on Investigation of HEW (89th Cong. second sess., H. Rept. 2266), the Library has established and successfully staffed a program of developmental and engineering work relating to a biomedical communication network. The staff of this program has prepared a preliminary design for such a network, which encompasses medical libraries, specialized information centers, audiovisual communications and related components.

NATIONAL MEDICAL AUDIOVISUAL CENTER

Consistent also with the recommendations of the Rogers Special Subcommittee, the National Medical Audiovisual Center in Atlanta, Ga., was transferred administratively to the National Library of Medicine last July. Significant progress has been made on the coordination of the NLM and the NMAC functions, and their orientation to common objectives in such areas as continuing education of health professionals.

SECOND GENERATION "MEDLARS"

Increases which you provided in the 1968 appropriation are being used to fund the effort to develop a second generation computer system for MEDLARS. We have developed functional specifications, received bids, established a painstaking evaluation procedure, and we will negotiate a contract this fiscal year for the first portion of a more powerful and sophisticated information system. The Library is conducting experiments to gain experience in access to remote files of machine readable information. The new MEDLARS system incorporating this feature will be used to support library-based information services in the network, to provide for the highly specialized requirements for the processing of toxicological information, and to improve the effectiveness of the Library's internal operations.

TOXICOLOGY INFORMATION

Planning for the toxicological information program, called for by the President's Science Advisory Committee, and delegated to us by the Secretary, has accelerated with professional staffing made available this year. The Library has awarded a contract this year for a definitive user study and will let another contract to build a source file on authorities in toxicology information.

REGIONAL MEDICAL LIBRARIES

Funds available from the 1968 appropriation were used to fund a grant establishing a regional medical library, the first, at Boston. Two more have been approved and will be activated in Philadelphia and Seattle, and two additional have most recently been approved by the Board of Regents for activation next year in Chicago and New York. Applications for several others are in the negotiation stage. These regional libraries will become operating units in the network.

NATIONAL LIBRARY COOPERATION

Working with the two other "national" libraries, the Library of Congress and the National Agricultural Library, NLM has initiated an effort to insure compatibility among the computer-based systems under development in the three libraries, and to relate them to agreed-upon national goals for library cataloging and for locating publications required by physicians, scientists, and scholars.

THE NEED FOR EFFECTIVE COMMUNICATIONS

All of this has been done in recognition of the fact that progress in medical research and the application of new knowledge to health practice is largely dependent on effective communication. The average practitioner can no longer rely on a few selected journals and local medical society conferences to keep him abreast of new developments. New and more effective methods and media must be developed to meet the continuing education needs of physicians and other health professionals. Unnecessary duplication of effort and waste of precious research manpower in unproductive investigations are possible costs to the Nation for maintaining an imperfect and overburdened health information system.

In order to modernize and transform the present overburdened informal system, the NLM has undertaken the preliminary development of a systems model and design that will associate the NLM, the present set of medical and free standing libraries, audiovisual and telecommunications resources, and specialized information centers in an integrated network. The plan utilizes existing resources and introduces innovative technology in such areas as computer-based search and interchange through modern transmission devices. In 1969 work will continue on the detailed analysis and investigation connected with fully implemented design and engineering.

SUMMARY OF 1969 BUDGET REQUEST

In summary the National Library of Medicine is developing and will implement a plan for a national health information network for practitioners, researchers, educators, and students in the health professions. The integrated network will incorporate the latest technology and media and will contribute to the general health through the provision of timely service to the community of health information users. Our budget request for 1969 is $19,172,000, a decrease of $2.5 million in new obligational authority from the amount which you appropriated in 1968.

I shall be very pleased to answer any questions.

Mr. FLOOD. Taking your carryover balances and other adjustments into consideration, your budget for 1968 is $28,006,000 and for 1969 it is $23,316,000. That is an overall decrease of $4,690,000. However, there is a decrease of $8,750,000 budgeted for your construction grants. So this leaves lots of elbow room within the remainder of the budget for substantial increases.

EFFECT OF CONSTRUCTION CUTBACK

What is the cutback in construction going to mean?

Dr. CUMMINGS. This will mean from our present applications on hand, Mr. Chairman, that approximately 15 schools or hospitals will not be able to develop new library facilities as they had hoped during the next year. It will mean a deferral for these institutions and perhaps many others who are only now beginning to develop their proposals for next year.

RESEARCH GRANTS

Mr. FLOOD. There is a sizable increase here for research grants, from $1,261,000 to $2,288,000. As I am sure you know, research has recently become one of the favorite hunting grounds for anyone who wishes to economize. The subcommittee would like to know how serious the situation would be if this increase is not allowed.

Dr. CUMMINGS. Mr. Chairman, I should point out that about $888,000 of that amount is the carryover from last year, but you are correct in indicating that there is a proposed increase in the total obligational authority for this program. But there is no real increase in the new obligational authority requested.

With respect to your query regarding what effect might be expected from a reduction in this activity, I would say we will not be able to acquire information regarding new methods of handling information, be they document-based or computer-based information sources. Perhaps we will be compelled to cease our receipt and review of new applications that come primarily from the universities.

Mr. FLOOD. The committee is concerned with priorities. The thrust of my question was how serious is this? Everything is serious, you know, across the table from us.

Dr. CUMMINGS. Yes, sir, I recognize that. I faced the issue of priorities when we were reexamining our budgets in preparation for our

presentation to the Department and to the Bureau of the Budget, and it was my view after examining all of the alternatives, it would be more appropriate for us to take our decreases in the new construction grant area than in the other objects which are contained in this budget. I have made that difficult choice prior to submitting our budget.

REGIONAL MEDICAL LIBRARY GRANTS

Mr. FLOOD. Your largest increase is from $680,000 this year to the request of $2,415,000 for 1969 for regional medical library grants. I suppose that this subcommittee cannot be very hard on you about this item. It was this committee after all that put funds in the bill over the budget in order to start this program a couple of years ago.

Dr. CUMMINGS. You are correct; a modest start was given to the Library 2 years ago to develop a regional medical library network.

Mr. FLOOD. I tell you what you do. Suppose you use the New England regional system as a specific example since that was the first one to be funded, and tell us a little bit about how this works.

Dr. CUMMINGS. What we have done is to search the Nation's existing library resources with a view that we would not create de novo institutions to serve functions that can be served by the strongest medical libraries of the Nation. Harvard had recently acquired a massive collection from the Boston Medical Society which made it, in fact, the largest medical library outside of our own. We asked them if they would be willing to share the information in their library with all of the users in the New England States. After reaching an agreement as to the performance that we would expect from Harvard, a grant application was developed by them, it was reviewed by a technical group, then approved by our Board of Regents. A pilot project was started a year ago which demonstrated that it was more efficient for physicians, students, and scientists in Vermont, Maine, Connecticut, and Rhode Island, to acquire their services from Boston than to come to Bethesda with the same requests. This has relieved us of the monolithic responsibility for serving the entire Nation and I am pleased to report that this has been a very successful effort.

Now, for example, the interlibrary loans in the New England area being processed by this library, and the requests for computer services from New England come to Bethesda by TWX and by terminals that improve the speed of our delivery of response. I believe that this is an efficient and a more economic way of delivering services than to attempt to utilize one central focus to serve this vast Nation.

Mr. FLOOD. What do you propose to do with the requested increase?

Dr. CUMMINGS. The increase we have requested is to establish similar regional libraries in other parts of the Nation. I indicated that we wish to activate such a library in Philadelphia. Also we have chosen the great John Crerar Library in Chicago as a center for regional service for the Midwest. The University of Washington in Seattle is prepared to provide services from Alaska through Oregon and east through Montana to cover that vast part of the Nation. So the funds requested are to give each part of the country the same opportunity to have access to the health information in these libraries.

MEDLARS

Mr. FLOOD. What are you doing in developing the second-generation MEDLARS? You are asking for an increase of $1,054,000 for 1969; is that it?

Dr. CUMMINGS. That is correct. That is the amount required.

We have already completed all of the preliminary specifications, and have received responses to our RFP from six major companies who are being asked to design and recommend the hardware to be used to improve the existing MEDLARS system. I should say, Mr. Chairman, that the present MEDLARS system——

Mr. FLOOD. You might for the purpose of the record tell us what "MEDLARS" means.

Dr. CUMMINGS. It is an acronym for "medical literature analysis and retrieval system."

The present system was designed 6 years ago and we indicated at that time it would have a 5-year life. We have extended through improvements in the system the life of MEDLARS to 6 years, and we believe we can extend the present system for only another 12 months. The request which we made last year to go ahead with the new design permitted us to write all of the specifications, and we are at the brink now of making the choice of contractor for software acquisition and for the first phase of leasing the new hardware.

I should point out that the new hardware will permit us to allow our files to be served by users anywhere in the country by sitting at a terminal, whereas at present the requests have to be mailed to us, processed centrally, and then mailed back.

Mr. FLOOD. We know about last year and we took for granted you would be at the brink. But what we are concerned about is keeping, within the rule of reason, as many people as possible right now from going over that brink for another year. Could you teeter on that brink for a while?

Dr. CUMMINGS. I don't believe that we could—or frankly that we should—for several reasons. With reference to the priorities, I have already indicated that we believed that construction grant programs should have the lowest priority, although new libraries are needed in many places.

On the other hand, I believe this computer program should have the highest priority. NLM serves some 250,000 individuals in this country. Beyond that, industry has invested an enormous sum of money in preparing their proposals to the library and a selection should be made soon. The technology is here; we are not asking for the development of new hardware. Improved equipment is available that could be introduced very promptly into the system. I believe we would run the serious risk of a complete breakdown of this important information service if we could not go ahead this year.

MINIATURIZATION OF EQUIPMENT

Mr. FLOOD. Is there any talk about miniaturization of this hardware?

Dr. CUMMINGS. Yes, sir.

Mr. FLOOD. Wouldn't you in the long run be better off to go on the way you are going and wait for miniaturization which would be more efficient and much less costly.

Dr. CUMMINGS. May I ask Dr. Davis to respond to your question? She has pioneered much of the intelligence community information services for the Department of Defense and I think her response would be more authoritative than mine.

Dr. DAVIS. It would be very useful at this time if we could make use of the miniaturized computers developed for aircraft and satellites. The practical matter is that the miniaturized computer costs about eight times as much as the commercially available computer with a comparable capabiltiy. The difference in cost is due, exactly as you brought out, to the miniaturized circuitry and to the packaging necessary to get a computer normally the size of this table into a 1 cubic foot volume. Another reason that it is totally impractical at this time to use the miniaturized computer is the lack of systems software for them.

Mr. FLOOD. What is software?

Dr. DAVIS. It is computer programing. There is no programing of the type suitable to the situation one finds in a civilian world. The programing that exists is primarily for navigational functions or for very specific scientific recording functions. As a result it would cost us not just eight times as much but more if you accept the fact that computer programing is still about twice the cost of the computer for any system one wishes to implement.

I am sure these miniaturized computers and the acceleration of their development will bring costs down in the next 5 years to approximately 1½ to 2 times as much as commercially available computers. That would be far too late, however, for all of our applications in the information science computer field at this time.

NATIONAL HEALTH INFORMATION NETWORK

Mr. FLOOD. On page 197 you say:

> In 1969 the $300,000 in research contracts are requested for health communication systems engineering and network design directed toward the design and development of a national health information network.

What do you have planned in 1969? To what extent do you get involved in future years. There could be no horizon to this kind of thing.

Dr. CUMMINGS. I believe there is a horizon and beyond that I believe there are constraints that are naturally built into our thinking because we do not view information handling as open-ended. We view it in the context of a targetted audience.

With respect to the $300,000 that you have identified in our budget, I have previously spoken of the library component of this network. The next element of the network will cover the specialized information centers which evaluate information and feed them into the network. The best example of this is the toxicology program which we hope will serve the Nation by identifying and disseminating information about all drugs and chemicals which have a potential harmful effect on man and his environment. This program will in fact——

Mr. FLOOD. You will identify them?

Dr. CUMMINGS. We will process all of the information that is known about these, whether the information comes from Federal sources or private sources, and make it available to those who have a need to know.

Mr. FLOOD. You make no determinations or conclusions.

Dr. CUMMINGS. No, sir; we will not evaluate the information. The information would come to us either tagged as having been evaluated by a peer group of pharmacologists or toxicologists or if it is crude, unevaluated data, we will so indicate so the user can distinguish between the two.

Mr. FLOOD. What we call raw intelligence, so to speak?

Dr. CUMMINGS. Yes, sir. I think that is a perfect analogy. The machinery involved here I think would be best characterized as a switching mechanism or referral center. We will not generate the information but will be sure it is available to those who wish to seek it from whatever source.

Mr. FLOOD. Mr. Laird.

GIFT TO WHO LIBRARY

Mr. LAIRD. Mr. Chairman, I just have one brief question. It has to do with an experience that the gentleman from Iowa, Mr. Smith, and I had when we were attending the World Health Conference. The gentleman from Iowa had planned to raise this question, but he is necessarily absent today, and therefore I am going to ask the questions.

It has to do with a ceremony that took place at the World Health Organization when we were both there as advisers. It was billed as a presentation by Senator Kennedy of a gift to the World Health Organization Library. The gentleman from Iowa and myself were not invited, but I was told afterward that the gift, which was a rather valuable etching, was paid for out of the budget of the National Library of Medicine. I wondered what the authority was for this purchase.

Dr. CUMMINGS. I would be very pleased to describe my knowledge of this event, Mr. Laird, although as you know I personally was not present at this ceremony which you have described. I can tell you that this etching was not purchased by the National Library of Medicine for this occasion. The library has the authority to receive and make gifts to other libraries. This is built into our basic legislation.

The etching in question was a duplicate which the library has had for many, many years. It was not purchased certainly within my experience with the library, Mr. Laird. Our representative to the World Health Organization was seeking some expression from the United States to match those gifts that have been made by other governments to the new WHO building. We intended to have this small gift presented by the Surgeon General of the Public Health Service. This print was made available to the Surgeon General as our intermediary as a gesture of support for the WHO Library.

Mr. LAIRD. Then I was misinformed. I was told that you bought it for this occasion.

Dr. CUMMINGS. This is a duplicate etching that had been in our library for many years. It could have been there, frankly, a hundred years. I don't really know. We just know we had two of a kind.

Mr. LAIRD. What is the value of this etching? The fact that it is as old as you indicate must considerably enhance its value.

Dr. CUMMINGS. It is very difficult to identify the value of materials in a collection that is more than a century old. And I would agree it has probably appreciated with age. I would not deny that the etching

has real value. We would not have made a gift to another library of something that was spurious or worthless, so to speak.

Mr. LAIRD. I was told that this was obviously quite a valuable piece of art, probably in the four-figure range.

Dr. CUMMINGS. I have no way of estimating the value of that duplicate etching. I personally would doubt that it has the value of a figure such as you are suggesting.

Mr. LAIRD. You know it has.

Dr. CUMMINGS. No, I do not, sir. I do not know that. I am not an art appraiser.

I just honestly don't know. I would be very pleased to have the one we own appraised.

Mr. LAIRD. Who authorized the transfer?

Dr. CUMMINGS. I did, sir. I discussed this with the Surgeon General, I have the authority to make the gift, and I authorized it being sent to the library at the WHO.

Mr. LAIRD. I think it is a very fine gift to the WHO Library. I was very pleased with it as a gift. I just think you folks ought to know more about the value of these things you give away. Of course, I find I was misinformed when I was told you bought it for this occasion. Perhaps I was also misinformed regarding its value, but I think you folks should have some idea when you present Library property to someone.

That is all I have, Mr. Chairman.

Mr. FLOOD. Mr. Natcher?

Mr. NATCHER. No questions, Mr. Chairman.

Mr. FLOOD. Mr. Michel?

CARRYOVERS

Mr. MICHEL. It is true this request for $23,316,000, while reflecting a decrease from 1968, really reflects also a bringing forward of an unobligated balance of better than $4 million?

Dr. CUMMINGS. That is correct, sir.

Mr. MICHEL. Is the carry-forward figure I have of $4,171,000 the correct one?

Dr. CUMMINGS. Yes, that is correct.

Mr. MICHEL. Why is that?

Dr. CUMMINGS. We had appropriations from fiscal year 1967 for new library construction that totaled $7½ million which was deferred until the next fiscal year. That accounts for the major amount. There were also in the 2-year authority of our extramural program several accounts which had planned carryovers. These were in the areas particularly of research and training grants.

RESEARCH SUPPORT CONTRACTS

Mr. MICHEL. How much money is here in this budget for contracting grants or information grants in contract form?

Dr. CUMMINGS. I believe it is in the neighborhood of $500,000. I will ask Mr. Russell to provide the precise figure.

Mr. RUSSELL. Yes, sir; in the activity of research support contracts we are asking for $585,000.

Mr. MICHEL. How does that compare with last year?

Mr. RUSSELL. On a total obligational authority basis that is an increase of $52,000 over 1968.

Mr. MICHEL. How many contracts are involved?

Dr. CUMMINGS. Approximately 20 contracts in that category.

Mr. MICHEL. Would that be in 1968?

Dr. CUMMINGS. Yes, that would be the approximate number.

Mr. MICHEL. At present it is about 20. How about 1969? Are they going to be with the same people?

Dr. CUMMINGS. Most of our contract effort will be continuations of existing effort with one major exception. We will be seeking a contractor to assist in the design of the toxicology program.

Mr. MICHEL. Are these contracts with individuals or with businesses?

Dr. CUMMINGS. They are with systems development corporations or nonprofit institutions.

Mr. MICHEL. How long has this kind of procedure been going on: how many years running, about? Would they run back 5 or 10 years?

Dr. CUMMINGS. I don't believe the Library has any contract which has been in existence that long. Most of them are one-time efforts that would perhaps last 2 or 3 years. For example, the MEDLARS design contract originally awarded to the General Electric Corp., I believe, was a 2-year effort.

Mr. MICHEL. Would you supply for the record those contracts and the individual amounts and the names about 3 years ago, let's say 1966, 1967, 1968 and what you are proposing in 1969 so I can get a good idea of how many of these are just kind of continual things or whether or not they are in fact bona fide and not just a continuation of a good deal?

Dr. CUMMINGS. We will be pleased to do that.

May I ask, however, whether, with the confidentiality of our choice for the new computer design contract, information about this procurement can await the date for the final evaluation? This might pose a problem with the contenders.

Mr. MICHEL. I have no desire to see anybody favored over anyone else. All I am concerned about is that this contracting field over a period of years it gets to be kind of old hat instead of using care in evaluating what we are really intending to do and what we want. In other words, keeping the pressure applied that we are not just perpetuating a nice little operation for someone or some concern. This is no reflection on anyone that may be involved here. It would not be a unique situation in government as this has happened in the past, and just to assure your own protection, for that matter, I would like to have that information.

Dr. CUMMINGS. Very good.

(The requested information follows:)

NATIONAL LIBRARY OF MEDICINE PROGRAM CONTRACT ACTIVITIES [1] FOR FISCAL YEARS 1966, 1967, 1968, AND ESTIMATES FOR 1969

RESEARCH AND SUPPORT CONTRACTS [2]

Contractor	Fiscal year			
	1966	1967	1968 [3]	1969 estimate [3]
Association of American Medical Colleges, Evanston, Ill.	$60,798	$24,204	$5,000	0
Albany Medical College, Albany, N.Y.	110,903	87,827	0	0
Biological Abstracts, Philadelphia, Pa.	52,500	51,300	52,500	0
University of California, La Jolla, Calif.	39,653	93,565	13,496	0
Excerpta Medica, New York, N.Y.	89,738	67,000	37,500	0
Federation of American Societies for Experimental Biology, Bethesda, Md.	[4] 150,155	0	0	0
Institute for Advancement of Medical Communication, Phila., Pa.	62,858	93,760	43,354	0
Western Reserve University, Cleveland, Ohio	25,000	31,891	0	0
Yale University, New Haven, Conn.	[4] 2,639	0	0	0
George Washington University, Washington, D.C.	0	34,950	3,500	0
University of Michigan, Ann Arbor, Mich.	0	69,560	50,000	0
Do.	0	54,000	0	0
New York Academy of Sciences, New York, N.Y.	0	10,000	0	0
Programming Services, Inc., Palo Alto, Calif.	0	14,812	0	0
Office of Education, Washington, D.C.	0	112,500	0	0
University City Science Center, Philadelphia, Pa.	0	0	68,700	0
Providence College, Providence, R.I.	0	0	44,000	0

[1] Excludes administrative support and procurement contracts.
[2] In fiscal years 1966, 1967, and 1968 funds in this category were used for contracts as a component of our extramural programs. In 1969 $585,000 will be used for contracts in support of the development of the biomedical communications network. None of the contracts listed in this category will be renewed in fiscal year 1969.
[3] Only projects for which contractors have been identified are shown.
[4] Supplement.

Note.—In addition to contracts in the above subactivity, the National Library of Medicine uses program contracts in the development of the biomedical communications network and in support of MEDLARS activities. These are listed below.

BIOMEDICAL COMMUNICATIONS NETWORK DEVELOPMENT

Contractor	Fiscal year			
	1966	1967	1968 [1]	1969 estimate [1]
A. SYSTEMS AND DESIGN ENGINEERING				
Aerospace Corp., Los Angeles, Calif.	0	0	$90,000	$50,000
Rand Corp., Santa Monica, Calif.	0	0	132,000	150,000
Massachusetts Institute of Technology (Lincoln Laboratory) Cambridge, Mass.	0	0	83,000	125,000
Systems Development Corp., Falls Church, Va.	0	0	60,000	0
University of Pittsburgh, Pittsburgh, Pa.	0	$178,417 [2]	90,000	125,000
B. TOXICOLOGY INFORMATION PROGRAM				
Massachusetts Institute of Technology-MAC, Cambridge, Mass.	0	0	80,000	0
Karolinska Institute, Stockholm, Sweden	0	0	11,210	0
Science Communication, Inc., Washington, D.C.	0	0	156,291	0
National Academy of Sciences, Washington, D.C.	0	0	60,000	120,000
Chemical Abstracts Service, Columbus, Ohio	0	0	100,000	100,000
Biological Abstracts, Phila., Pa.	0	0	90,000	100,000

MEDLARS SUPPORT CONTRACTS

Contractor	Fiscal year			
	1966	1967	1968 [3]	1968 estimate [2]
University of Alabama, Birmingham, Ala	$82,804	$47,551	$70,000	$75,000
University of California, Berkeley, Calif	79,855	45,388	80,000	88,000
University of Colorado, Denver, Colo	50,000	66,504	77,824	80,000
Harvard University, Cambridge, Mass	90,748	159,943	0	90,000
University of Michigan, Ann Arbor, Mich	86,159	31,500	50,000	55,000
Ohio State University, Columbus, Ohio	0	50,585	50,000	55,000
Baylor University, Dallas, Tex	0	0	10,000	35,000
Chemical Abstracts, Columbus, Ohio	6,900	0	0	0
Informatics, Inc., Bethesda, Md	62,000	0	0	0
Microcard Corp., Bethesda, Md	32,990	217,532	0	0
National Academy of Sciences, Washington, D.C	25,000	9,275	0	0
University Microfilms, Ann Arbor, Mich	35,000	0	0	0
Keio University, Tokyo, Japan	0	45,000	35,000	40,000
Research Foundation of State University of New York, Albany, N.Y	0	13,685	32,086	0
Medical Literature, Inc., Philadelphia, Pa	0	48,870	75,000	0
Leasco (formerly Documentation, Inc.), Bethesda, Md	0	75,000	75,000	0
Melpar, Inc., Falls Church, Va	0	90,400	50,000	0
Brandon Applied Systems, Arlington, Va	0	111,169	65,702	0
John I. Thompson Co., Washington, D.C	0	110,000	0	0
New computer system (MEDLARS II)	0	0	800,000	1,061,600

[1] Only projects for which contractors have been identified are shown.
[2] Research and support activity in 1967.

ADP EQUIPMENT

Mr. MICHEL. How much of your budget would be spent on ADP equipment, if any?

Dr. CUMMINGS. In the fiscal year 1969 budget, Mr. Michel, we are estimating the expenditure of about $800,000 for the lease of the first phase of the new computer system.

I don't believe we have anything in our budget for what I would consider to be ADP equipment per se.

UNIVERSITY-BASED MEDLARS

Mr. MICHEL. In your testimony you mentioned these six university libraries, or the fact that the national library supports six university-based decentralized MEDLARS. Do we have those set out in the record anyplace?

Dr. CUMMINGS. They were enumerated last year. I will be pleased to recite them now.

Mr. MICHEL. Will you do that?

Dr. CUMMINGS. There is a regional MEDLARS research center at Harvard, at the University of Colorado, at the University of Alabama, at the University of Michigan, at Ohio State University, and at the University of California in Los Angeles.

Mr. MICHEL. Is there any move to expand beyond those six?

Dr. CUMMINGS. When new regional libraries are developed in Seattle, Chicago, and Philadelphia, we hope they will have the capability of performing MEDLARS services in their institutions.

Mr. MICHEL. Do you want to look into the crystal ball and project how far away that is?

Dr. CUMMINGS. It is quite imminent with respect to the regional libraries of Seattle and Philadelphia. They should be operational this year. We would have the other operational this year also if we had the funds available. They are all close to activation.

Mr. MICHEL. You mean the only reason there would not be one in Chicago is because there isn't money available?

Dr. CUMMINGS. There is not money available during this quarter of this fiscal year to activate that operation.

Mr. MICHEL. What would give priority to Seattle over Chicago?

Dr. CUMMINGS. They had submitted an application early and it had been reviewed and approved almost a year prior to the application which came from Chicago. It was a matter of degree of local interest and speed of competition, so to speak.

Mr. MICHEL. That is all, Mr. Chairman.

Mr. FLOOD. Mr. Hull?

Mr. HULL. No questions, Mr. Chairman.

Mr. FLOOD. Thank you very much.

JUSTIFICATION MATERIAL

PUBLIC HEALTH SERVICE

National Library of Medicine

Amounts Available for Obligation

	1968	1969
Appropriation	$19,912,000	$19,172,000
Transfer from "Communicable Diseases"	1,762,000	---
Unobligated balance brought forward	10,567,462	4,171,000
Unobligated balance carried forward	-4,171,000	-27,000
Unobligated balance lapsing	-64,000	---
Total	28,006,462	23,316,000

Obligations by Activity

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
Grants						
Construction	--	$10,000,000	--	$1,250,000	--	$-8,750,000
Training	--	1,143,127	--	1,433,000	--	+289,873
Special scientific projects	--	120,000	--	200,000	--	+80,000
Research	--	1,261,000	--	2,288,000	--	+1,027,000
Library resources	--	3,537,392	--	2,800,000	--	-737,392
Regional medical libraries	--	680,128	--	2,415,000	--	+1,734,872
Publications support	--	371,815	--	300,000	--	-71,815
Total, grants	--	17,113,462	--	10,686,000	--	-6,427,462
Direct operations						
Library operations	289	5,085,400	295	6,147,000	+6	+1,061,600
Toxicology information	30	1,152,000	34	1,452,000	+4	+300,000
National Medical Audiovisual Center	105	1,762,000	105	1,962,000	--	+200,000
Research and support contracts	--	533,000	--	585,000	--	+52,000
Review and approval of grants and contracts	45	800,600	45	780,000	--	-20,600
Program direction	67	1,560,000	67	1,704,000	--	+144,000
Total, direct operations	536	10,893,000	546	12,630,000	+10	+1,737,000

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
Total obligations	536	28,006,462	546	23,316,000	+10	-4,690,462
Unobligated balance, reserve	16	64,000	--	---	-16	-64,000
Total, obligations and reserve	552	28,070,462	546	23,316,000	-6	-4,754,462

PUBLIC HEALTH SERVICE

National Library of Medicine

Amounts Available for Obligation
(New Obligational Authority Basis)

	1968	1969
Appropriation	$19,912,000	$19,172,000
Transfer from "Communicable Diseases"	1,762,000	---
Total	21,674,000	19,172,000

Obligations by Activity

Page Ref.		1968 Estimate Pos.	1968 Estimate Amount	1969 Estimate Pos.	1969 Estimate Amount	Increase or Decrease Pos.	Increase or Decrease Amount
186	Grants						
	Construction	--	$3,750,000	--	---	--	$-3,750,000
	Training	--	1,000,000	--	$1,000,000	--	---
	Special scientific projects	--	100,000	--	100,000	--	---
	Research	--	1,400,000	--	1,400,000	--	---
	Library resources	--	2,500,000	--	2,500,000	--	---
	Regional medical libraries	--	1,500,000	--	1,500,000	--	---
	Publications support	--	300,000	--	300,000	--	---
	Total, grants	--	10,550,000	--	6,800,000	--	-3,750,000
192	Direct operations						
	Library operations	289	5,085,400	295	6,147,000	+6	+1,061,600
	Toxicology information	30	1,152,000	34	1,452,000	+4	+300,000
	National Medical Audiovisual Center	105	1,762,000	105	1,962,000	--	+200,000
	Research and support contracts	--	700,000	--	327,000	--	-373,000
	Review and approval of grants and contracts	45	800,600	45	780,000	--	-20,600
	Program direction	67	1,560,000	67	1,704,000	--	+144,000
	Total, direct operations	536	11,060,000	546	12,372,000	+10	+1,312,000

	1968 Estimate		1969 Estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
Total obligations	536	21,610,000	546	19,172,000	+10	-2,438,000
Unobligated balance, reserve	16	64,000	--	---	-16	-64,000
Total, obligations and reserve	552	21,674,000	546	19,172,000	-6	-2,502,000

Obligations by Object

	1968 Estimate	1969 Estimate	Increase or Decrease
Total number of permanent positions.....	536	546	+10
Full-time equivalent of all other positions.....	12	20	+8
Average number of all employees.....	477	493	+16
Personnel compensation:			
Permanent positions.....	$4,516,300	$4,670,000	$+153,700
Positions other than permanent.....	123,000	198,300	+75,300
Other personnel compensation.....	30,500	55,000	+24,500
Total personnel compensation.....	4,669,800	4,923,300	+253,500
Personnel benefits.....	373,900	388,700	+14,800
Travel and transportation of persons....	217,800	298,000	+80,200
Transportation of things.....	26,100	25,000	-1,100
Rent, communications, and utilities.....	334,800	363,000	+28,200
Printing and reproduction.....	313,200	334,000	+20,800
Other services.....	163,900	236,000	+72,100
Project contracts.....	3,280,600	3,516,000	+235,400
Services of other agencies.....	247,000	326,000	+79,000
Payment to "National Institutes of Health Management Fund".....	743,000	653,000	-90,000
Supplies and materials.....	214,200	378,000	+163,800
Equipment.....	308,700	1,189,000	+880,300
Grants, subsidies, and contributions....	17,113,462	10,686,000	-6,427,462
Total obligations by object.....	28,006,462	23,316,000	-4,690,462

Summary of Changes

1968 enacted appropriation	$19,912,000
Transferred from "Communicable Diseases"	1,762,000
Unobligated balance brought forward	10,567,462
Unobligated balance carried forward	-4,171,000
Unobligated balance, reserve	-64,000
1968 total estimated obligations	28,006,462
1969 estimated obligations	23,316,000
Total change	-4,690,462

Increases	Base Positions	Base Amount	Change from Base Positions	Change from Base Amount
A. Built-in				
1. Annualization of new positions authorized in 1968	--	---	--	$98,800
2. Annualization of pay act costs (P.L. 90-206 and P.L. 90-207)	--	---	--	65,000
3. Pay above stated annual rate in 1968 (260 days in 1968; 261 days in 1969)	--	---	--	18,993
B. Program				
1. Training grants	--	$1,142,805	--	289,873
2. Special scientific project grants	--	120,000	--	80,000
3. Research grants	--	1,261,000	--	1,027,000
4. Regional medical library grants	--	680,128	--	1,734,872
5. Development and partial installation of second generation MEDLARS	126	800,000	+6	1,054,415
6. Toxicology Information Exchange planning, systems design and engineering	30	1,152,000	+4	257,507

	Base		Changes from Base	
	Positions	Amount	Positions	Amount
7. National Medical Audiovisual Center program maintenance and expansion.....	105	1,762,000	--	182,964
8. Research and support contracts.....	--	533,000	--	52,000
9. Program direction....	67	1,560,000	--	134,014
Subtotal, program increases	--	---	10	4,812,645
Total increases.....	--	---	10	4,995,438
Decreases				
A. Built-in				
1. Non-recurring items of equipment.....	--	---	--	-77,000
B. Program				
1. Construction grants..	--	10,000,000	--	-8,750,000
2. Library resource grants.....	--	3,537,392	--	-737,392
3. Publication support grants.....	--	371,815	--	-71,815
4. Review and approval of grants and contracts.....	45	800,600	--	-49,693
Total decreases.....	--	---	--	-9,685,900
Total net changes requested..	--	---	+10	-4,690,462

Summary of Changes

(New Obligational Authority Basis)

1968 enacted appropriation	$19,912,000
Transferred from "Communicable Diseases"	1,762,000
Unobligated balance, reserve	-64,000
1968 total estimated obligations	21,610,000
1969 estimated obligations	19,172,000
Total change	-2,438,000

Increases	Base Positions	Base Amount	Change from Base Positions	Change from Base Amount
A. Built-in				
1. Annualization of new positions authorized in 1968	--	---	--	$98,800
2. Annualization of pay act costs (P.L. 90-206 and P.L. 90-207)	--	---	--	65,000
3. Pay above stated annual rate in 1968 (260 days in 1968; 261 days in 1969)	--	---	--	18,993
B. Program				
1. Development and partial installation of second generation MEDLARS	126	$800,000	+6	1,054,415
2. Toxicology Information Exchange planning, systems design, and engineering	30	1,152,000	+4	257,507
3. National Medical Audio-visual Center program maintenance and expansion	105	1,762,000	--	182,964
4. Program direction	67	1,560,000	--	134,014
Subtotal, program increases	--	---	10	1,628,900
Total increases	--	---	10	1,811,693

Decreases	Base Positions	Base Amount	Change from Base Positions	Change from Base Amount
A. Built-in				
1. Non-recurring items of equipment.....	--	---	--	-77,000
B. Program				
1. Construction grants....	--	3,750,000	--	-3,750,000
2. Research and support contracts.....	--	700,000	--	-373,000
3. Review and approval of grants and contracts.....	45	800,600	--	-49,693
Total decreases.....	--	---	--	-4,249,693
Total net changes requested....	--	---	+10	-2,438,000

Explanation of Changes

Training grants

An increase of $289,873 will bring the total for this program up to $1,433,000 composed of $433,000 carryover of 1968 funds and $1,000,000 requested in new obligational authority. This will support approximately 24 training grants.

Special scientific project grants

An increase of $80,000 will bring the total for this program up to $200,000 consisting of $100,000 carryover of 1968 funds and $100,000 requested in new obligational authority. This will support seven awards to health science scholars.

Research grants

An increase of $1,027,000 for a total of $2,288,000 in 1969 consisting of $888,000 carryover in 1968 funds and $1,400,000 requested in new obligational authority will fund approximately 30 research projects in 1969.

Regional medical library grants

An increase of $1,734,872 will bring the total for this program to $2,415,000 composed of $915,000 carryover in 1968 funds and $1,500,000 requested in new obligational authority. This will fund approximately eight regional medical library grants in 1969.

Development and partial installation of second generation MEDLARS

An increase of $1,054,415 and six positions will provide project management, systems design, computer software purchase, a portion of hardware purchase, and additional staff to accomplish partial development and installation of an improved and expanded Medical Literature Analysis and Retrieval System (MEDLARS).

Toxicology information

An increase of $257,507 and four positions will provide funds and additional manpower for planning, systems design, and engineering related to development of the Toxicology Information Exchange and the toxicological information subsystem of the health information network.

National Medical Audiovisual Center

An increase of $182,964 is requested to replace unserviceable audiovisual media in the worldwide distribution system, to acquire professional medical television taped programs and research material for radio dissemination for duplication and distribution to support continuing education of health scientists and medical practitioners, and to cover increased costs of producing and distributing audiovisual materials.

Research and support contracts

A total of $585,000 is recommended for this purpose in 1969, an increase of $52,000 over 1968. The 1969 funding level includes $258,000 remaining available from 1968 and $327,000 in new funds. These funds will be used for systems engineering and network design contracts for the health information network and publications support contracts.

Program direction

An increase of $134,014 will cover the increased administrative support and program management costs resulting from growing needs of programs which were new in 1968.

Construction grants

No new obligational authority is requested for construction grants in 1969. Funds in the amount of $1,250,000 remaining available from 1968 will support one construction project in 1969 compared to 10 projects funded in the amount of $10,000,000 during 1968. The difference between the program levels of the two years is a reduction of $8,750,000.

Library resource grants

A total of $2,800,000 is recommended for this purpose in 1969, a decrease of $737,392 from 1968. The 1969 funding level includes $300,000 remaining available from 1968 and $2,500,000 in new funds. These funds will support approximately 300 grants, the same number that were funded in 1968. The average award, however, will be lower in 1969.

Publications support grants

A total of $300,000 is requested for this purpose in 1969, a reduction of $71,815 below the $371,815 available in 1968. The 1969 request will support 10 grant awards as compared with the 12 being funded in 1968.

Review and approval of grants and contracts

A decrease of $49,693 in the 1969 request results from a reduction in the printing budget of this activity and reduced costs of grant review and processing support under the NIH management fund agreement.

Authorizing Legislation

Legislation	1969 Authorization
Public Health Service Act	
Section 301.(a)(c)(d) and (i)--Research and Investigation	indefinite
Section 393.(i)--Assistance for Construction of Facilities	$10,000,000
Section 394.(a)--Grants for Training in Medical Library Sciences	1,000,000
Section 395.--Assistance to Special Scientific Projects	500,000
Section 396.(a)--Research and Development in Medical Library Science and Related Fields	3,000,000
Section 397.(a)--Grants for Improving and Expanding the Basic Resources of Medical Libraries and Related Instrumentalities	3,000,000
Section 398.(a)--Grants for Establishment of Regional Medical Libraries	2,500,000
Section 399.(a)--Financial Support of Scientific Publications	1,000,000

PUBLIC HEALTH SERVICE ACT

Title III--General Powers and Duties of Public Health Service

Part A--Research and Investigation

The legislative authority in section 301 of the Public Health Service Act which provides for the award of grants for research, research training, and fellowships is included in the section of the justifications under the tab, "Preamble Paragraph" in Volume IV.

Assistance to Medical Libraries

Section 393.(i) For the purposes of carrying out the provisions of this section, there are hereby authorized to be appropriated for each fiscal year, beginning with the fiscal year ending June 30, 1967, and ending with the fiscal year ending June 30, 1970, such sums, not to exceed $10,000,000 for any fiscal year, as may be necessary.

Section 394.(a) In order to enable the Surgeon General to carry out the purposes of section 390(b)(2), there are hereby authorized to be appropriated for each fiscal year, beginning with the fiscal year ending June 30, 1966, and ending with the fiscal year ending June 30, 1970, such sums, not to exceed $1,000,000 for any fiscal year, as may be necessary. Sums made available under this section shall be utilized by the Surgeon General in making grants--

(1) to individuals to enable them to accept traineeships and fellowships leading to postbaccalaureate academic degrees in the field of medical library science, in related fields pertaining to sciences related to health, or in the field of the communication of information;

(2) to individuals who are librarians or specialists in information on sciences relating to health, to enable them to undergo intensive training or retraining so as to attain greater competence in their occupations (including competence in the fields of automatic data processing and retrieval);

(3) to assist appropriate public and private nonprofit institutions in developing, expanding, and improving, training programs in library science and the field of communications of information pertaining to sciences relating to health; and

(4) to assist in the establishment of internship programs in established medical libraries meeting standards which the Surgeon General shall prescribe.

Section 395. In order to enable the Surgeon General to carry out the purposes of section 390(b)(3), there are hereby authorized to be appropriated for each fiscal year, beginning with the fiscal year ending June 30, 1966, and ending with the fiscal year ending June 30, 1970, such sums, not to exceed $500,000 for any fiscal year, as may be necessary. Sums made available under this section shall be utilized by the Surgeon General for the establishment of special fellowships to be awarded to physicians and other practitioners in the sciences related to health and scientists for the compilation of existing, or writing of original, contributions relating to scientific, social, or cultural, advancements in sciences related to health. In establishing such fellowships, the Surgeon General shall make appropriate arrangements whereby the facilities of the National Library of Medicine and the facilities of libraries of public and private nonprofit institutions of higher learning may be made available in connection with the projects for which such fellowships are established.

Section 396.(a) In order to enable the Surgeon General to carry out the purposes of section 390(b)(4), there are hereby authorized to be appropriated for each fiscal year, beginning with the fiscal year ending June 30, 1966, and ending with the fiscal year ending June 30, 1970, such sums, not to exceed $3,000,000 for any fiscal year, as may be necessary. Sums made available under this section shall be utilized by the Surgeon General in making grants to appropriate public or private nonprofit institutions and entering into contracts with appropriate persons, for purposes of carrying out projects of research and investigations in the field of medical library science and related activities and for the development of new techniques, systems and equipment, for processing, storing, retrieving, and distributing information pertaining to sciences related to health.

Section 397.(a) In order to enable the Surgeon General to carry out the purposes of section 390(b)(5), there are hereby authorized to be appropriated for each fiscal year, beginning with the fiscal year ending June 30, 1966, and ending with the fiscal year ending June 30, 1970, such sums, not to exceed $3,000,000 for any fiscal year, as may be necessary.

Section 398.(a) In order to enable the Surgeon General to carry out the purposes of section 390(b)(6), there are hereby authorized to be appropriated for each fiscal year, beginning with the fiscal year ending June 30, 1966, and ending with the fiscal year ending June 30, 1970, such sums, not to exceed $2,500,000 for any fiscal year, as may be necessary. Sums made available under this section shall be utilized by the Surgeon General, with the advice of the Board, to make grants to existing public or private nonprofit medical libraries so as to enable each of them to serve as the regional medical library for the geographical area in which it is located.

Section 399.(a) In order to enable the Surgeon General to carry out the purposes of section 390(b)(7), there are hereby authorized to be appropriated for each fiscal year, beginning with the fiscal year ending June 30, 1966, and ending with the fiscal year ending June 30, 1970, such sums, not to exceed $1,000,000 for any fiscal year, as may be necessary. Sums made available under this section shall be utilized by the Surgeon General, with the advice of the Board, in making grants to, and entering into appropriate contracts with, public or private nonprofit institutions of higher education and individual scientists for the purpose of supporting biomedical scientific publications of a nonprofit nature and to procure the compilation, writing, editing, and publication of reviews, abstracts, indices, handbooks, bibliographies, and related matter pertaining to scientific works and scientific developments.

(b) Grants under this section in support of any single periodical publication may not be made for more than three years.

(c) Payment pursuant to grants made under this section may be made in advance or by way of reimbursement and in such installments as the Surgeon General shall prescribe by regulations after consultation with the Board.

Section 399a. Funds appropriated to carry out any of the purposes of this part for any fiscal year shall remain available for such purposes for the fiscal year immediately following the fiscal year for which they were appropriated.

Explanation of Transfers

	1968 Estimate	Purpose
Transfer from		
"Communicable Diseases"	$1,762,000	The Public Health Service Audiovisual Facility was transferred organizationally from the Bureau of Disease Prevention and Environmental Control and redesignated National Medical Audiovisual Center.

Justification

National Library of Medicine

	1968 estimate		1969 estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
Personnel compensation and benefits	536	$5,043,700	546	$5,312,000	+10	+$268,300
Other expenses	--	22,962,762	--	18,004,000	--	4,958,762
Total	536	28,006,462	546	23,316,000	+10	-4,690,462

General Statement

The application of new biomedical knowledge to the people's health requires the conversion of traditional libraries to active information servicing and disseminating agencies. The National Library of Medicine, by virtue of its statutory mission and its leadership in the employment of new communications technologies has become a principal focus for this aspect of the national health effort.

The goal of the NLM is to assist the advancement of medical and related sciences through the support and operation of programs to improve the flow of health information from the point of generation to ultimate users for its application to research, education, and medical practice (thus contributing to the general health by bringing the latest advances in health care to the patient).

The 1969 budget request includes the provision of funds for all categories of support authorized under the Medical Library Assistance Act of 1965 whose purpose it is to assist in the development and support of the Nation's biomedical information resources. Increases are requested for training of biomedical information specialists, special scientific projects, research in medical library science, and development of regional medical libraries.

The budget contains increases for the Library's direct operations to: (1) continue the design and development of a second-generation MEDLARS computer system; (2) further the design and operation of a Toxicology Information Program; (3) fund project contracts for health information network design; (4) augment resources available to provide services at the National Medical Audiovisual Center; and (5) strengthen program direction and administrative support for all Library programs.

Grants

The Medical Library Assistance Act of 1965 authorizes a program of grants for the purpose of assisting the health community in the acquisition, organization, dissemination and application of medical knowledge. The purpose of this Act is to encourage and assist the development of medical libraries and related resources to provide for the improved flow of biomedical information throughout the areas of research, education and medical practice, so that existing medical knowledge can be utilized to the fullest extent in improvement of health throughout the Nation.

Construction

	1968 estimate		1969 estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
Grants	--	$10,000,000	--	$1,250,000	--	-$8,750,000

According to current estimates of total national needs for the construction and renovation of health library facilities, a priority group of 200 academic institutions and a secondary group of 750 medical care institutions are in need of assistance.

For 1969, NLM expects to receive approximately 30 library construction applications for partial funding from medical schools and other major institutions. Of the 30 anticipated applications, it is expected 20 will be recommended for approval. At an estimated average request of $1,300,000 per applicant the total recommended for approval in 1969 is estimated at $26,000,000. In 1967, nine construction grant applications were approved amounting to $7,000,000. It is expected that 15 applications will be approved in 1968 amounting to $18,000,000.

In 1968, $11,250,000 will be available for funding construction grants of which we expect to obligate $10,000,000. Funds in the amount of $1,250,000 appropriated in 1968 will be available for the award of one construction grant in 1969. No new obligational authority is being requested in 1969. The decrease of $8,750,000 is consistent with the general requirement for reduction in federal expenditures as expressed by the Congress in enacting the Continuing Resolution and as implemented by the Administration in establishing constraints on federal support for new construction projects.

Training

	1968 estimate		1969 estimate		Increase or Decrease	
	No. of Awards	Amount	No. of Awards	Amount	No. of Awards	Amount
Non-competing continuation grants	15	$877,251	11	$718,000	-4	-$159,251
New grants	5	265,876	13	715,000	+8	+449,124
Total	20	1,143,127	24	1,433,000	+4	+289,873

The Library requests an increase of $289,873 in 1969 for training grants. This will result in total obligational authority of $1,433,000 in 1969 composed of $433,000 brought forward from 1968 plus $1,000,000 in new obligational authority (the amount of yearly authorization in the Medical Library Assistance Act). The 1968 base of $1,143,127 is composed of $579,834 brought forward from 1967 plus $563,293 of new obligational authority.

The Medical Library Assistance Act authorization of $1,000,000 per year for training can support approximately 100 trainees per year for a total of approximately 500 during the five year period authorized by the Act. Since the fiscal authorization for training cannot approach fulfillment of the estimated total professional medical librarian manpower requirement, the program focuses on training persons for creative leadership in positions of major responsibility. A conference at the University of Washington on Education for Medical Librarianship conducted during 1968 has helped to define these goals.

In 1968 five innovative graduate programs in medical librarianship are being supported in library schools at the University of Chicago, University of Minnesota, University of Illinois, University of California at Los Angeles, and Case Western Reserve University. A doctoral program in biological sciences communication is being supported at George Washington University, and a new postdoctoral training program in biomedical communication has been initiated at Tulane University. Five postgraduate internship programs in medical librarianship are being supported in medical schools at Washington University, Wayne State University, Johns Hopkins University, University of Tennessee, and University of California at Los Angeles. Approximately 60 trainees are enrolled in these 12 programs during 1968.

The number of training programs in medical librarianship and biomedical communication is expected to increase to 24 in 1969 with an enrollment of approximately 100 trainees. New training grant applications now in the review process and others in preparation propose innovative programs for the development of various new careers in biomedical communications. The increasing uses of complex automated systems and the potential applications of various new communications media require the training of biomedical communication specialists who have the capability for the design, development, and management of multi-media information systems. There is increasing interest in doctoral and postdoctoral training programs for biomedical communication specialists. Continued grant assistance will be provided for graduate training programs in history of medicine at Yale University and Johns Hopkins University.

Special Scientific Projects

	1968 estimate		1969 estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
Grants.....	--	$120,000	--	$200,000	--	+$80,000

The purpose and intent of the Special Scientific Project Awards program is to support outstanding scholars in contributing to the professional and scientific literature.

The awards support senior health science scholars in their full-time analysis and synthesis of existing publications and reports of research findings. These studies result in the creation of digests and texts necessary to the advance of medicine. These awards also support scholarly studies on social and cultural aspects of health sciences.

This program has been announced to all medical school faculties and to certain other academic and research centers. While three awards have been made to outstanding scholars, approximately 40 persons have indicated interest in applying for these awards. In response to this interest it is estimated that the number of awards will increase to seven in 1969 for a total amount of $200,000.

Research

	1968 estimate		1969 estimate		Increase or Decrease	
	No. of Awards	Amount	No. of Awards	Amount	No. of Awards	Amount
Non-competing continuations.....	15	$564,160	11	$300,000	-4	-$264,160
New grants.....	6	696,840	19	1,988,000	+13	+1,291,160
Total.....	21	1,261,000	30	2,288,000	+9	+1,027,000

The efficient, rapid, and effective flow of biomedical information requires innovative tools and systems which must be developed through studies, experiments, and investigations. Careful studies must be made to determine the information requirements and patterns of biomedical researchers, students, educators, and practitioners. New and constantly improved methods for organizing, preserving, and transmitting information must be developed. Automation must be further introduced, developed, and evaluated. Synthesis of behavioral and technical research must be explored and accomplished. The components of information flow systems must be assembled and organized to form total systems and comprehensive networks.

The Extramural research program has initiated support of studies and experiments in the above areas. Many of these studies and experiments require long-term and expanding financial support. An increasing number of grant applications are being received for larger and more comprehensive studies and for development of major systems. It is expected that more than 20 research projects will be supported in 1968 and that this number will increase to more than 30 projects by 1969. Research projects being supported during 1968 which will require continued support in 1969 include studies on communications processes and the flow of medical

information, the relationships between various biomedical information facilities and services, the cost-effectiveness of certain indexing techniques, the use of self-instructional materials, historical studies, and the introduction and evaluation of new techniques and systems in medical libraries.

Library Resources

	1968 estimate		1969 estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
Grants	--	$3,537,392	--	$2,800,000	--	-$737,392

Obligations for resources grants in 1968 consist of $2,200,000 in new obligational authority plus $1,337,392 brought forward from 1967. The $2,800,000 requested for 1969 represents a net decrease of $737,392 in obligational authority.

The purpose of the medical library resources program is to provide financial assistance and incentive for improving the basic materials, equipment and services of medical libraries. Although it has been estimated that there are approximately 6,300 medical libraries in the United States, the resources grants program will focus on assisting approximately 500 of the major libraries which serve comparatively large and varied health science clientele. The amount of each resource grant is computed by a formula based on the annual operating budget of the library. A library receiving an initial award may request continued support for subsequent years in decreasing amounts.

This program is vital and essential for the immediate and rapid improvement of the several hundred medical libraries which are major stations and links in the development and operation of the national health sciences information network.

During 1967 awards were made to 136 academic libraries in the amount of $2,523,669; 105 hospital libraries in the amount of $562,411; 17 medical societies and other institutions in the amount of $249,620; for a total of 258 awards amounting to $3,335,700. Estimated 1969 continuing commitments from these 258 awards will amount to approximately $2,200,000. It is estimated that 42 new awards will be made in 1968 in the amount of $700,000 which will generate an additional $583,000 in continuing commitments for 1969. Thus, approximately $2,800,000 will be required to fund continuing commitments on resources awards activated in 1967 and 1968. No new awards are planned for 1969. Since continuation commitments on resources grants are on an annually decreasing formula basis and no new awards will be made in 1969, the request is $737,392 below the amount provided in 1968.

Regional Medical Libraries

	1968 estimate		1969 estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
Grants.....	--	$680,128	--	$2,415,000	--	+$1,734,872

The Medical Library Assistance Act of 1965 authorized appropriations to assist in the development of a national system of regional medical libraries each of which would have facilities of sufficient depth and scope to supplement the services of other medical libraries within a specific region. Grants are awarded to improve, augment, and strengthen regional service in selected libraries which already have a sound base for providing expanded services in a defined region. These libraries will be critical service complexes for the developing network system.

The intent of this program is to provide support to existing superior institutions, permitting them to extend their services in support of libraries (and individuals) in the agreed region. Statutory limitations on funding strictly limit the number of regional libraries which can be supported.

In 1967 the first regional library grant was made to Countway Medical Library of Harvard University. This enabled the activation of the New England regional medical library system. In 1968 two more regional medical libraries are being established, in Seattle for the Pacific Northwest (including Alaska) and in Philadelphia, for the Delaware Valley complex. Negotiations are underway for a regional medical library in New York, in Illinois, Texas, and the Southeast. The Library requests $2,415,000 for continued support of the three established in 1967 and 1968 and for five additional regional libraries in 1969.

Publications

	1968 estimate		1969 estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
Grants.....	--	$371,815	--	$300,000	--	-$71,815

The Library provides financial assistance for non-profit biomedical publications, concentrating on "secondary publications" (indexes, abstracts, bibliographies, translations, handbooks, etc.) which assist in making available to the health professions information of importance to the national health effort.

The first grants made in the publications program have yielded important bibliographies and indexes and additional publications in the form of abstracts, translations, handbooks, and biomedical atlases are in preparation.

It is expected that 15 new publications grants and contracts will be approved in 1968, and it is estimated that 20 may be approved in 1969.

An important focus for the Library's activities in the 1969 program will be a study covering the review and evaluation of the needs of American health sciences personnel for biomedical information originally published in a foreign language.

Direct Operations

	1968 estimate		1969 estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
Personnel compensation and benefits	536	$5,043,700	546	$5,312,000	+10	+$268,300
Other expenses	--	5,849,300	--	7,318,000	--	+1,468,700
Total	536	10,893,000	546	12,630,000	+10	+1,737,000
Subactivities:						
Library Operations	289	5,085,400	295	6,147,000	+6	+1,061,600
Toxicology information	30	1,152,000	34	1,452,000	+4	+300,000
National Medical Audio-visual Center	105	1,762,000	105	1,962,000	--	+200,000
Research and support contracts	--	533,000	--	585,000	--	+52,000
Review and approval of grants and contracts	45	800,600	45	780,000	--	-20,600
Program direction	67	1,560,000	67	1,704,000	--	+144,000
Total	536	10,893,000	546	12,630,000	+10	+1,737,000

Library Operations

	1968 estimate		1969 estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
Personnel compensation and benefits	289	$2,621,200	295	$2,805,700	+6	+$184,500
Other expenses	--	2,464,200	--	3,341,300	--	+877,100
Total	289	5,085,400	295	6,147,000	+6	+1,061,600

The Library requests a net increase of $1,061,600 and six positions to continue the design and begin installation of a second generation Medical Literature Analysis and Retrieval System (MEDLARS II) and to cover the costs of built-in increases of $84,185 for positions new in 1968 and extra day's pay in 1969 less built-in decreases of $77,000 for non-recurring equipment costs.

The program increase of $1,054,415 and six positions is requested to continue design and begin installing MEDLARS II. The increasing volume of published medical literature and increasing service demands will soon exceed the capacity and capability of the present MEDLARS system to absorb the growing workload. The present system which became operational in 1964 is performing as planned over its projected system life of five years which ends June 1969. It is now operating at 95% of capacity, and, before the end of the year, NLM will have to find time on other equipment to augment this system.

The MEDLARS II computer configuration will incorporate: (1) increased processing capability; (2) intermediate access storage; (3) time-sharing; and, (4) on-line access to data bases from remote terminals. Translated into program capabilities, these new features will provide; (1) a greatly increased file capacity which will allow the maintenance of abstracts on the data record; (2) quicker response to an increasing volume of bibliographic service requests including demand searches and recurring bibliographies; (3) more current data through on-line record up-dating; (4) an automated acquisition and cataloging system with cataloging data availability to other medical libraries through remote terminal access to the NLM record files; (5) a graphic image storage and retrieval system for more rapid provision of interlibrary loans through automated search and print-out capability; (6) development of specialized information services supporting the toxicology information and drug literature programs through the addition of chemical structure search capabilities in the new system; and, (7) additional information management capabilities to be utilized in support of the health information network described below under the research and support contract subactivity.

The bulk of the increase will provide funds for the purchase of computer hardware and software, contractual services for project management and systems design, and to pay salaries for six new positions at the Library to support and monitor system development and conversion to the new system.

By agreement with the Library of Congress and the National Agricultural Library, every effort will be made to insure compatibility among the systems under development at the three National libraries.

Toxicology Information

	1968 estimate		1969 estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
Personnel compensation and benefits.....	30	$372,700	34	$407,500	+4	+$34,800
Other expenses.....	--	779,300	--	1,044,500	--	+265,200
Total.....	30	1,152,000	34	1,452,000	+4	+300,000

The harmful effects of chemicals in man's environment has become a matter of great social concern. As a result, many agencies, governmental, academic, and industrial have been compiling information files in considerable variety relating to the toxic effects of chemical substances. The objective of the Toxicology Information Program is to design intercommunication linkages so that these files may be made accessible as a national information resource for the use of scientists, administrators, and planners, thereby responding to the requirements expressed by the President's Science Advisory Committee.

In 1969 the requested increase of $300,000 includes $42,493 for built-in increases. A program increase of $257,507 is requested to fund contracts and four positions for systems engineering and network design relating to toxicology information.

During 1968 the Toxicology Information Program has made considerable progress in preliminary design of the network through the convening of professional advisory groups, coordination with other government agencies, the National Academy of Science-National Research Council, and the private sector, the award of contracts for user studies and source identification and recruitment of a core top-flight program staff. All of these program accomplishments contribute to the planning of a nationwide toxicology information system fully integrated with the emerging national health information network. When operational, the toxicology program will:

1. Identify, classify, and maintain current descriptions of all toxicology information users and all significant centers and services which accumulate and analyze toxicology information.

2. Propose compatible systems standards and guidelines within Government for storage and retrieval of toxicology information including common vocabulary systems and compatible computer programming, and promote their adoption by the non-Government sector.

3. Respond to incoming requests for stored information, directly or by referral, and provide or arrange repackaging of stored information where significantly large user-groups are identified.

4. Provide a data base for the study of biological effects of chemicals which have a meaning to life systems.

The Toxicology program will contribute to the Nation's health by providing a central resource for information on the toxic effects of chemical agents on man.

Preliminary design conducted in 1968 will include the following factors:

1. availability of facilities;
2. network control features; and
3. information content and sources.

The $257,507 program increase allocated to toxicological network design and systems engineering in 1969 will be used for contractual support and four new positions to assist in the detailing and description of the above-listed design factors and in the modelling of a nationwide public service-oriented network.

The National Toxicological Information Network will utilize the facilities and capabilities of existing related systems to enhance the services provided to its customers. During the latter part of 1968 and throughout 1969 the NLM will establish an interconnection with the Army Chemical Information Data System (CIDS) via a remote console-to-computer link and will experiment with the utilization of this related Government-sponsored system to increase its own effectiveness within the health and pharmacological community.

In-house and contractual efforts concerned with toxicological network design in 1969 will resolve problems associated with the organization of computer data banks in order to permit easy access by individual specialists and qualified users of the system.

Following the preliminary design efforts of 1968 and 1969, the Toxicological Information Network will be ready for phased implementation with some experimental services by 1970.

National Medical Audiovisual Center

	1968 estimate		1969 estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
Personnel compensation and benefits	105	$1,072,800	105	$1,090,700	--	+$17,900
Other expenses	--	689,200	--	871,300	--	+182,100
Total	105	1,762,000	105	1,962,000	--	+200,000

In 1968 the newly designated National Medical Audiovisual Center (NMAC) was transferred from the Bureau of Disease Prevention and Environmental Control to the NLM. The National Medical Audiovisual Center was founded in Atlanta in 1942, as a part of the Malaria Control in War Areas Program. It came into existence during World War II when emergency training efforts proved that visual teaching media were efficient tools for instructing military and civilian personnel in new, sometimes highly specialized, jobs. With the formation of the Communicable Disease Center in 1947, the audio-visual programs became a Branch of the Center. The Branch was later designated the Public Health Service Audiovisual Facility.

The program of the NMAC includes:

(1) Operation of a central facility in the Public Health Service for the development, production, distribution, evaluation, and utilization of

motion pictures, videotapes and other audiovisual forms;

(2) Provision of consultation and assistance in the development of specialized audiovisual activities; and,

(3) Promotion of the production, dissemination, and utilization of medical films and other audiovisuals in the schools of health professions and elsewhere.

With the explosion of population, knowledge, and curriculum content, and the increasingly unfavorable teacher/student ratios, there is an urgent and expanding need for the development and use of audiovisual resources in schools of the health professions and for use in national programs for continuing education in the health sciences.

During the last several years, the National Medical Audiovisual Center program has achieved significant progress toward implementation of portions of the recommendations of the President's Commission on Heart Disease, Cancer, and Stroke, relating to the use of audiovisual media in the health sciences. In addition, a prototype community medical television network (12 stations) was established in the Atlanta area linking this Center with Grady Memorial Hospital, Emory University Medical School, the Veterans Administration Hospital, the Georgia Department of Public Health and several other hospitals in the community. This instructional system was pretested in 1967 and became fully operational during 1968. Medical schools and hospitals in other areas of the United States have observed and studied the results of the programs transmitted under the system. Consultation, program materials, and selected assistance were made available as required. In 1969 this demonstration project will not receive major fiscal support from the Center but will continue to operate as a community system. However, the Center will participate actively as a member of the consortium.

The requested increase of $200,000 includes built-in increases of $17,036 and a program increase of $182,964 which will be applied to: an essential replacement of audiovisual media in the worldwide distribution system including motion pictures, filmstrips, audiotapes, and television tapes to maintain an effective biomedical audiovisual distribution program for health practitioners, researchers, and schools of the health professions; and, an expanded review and selection program of professional medical television taped resource material which is essential for the rapid dissemination of biomedical information to support continuing medical education of health scientists and practitioners. A considerable quantity of current and outstanding medical education material is now available in this format and maximum use of its potential should be made. In addition to the above, the increased funding will also permit a minimal expansion of on-going biomedical audiovisual support by increasing the production output of biomedical videotapes, motion pictures, filmstrips, slide series, and audiotapes; increasing the loan and sale of audiovisuals through the worldwide distribution system; and increasing on-site surveys and reports on communications resources and facilities at schools of the health professions.

Research and Support Contracts

	1968 estimate	1969 estimate	Increase or Decrease
Contracts.....	$533,000	$585,000	+$52,000

The Medical Library Assistance Act authorizes the Library to use contractual funding in addition to grant funding for research and publications support.

The net increase of $52,000 results from an increase of $75,000 for research contracts and a partially offsetting decrease of $23,000 from the 1968 level for publications support contracts as summarized in the following table:

	1968 estimate	1969 estimate	Increase or Decrease
Research contracts.....	$225,000	$300,000	+$75,000
Publications support contracts.....	308,000	285,000	-23,000
Total.....	533,000	585,000	+52,000

In 1969 the $300,000 in research contracts are requested for health communications systems engineering and network design directed toward the design and development of a national health information network.

The Biomedical Communications Network has been established as a national multimedia communications network to serve the information needs of the health community and to assist in the continuing education of health professionals. This effort was undertaken on the recommendation of the House and Senate Appropriations Committees in 1966 and the Special Subcommittee on the Investigation of the Department of Health, Education, and Welfare, pp. 156-157, in 1966. The Network is comprised of four service components and one support component as follows:

(1) The library component.
(2) The specialized information component.
(3) The educational and instructional TV component.
(4) The audio and audiovisual component.
(5) Data processing and data transmission facilities.

In 1968 in-house and contractual efforts are directed principally toward the design and configuration of the library component of the network. In particular, a nationwide, service-oriented network centered around the existing NLM MEDLARS System has been in preliminary design. The geographical coverage, the scope of services to be provided and the means of access by both individual and institutional users are the primary design factors being

formulated in 1968. The present effort is directed toward delineating the communication media themselves, the determination of the benefits of using common carriers versus dedicated communication links, and the determination of the terminal devices needed.

The $300,000 allocated to Systems Engineering and Network Design Research and Development contracts in 1969 will permit the detailed design of the library component and the first experimental operation of improved selected services. Direct access to medical literature data bases from remote sites by individual health professionals will be made available. Interrogation of several complementary data bases from a single site will enhance medical information services to the health community and will permit the more profitable utilization of the time spent in seeking information on the part of health practitioners.

In addition, a first model of the specialized education (ETV and ITV) component of the network will be formulated. This model will include alternative combinations of satellite communications and terrestial communications such as microwave and cable. It will be heavily dependent for subsistence on the library component and although it will have to await increased funding before it can contribute substantially to the improvement of continuing medical education, it will provide an initial demonstration of the feasibility and value of utilizing these information channels.

Contractual effort during 1969 will be focused on experimental operations of direct access services to central data banks from remote sites, on multi-file query from a single site, on modelling a specialized educational services network utilizing satellite communications as one alternative, and on determining final configuration of the library component in terms of network node locations and services, as well as the specific techniques and services to be embedded in the system.

The $285,000 allocated to publications support contracts in 1969 will be used for the same types of projects described under publications grants.

Review and Approval of Grants and Contracts

	1968 estimate		1969 estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
Personnel compensation and benefits	45	$376,100	45	$380,200	--	+$4,100
Other expenses	--	424,500	--	399,800	--	-24,700
Total	45	800,600	45	780,000	--	-20,600

This activity of the Library is responsible for the scientific review and evaluation and administration of the extramural grant and contract program.

The net decrease of $20,600 for review and approval of grants and contracts is comprised of a program decrease of $49,693 partially offset by built-in increases of $29,093. The program decrease in 1969 consists of reductions in the printing budget of this activity and reduced grant review and processing support under the NIH management fund agreement.

Program Direction

	1968 estimate		1969 estimate		Increase or Decrease	
	Pos.	Amount	Pos.	Amount	Pos.	Amount
Personnel compensation and benefits	67	$600,900	67	$627,900	--	+$27,000
Other expenses	--	959,100	--	1,076,100	--	+117,000
Total	67	1,560,000	67	1,704,000	--	+144,000

The total amount requested for program direction is $1,704,000, an increase of $144,000 over the amount provided in 1968. This activity includes salaries and other expenses for the overall program and administrative management of the NLM including physical plant maintenance, communications and utilities, security, and various centralized administrative and maintenance services provided by the NIH. Positions funded from this activity are those in the immediate Office of the Director including public information and publications management and the Office of Administrative Management staff.

In 1969, the increase of $144,000 comprised of built-in increases in the amount of $9,986 and a program increase of $134,014, will provide the additional administrative support and program management required by the increasing demands of programs which were new in 1968. Factors which contribute directly to increased workloads and costs in program direction include the organizational transfer this year of the National Medical Audiovisual Center located in Atlanta, Georgia, to the NLM, increasing participation and cooperation of the NLM in international support and exchange programs, growth in the contract administration and management load on program direction staff resulting from program increases for toxicology information, research and development, and MEDLARS II development, and increases in the costs of goods and services. The bulk of the increase will cover increased payment to the NIH management fund for centralized adminstrative services including project contract negotiation and administration, increased travel costs between Atlanta and Bethesda, and increased overtime and consultative services related to increasing workload on program direction staff.

AFTERNOON SESSION

THURSDAY, MARCH 14, 1968.

BUILDINGS AND FACILITIES

WITNESSES

IAN K. BURGESS, DIRECTOR, DIVISION OF BUILDINGS AND FACILITIES
DR. RICHARD A. PRINDLE, DIRECTOR, BUREAU OF DISEASE PREVENTION AND ENVIRONMENTAL CONTROL
DR. JOHN J. WALSH, DIRECTOR, DIVISION OF DIRECT HEALTH SERVICES
DR. JAMES A. SHANNON, DIRECTOR, NATIONAL INSTITUTES OF HEALTH
RICHARD L. SEGGEL, EXECUTIVE OFFICER, NATIONAL INSTITUTES OF HEALTH
DR. WILLIAM H. STEWART, SURGEON GENERAL
JOHN H. KELSO, EXECUTIVE OFFICER
CHARLES MILLER, CHIEF FINANCE OFFICER
JAMES B. CARDWELL, DEPUTY ASSISTANT SECRETARY, BUDGET

OBJECT CLASSIFICATION (IN THOUSANDS OF DOLLARS)

	1967 actual	1968 estimate	1969 estimate
PUBLIC HEALTH SERVICE			
Permanent positions	13		
Travel and transportation of persons		10	10
Transportation of things	4		
Rent, communications, and utilities	8		
Printing and reproduction		5	7
Other services	1,240	1,000	2,200
Supplies and materials	41	40	40
Equipment	430	200	1,000
Lands and structures	600	2,422	4,088
Total, Public Health Service	2,336	3,677	7,345
ALLOCATION TO GENERAL SERVICES ADMINISTRATION			
Printing and reproduction	15	25	40
Other services	908	2,000	3,500
Lands and structures	9,455	3,845	18,413
Total, General Services Administration	10,378	5,870	21,953
Total obligations	12,714	9,547	29,298

PROGRAM AND FINANCING (IN THOUSANDS OF DOLLARS)

	Costs to this appropriation					Analysis of 1969 financing			
	Total estimate	To June 30, 1966	1967 estimate	1968 estimate	1969 estimate	Deduct selected resources and unobligated balance, start of year	Add selected resources and unobligated balance, end of year	Appropriation required, 1969	Appropriation required to complete
Program by activities:									
1. NIH animal center	11,629	3,797	58	562	1,000	1,632	362	----	5,850
2. Multilevel parking facilities, NIH:									
(a) General office building	3,110	----	21	114	1,365	1,565	1,610	1,410	----
(b) Cancer-mental health-neurology building	2,110	----	23	150	1,040	1,937	897	----	----
3. Master utilities extension, NIH	9,752	1,081	1,064	788	539	1,842	1,303	----	4,977
4. Neurology-allergy virus research facility, NIH	6,575	----	----	----	5	----	479	484	6,091
5. Repairs and improvements, NIH	5,515	1,531	1,147	1,125	934	1,106	778	606	----
6. Animal breeding and holding facility, CDC	236	----	----	----	236	----	----	236	----
7. Appalachian health field station	5,660	----	----	200	1,150	150	4,310	5,310	----
8. Repairs and improvements, Bureau of Disease Prevention and Environmental Control	5,095	546	292	1,500	1,512	1,009	1,245	1,747	----
9. Northeast marine health science laboratory—equipment	1,394	----	21	82	895	1,081	396	210	----
10. Northwest marine health sciences laboratory—equipment	1,288	----	27	94	889	997	278	170	----
11. Modernization of PHS hospitals	91,037	----	18	564	1,800	5,532	3,732	----	84,923
12. Outpatient clinic, Cincinnati, Ohio—Planning	893	----	----	----	50	----	22	72	821
13. Repairs and improvements, Bureau of Health Services	4,848	12	272	1,749	1,500	615	1,315	2,200	----
14. Repairs and improvements, NLM	286	76	19	102	89	39	----	50	----
15. Dental health center addition	2,808	27	9	----	440	2,772	2,332	----	----
16. Planning for air pollution research facility	1,815	----	----	----	500	1,815	1,315	----	----
17. Combined service facility, NIH	3,000	----	----	----	140	200	60	----	2,800
18. Incinerator facility, NIH	2,350	----	----	175	1,000	2,175	1,175	----	----
19. Communicable disease facility, San Juan, P.R	1,480	23	31	13	513	1,413	900	----	----
20. Solid waste research facility	765	54	674	37	----	----	----	----	----
21. Laboratory facility, Cincinnati, Ohio	22,715	----	----	37	500	1,348	848	----	21,330
22. Arctic health research center animal facility	1,173	----	----	40	500	1,133	633	----	----
23. Arctic health research center	4,588	2,252	1,636	700	----	----	----	----	----
24. Isotope laboratory addition, NIH	500	----	----	170	293	330	37	----	----
25. Facilities planning	125	----	----	----	125	125	----	----	----
26. Child health and human development research facility	10,210	----	----	260	418	590	172	----	9,360

27. National environmental health sciences center	39,865			210	714	1,575	861		38,080
28. Clinical center addition, NIH	1,550	4	155	1,307	84	84			
29. Neurology-child health facility, Puerto Rico, NIH	2,320	18	8	683	767	1,613	844		
30. General office building extension	6,800	256	770	3,482	1,410	2,292	882		
31. Gerontology research facility, NIH	8,050	1,048	4,359	2,180	213	463	250		
32. Extension to clinical center cafeteria, NIH	695	28	194	463	10	10			
33. Library relocation, NIH	900	100	755	41	4	4			
34. Warehouse relocation, NIH	780	15	6	30	437	728	292		
35. Mental health-neurology-cancer cafeteria, NIH	890	52	755	77	6	6			
36. Biologics standards laboratory annex, NIH	5,063	3,701	1,285	77					
37. Communicable disease center	15,800	13,957	350	800	693	693			
38. Cancer research facility, NIH	10,788	559	6,419	2,805	505	1,005	500		
39. Sabana Seca experimental facility, Puerto Rico, NIH	200			14	141	186	45		
40. Research facilities, Lexington, Ky	400	396	2	2					
Total program costs, funded	295,058	29,533	20,370	20,633	22,417	37,795	27,873	12,495	174,232
Change in selected resources [1]			−7,656	−11,086	6,881				
Total obligations			12,714	9,547	29,298				
Financing:									
Unobligated balance available, start of year			−36,982	−33,878	−35,046				
Unobligated balance transferred to other accounts			8,668						
Unobligated balance available, end of year			33,878	35,046	18,243				
New obligational authority (appropriation)			18,279	10,715	12,495				
Relation of obligations to expenditures:									
Total obligations (affecting expenditures)			12,714	9,547	29,298				
Obligated balance, start of year			25,828	16,130	5,044				
Obligated balance transferred to other accounts			−2,166						
Obligated balance, end of year			−16,130	−5,044	−11,925				
Expenditures			20,247	20,633	22,417				
Expenditures are distributed as follows:									
Out of current authorizations			20,247	20,633	22,417				
Out of prior authorizations									

[1] Selected resources as of June 30 are as follows: Unpaid undelivered orders, 1966, $22,382,000 (1967 adjustments, −$891,000); 1967, $13,835,000; 1968, $2,749,000; 1969, $9,630,000.

BIOGRAPHICAL SKETCH OF PRINCIPAL WITNESS

(The biographical sketch follows:)

BIOGRAPHICAL SKETCH

Name: Ian K. Burgess.
Position: Director, Division of Buildings and Facilities.
Birthplace and date: Norfolk, Va., December 7, 1929.
Education: B.S.—1950 and M.S.—1953, Virginia Polytechnic Institute.
Experience: October, 1966 to present, Director of Division of Building and Facilities, Washington. 1963–1966, Chief, Construction Coordination Section, Division of Administrative Services, PHS, Washington. 1962–1963, Engineer Placement Officer, Office of Personnel, PHS, Washington. 1960–1962, Assistant Program Officer, Division of Water Supply and Pollution Control, Washington. 1959–1960, Sanitary Engineer, Prince George's County Health Department, Cheverly, Md. 1957–1959, Engineer, Division of Water Supply and Pollution Control, PHS, Chicago, Ill. 1956–1957, Engineer, Division of Water Supply and Pollution Control, Washington. 1953–1956, sanitary engineer, water treatment and supply, Washington Suburban Sanitary Commission, Hyattsville, Md. 1952–1953, Teaching Assistant, Virginia Polytechnic Institute, Blacksburg, Va. 1950–1952, engineer platoon leader and company commander, U.S. Army, Fort Leonard Wood, Mo., and 25th Division, Korea.
Association memberships: American Society of Civil Engineers.

Mr. FLOOD. Please proceed with your statement, Mr. Burgess.

GENERAL STATEMENT

Mr. BURGESS. Mr. Chairman and members of the committee, the estimate for the appropriation, "Buildings and facilities," includes funds for proposed design and construction projects recommended for 1969 for the Public Health Service except those for the Indian health program. This estimate, in the amount of $12,495,000 provides for the design, construction, or purchase of equipment for seven facilities in the sum of $7,892,000 plus repair and improvement funds for the Public Health Service, other than for Indian health program facilities, in the sum of $4,603,000.

APPALACHIAN HEALTH FIELD STATION

The principal request in our estimate is $5,310,000 for the Appalachian Health Field Station at Morgantown, W. Va. Of this amount $4,560,000 will support construction costs and the remaining $750,000 will be used for the purchase of initial portable equipment. The facility, for which design funds were appropriated in fiscal year 1967, will provide needed space for new or expanded programs in the areas of occupational respiratory diseases, solid wastes disposal, housing hygiene, injury control, recreational sanitation, and domestic water supply and sewage disposal.

ANIMAL BREEDING AND HOLDING FACILITY, NCDC

We are recommending that $236,000 be provided to purchase and fence an additional 100 acres of pastureland adjacent to the existing National Communicable Disease Center animal breeding and holding facilities at Lawrenceville, Ga.

Development of the existing facilities was based upon the need for large quantities of small research animals such as mice, guinea pigs,

and hamsters with a minimal number of such larger animals as sheep, goats, and horses.

Mr. FLOOD. No unicorns?

Mr. BURGESS. No unicorns.

Of the 82.5 acres of land supporting this activity, 49 acres are available for animal grazing.

Since the original land acquisition, the growth of these facilities and the change in the nature of the research being conducted has altered the animal requirements resulting in a greater need for larger animals. Approximately 125 large animals are presently grazing on the 49 acres of pasture and although supplemental feeding is used, the acreage available is below the minimum recommendations of the Department of Agriculture.

NORTHEAST MARINE HEALTH SCIENCES LABORATORY—EQUIPMENT

Funds in the amount of $1,108,000 were appropriated in 1967 for the construction of an addition to the Northeast Marine Health Sciences Laboratory at Narragansett, R.I. The 1969 estimate includes $210,000 for the purchase of initial portable equipment. Funds are requested at this time to allow procurement and delivery of the equipment by the construction completion date of the facility.

NORTHWEST MARINE HEALTH SCIENCES LABORATORY—EQUIPMENT

This estimate also includes $170,000 to provide initial portable equipment for the Northwest Marine Health Sciences Laboratory at Manchester, Wash. A portion of the equipment must be specially fabricated requiring a long leadtime before delivery. Funds are requested at this time to allow the ordering of equipment well in advance of the building construction completion date.

Mr. FLOOD. Is that the laboratory hardware?

Mr. BURGESS. Yes, sir.

Mr. FLOOD. And nothing to do with construction?

Mr. BURGESS. It is portable equipment to run the laboratory distinct from the equipment that has to be built in as a part of the construction contract.

OUTPATIENT CLINIC, CINCINNATI, OHIO—PLANNING

Planning funds of $72,000 are requested for the design of an outpatient clinic to be included in the National Center for Urban and Industrial Health.

The clinic, now housed in 4,000 square feet, requires 10,000 net square feet of space to adequately serve its patient load. An evaluation was made of the relative merits of locating in the Federal office building, leasing special-purpose space, and relocating in the planned Center. The evaluation established that it is to the advantage of the Government to follow the last course of action.

Planning of the clinic will be incorporated as a part of the design of the National Center for Urban and Industrial Health. The estimated construction and equipment costs of the clinic are $821,000.

MULTILEVEL PARKING FACILITY

Last year, Congress provided an appropriation of $100,000 for the planning of an extension to the previously authorized multilevel parking facility to serve the existing general office building and its additions at NIH. The $1,410,000 requested will support the cost of construction of this extension to the parking facility providing spaces for 550 vehicles.

NEUROLOGY-ALLERGY VIRUS FACILITY, NIH

Planning funds of $484,000 are requested for a virus facility to be located at the NIH Animal Center, Poolesville, Md.

The proposed facility, containing 86,500 square feet of research laboratories, animal facilities, and support functions, will be used jointly by the National Institute of Allergy and Infectious Diseases and the National Institute of Neurological Diseases and Blindness.

The National Institute of Allergy and Infectious Diseases is conducting its virology research in a building designed and built at a time when the hazards associated with viral infections were unknown. Since 1962, the National Institute of Neurological Diseases and Blindness has substantially increased its viral research activities. This Institute also is restricted in its research efforts by the lack of an adequate physical plant to carry out its activities.

The planning funds requested will permit us to proceed with the design of a facility that will provide a reduction in the hazards involved in the safe handling of viral agents and space for the expanding programs involving viruses in neurological and infectious diseases.

REPAIRS AND IMPROVEMENTS

The remainder of our request is for $4,603,000 to support a number of repair and improvement projects at the various installations of the Service. The distribution of the amount requested has been identified in the budget justification materials furnished to you by Bureau and project.

Mr. Chairman, I shall be pleased to answer any questions that you or other members of the committee may have.

SUMMARY OF 1969 BUDGET REQUEST

Mr. FLOOD. Now, because of the stretchout of programs this year you have over $44.5 million available but you only plan to obligate $9.5 million? For next year you are requesting $12,495,000. You will have a very sizable carryover from 1968. And you plan to obligate $29,298,000.

Mr. BURGESS. That is right.

Mr. FLOOD. We are pretty old hands in this business. How long have you been on board?

Mr. BURGESS. I am starting the second year on this job.

Mr. FLOOD. How long have you been in town?

Mr. BURGESS. On and off since 1956.

Mr. FLOOD. That is long enough. Would you please expand for the record on just what you plan to do with the $4 million for repairs and improvements?

(The information follows:)

STATEMENT BY THE DIVISION OF DIRECT HEALTH SERVICES IN SUPPORT OF THE FISCAL YEAR 1969 BUDGETARY REQUEST OF THE DIVISION OF BUILDINGS AND FACILITIES FOR THE RECORD

Correction of significant fire and safety hazards to hospitalized patients and employes, replacement of woefully antiquated and increasingly dangerous building services equipment and the enlargement of overcrowded outpatient clinics constitute the major efforts for which the Division of Direct Health Services is requesting funds.

In the first category, $237,000 is needed to install firedoors, fire escapes, fire exit protection, sprinkler systems, alarms, and emergency fire and water systems at the PHS Hospitals in Boston, Detroit, New Orleans, Norfolk, and Staten Island. The mere listing of these, together with our failure to meet various National Fire Protection Association standards, provides more than ample justification for support.

An additional $55,000 is required to correct three truly hazardous situations at the Seattle, Boston, and Baltimore hospitals. In the first two instances, the present operating room airconditioning units cannot provide proper temperature and humidity control and cannot adequately filter incoming air to prevent bacterial contamination. Moreover, in each case, the hazards of explosion cannot be prevented during the use of certain gaseous anesthetics. In the third hospital, unavoidable overloading of antiquated circuitry has resulted in frequent outages, potential fire hazards, an impossibility to respond, electrically, to emergencies and the inability to provide air conditioning for seriously ill patients. Finally, in this category can be included the mandatory replacement of boilers and incinerators in accordance with Executive Order No. 11282 for control of air pollution at Federal installations. This will require an additional $134,000 and involves three of our hospitals.

The second major area for which we seek support will require $372,000. In essence, we have a $10 million backlog of building services equipment which is now due for replacement. Only the most critically needed items will be replaced. Moreover, the program is geared to preventing the type of hazard described previously. Typical items include boilers, blowoff and draft units for boilers, passenger elevators, and so forth. Each is 30–35 years old, obsolete, deteriorated, difficult or impossible to repair, and potentially hazardous. Each is essential to hospital operation. Finally, and most importantly, every single one of the hazards described in the first section of this statement developed because of failure to replace these items. Therefore, we seek these recurring funds to begin to replace on a regular but selective basis.

The relocation of portions of the Public Health Service significantly increases our direct beneficiary population in the Cincinnati area. However, our present clinic is grossly inadequate for the current patient load and cannot accept these new patients. For this reason, $72,000 is requested for planning a new clinic in the projected National Center for Urban and Industrial Health.

The final $580,000 which we request will be expended for urgently needed correction measures at the Baltimore, Boston, Norfolk, Detroit, Carville, and San Francisco hospitals. In these institutions, the lack of exterior repairs, caulking and painting continues to cause extensive and serious structural damage and deterioration, including cracking, separation, and building of masonry walls, rusting out of embedded structural steel members, deterioration of plastered walls and ceilings, and rotting of windows, frames, and other exterior wood work. This sum includes $186,000 for the alterations required incident to the Staten Island multiphasic screening program.

CONSTRUCTION DEFERRALS

Mr. FLOOD. Are these budget figures I have just cited realistic? I sit on the Defense Appropriations Subcommittee. Major cuts are being made in military construction. Public Works is being cut back in construction. HEW itself has reduced construction considerably.

The same story applies to Agriculture and Interior. Something has to be cut and it is construction. That being the case, why shouldn't we decide right now that cuts in construction next year are even more important than this year. Have you thought about that?

Mr. BURGESS. Yes, sir. A part of our carryover, $10.3 million, was deliberately reduced in obligations. We have five or six projects for which the designs are completed now and they were put on the "shelf" under the President's cost-reduction program and they will not go into construction this year.

Mr. FLOOD. You only plan to obligate $9.5 million in 1968? For next year you are asking for $12,495,000. But you will have this big carryover from 1968 and you want to obligate $29 million. Why?

Mr. BURGESS. This $29 million is based on the assumption we will be able to obligate the $10,299,000 now under the cost-reduction program. If we are faced with new obligational ceilings, obviously we will not do it.

Mr. CARDWELL. Mr. Chairman, the basic question you raise is obviously one the Congress has to deal with. When this budget of HEW was put together the President put the Secretary under a great deal of pressure to hold the budget down, and one of the choices he had was to knock out appropriation requests for construction, and he knocked a lot out. However, in order to move ahead and keep things moving we have to do a certain amount of planning and we have to have Congress OK.

PARKING FACILITY

Mr. FLOOD. On this parking facility, we gave you $100,000 for 1968 to plan.

Mr. CARDWELL. Events have shown, though, that we are in dire straits for parking spaces. We cannot house the employees.

Mr. FLOOD. It is the same with highways. You open a new highway—it is jammed the next month.

Mr. CARDWELL. What we are asking is that you give us a certain amount for high priority construction projects and if future events prove we still have to slow down construction, we prefer to do it through the deferral of obligations. This permits us to lay plans for the future.

Mr. SEGGEL. I would point out in connection with the parking that we have a new facility, an extension of the office building, coming into being this fall so we will need this parking space.

Mr. BURGESS. This is an extension to a previously authorized multilevel parking facility. If we get the construction money now we believe that bringing the design on the extension at a rapid rate will permit us to put out the contract for the originally authorized one plus the extension. We believe it is advantageous to build both at one time because it would result in a lower cost to the Government.

Mr. FLOOD. Haven't you forgotten another thing? Haven't you forgotten the increase in wages and the increase in the cost of materials and so on? That would also be a factor in deferring construction. Haven't you forgotten that?

Mr. BURGESS. No. It is a fact of life and we assume everybody accepts that now.

Mr. MILLER. I might also make the point that these are projects the Congress has approved, and they are projects that are ready to proceed.

Mr. CARDWELL. We also have in the back of our minds what we think past experience has shown might well happen. Right now we are concerned about expenditures being too high, but the cycle might well reverse itself and we would be trying to prime the pump by going ahead with construction, and this is one way we can do it.

Mr. FLOOD. You have 11 items on page 206 that make up your appropriation request of $12,495,000. Other than this increase in price levels, where would the deferral of these or any part of these probably cost us any more money next year?

Mr. BURGESS. In the multilevel parking I think the average cost to house 1,200 cars would be lower than for one for 650 this year and one for 550 next year. What I am suggesting is, as the size of a facility for parking goes up, generally the per foot cost goes down.

Mr. CARDWELL. Is it not also true the items under repairs and improvements could well cost more because there will be further deterioration and the repairs will prove more costly?

Mr. FLOOD. Yes, but look at the cantonments and so forth needed for the servicemen all over the United States and all over the world. Look at the use being made of obsolete barracks and things of that sort. We need these things very badly and yet the Defense people whack them out. Look at some of the naval installations that need repairs very badly, that are long overdue, but they are not going to go ahead and do it.

MORGANTOWN, W. VA., LABORATORY

What is the status of the Appalachian laboratory in Morgantown, W. Va.?

Mr. BURGESS. We expect the plans and specifications to be delivered on April 22 of this year. It is on schedule.

UNUSUALLY URGENT PROJECTS

Mr. FLOOD. We will not debate the need and necessity of these projects. We will not argue with you about what you need to do the job you need do, because you know more than we do about these technical areas. But we are under the guns, and will ask which of these projects are unusually urgent?

Mr. BURGESS. In the Appalachian health field our operations are being carried on in leased space. You might say we are "squatters" in the university's hospital.

Dr. PRINDLE. There are two aspects in the Appalachian project. What we first started with was a study of pulmonary disease related to coal mining.

Mr. FLOOD. Hard coal mining or soft coal mining?

Dr. PRINDLE. Soft coal mining.

Mr. FLOOD. I am in a hard coal area.

Dr. PRINDLE. I am aware of that. However, this is a serious health problem in the area. We had wanted to expand this and look into broader health problems of Appalachia, for example, those related to water supply, solid waste disposal, and so forth. We have not been able to take those on because we have no place to put the personnel. We have been given some space in the hospital, but it is anxious to recover its space and we are in a cramped situation there.

Mr. CARDWELL. Based on the same set of hard facts you presented to us, this request started out at $39 million and between the Department and the Bureau of the Budget almost $28 million was cut out of it in the first place. So we have left here a group of what we believe to be high priority projects.

Mr. FLOOD. Mr. Casey.

Mr. CASEY. No questions.

Mr. FLOOD. Mr. Smith.

Mr. SMITH. No questions.

Mr. FLOOD. Thank you.

JUSTIFICATION MATERIAL

PUBLIC HEALTH SERVICE

Buildings and Facilities

Amounts Available for Obligation

	1968	1969
Appropriation	$10,715,000	$12,495,000
Unobligated balance brought forward	33,878,212	35,046,212
Deduct unobligated balance carried forward	-35,046,212	-18,243,212
Total obligations	9,547,000	29,298,000

Obligations by Activities

Page Ref.	Description	1968 Estimate	1969 Estimate	Increase or Decrease
212	Appalachian health field station	$248,000	$2,000,000	+$1,752,000
213	Animal breeding and holding facility, CDC	---	236,000	+236,000
214	Northeast marine health sciences laboratory	35,000	977,000	+942,000
215	Northwest marine health sciences laboratory	25,000	952,000	+927,000
219	Outpatient clinic, Cincinnati, Ohio - planning	---	65,000	+65,000
216	Repairs and improvements, Bureau of Disease Prevention and Environmental Control	900,000	1,500,000	+600,000
223	Multi-level parking facilities (NIH):			
	(a) General office building extension	80,000	1,400,000	+1,320,000
	(b) Cancer-mental health/neurology building	85,000	1,870,000	+1,785,000
224	Neurology-allergy virus research facility, NIH	---	435,000	+435,000
...	NIH animal center	417,000	1,000,000	+583,000
...	Master utilities extension, NIH	1,265,000	365,000	-900,000
226	Repairs and improvements, NIH	1,172,000	1,200,000	+28,000
...	Repairs and improvements, NIMH	---	990,000	+990,000
...	Modernization of PHS hospitals	562,000	2,000,000	+1,438,000

Obligations by Activities

Page Ref.	Description	1968 Estimate	1969 Estimate	Increase or Decrease
220	Repairs and improvements, Bureau of Health Services	900,000	1,500,000	+600,000
227	Repairs and improvements, National Library of Medicine	64,000	100,000	+36,000
...	Dental health center addition	110,000	2,000,000	+1,890,000
...	Planning for air pollution research facility	---	1,000,000	+1,000,000
...	Combined service facility, NIH	---	160,000	+160,000
...	Incinerator facility, NIH	160,000	1,000,000	+840,000
...	Communicable disease facility, San Juan, Puerto Rico	---	1,398,000	+1,398,000
...	Laboratory facility, Cincinnati, Ohio	63,000	500,000	+437,000
...	Arctic health research center animal facility	100,000	1,000,000	+900,000
...	Arctic health research center	202,000	---	-202,000
...	Isotope laboratory addition, NIH	50,000	450,000	+400,000
...	Facilities planning	---	125,000	+125,000
...	Child health and human development research facility, NIH	200,000	600,000	+400,000
...	National environmental health sciences center, NIH	100,000	400,000	+300,000
...	Clinical center addition, NIH	269,000	29,000	-240,000
...	Neurology-child health research facility, Puerto Rico, NIH	172,000	2,100,000	+1,928,000
...	General office building extension, NIH.	340,000	137,000	-203,000
...	Gerontology research facility, NIH	447,000	75,000	-372,000
...	Extension to Clinical Center Cafeteria, NIH	1,000	---	-1,000
...	Library relocation, NIH	23,000	3,000	-20,000

Obligations by Activities

Page Ref.	Description	1968 Estimate	1969 Estimate	Increase or Decrease
...	Warehouse relocation, NIH.....	30,000	650,000	620,000
...	Mental health-neurology-cancer cafeteria, NIH.....	20,000	4,000	-16,000
...	Communicable disease center.....	958,000	375,000	-583,000
...	Cancer research facility, NIH.....	500,000	528,000	+28,000
...	Sabana Seca experimental facility, Puerto Rico.....	16,000	174,000	+158,000
...	Biologics standards laboratory annex, NIH.....	33,000	---	-33,000
	Total obligations.....	9,547,000	29,298,000	19,751,000

New Obligational Authority by Activity

Page Ref.	Description	1960 Estimate	1969 Estimate
212	Appalachian health field station - Construction	---	$5,310,000
213	Animal breeding and holding facilities - site acquisition	---	236,000
214	Northeast marine health sciences laboratory-portable equipment	---	210,000
215	Northwest marine health sciences laboratory-portable equipment	---	170,000
219	Outpatient clinic-Cincinnati, Ohio-planning	---	72,000
223	Multi-level parking	$100,000	1,410,000
224	Neurology-allergy virus facility-planning	---	484,000
	Repairs and improvements:		
216	(a) Disease prevention and environmental control	1,352,000	1,747,000
220	(b) Health services	925,000	2,200,000
226	(c) National Institutes of Health	500,000	606,000
227	(d) National Library of Medicine	75,000	50,000
...	(e) National Institute of Mental Health	990,000	---
...	Dental health Center addition	2,558,000	---
...	Central air pollution facility	1,815,000	---
...	NIH animal center	120,000	---
...	Combined service facility, NIH	200,000	---
...	NIH Incinerator facility	2,080,000	---
	Total, new obligational authority	10,715,000	12,495,000

Obligation by Object

Description	1968 Estimate	1969 Estimate	Increase or Decrease
PUBLIC HEALTH SERVICE			
Travel and transportation of persons....	$10,000	$10,000	---
Printing and reproduction.....	5,000	7,000	+$2,000
Other services.....	1,000,000	2,200,000	+1,200,000
Supplies and materials.....	40,000	40,000	---
Equipment.....	200,000	1,000,000	+800,000
Lands and structures.....	2,422,000	4,088,000	+1,666,000
Total, Public Health Service.....	3,677,000	7,345,000	+3,668,000
ALLOCATION TO GENERAL SERVICES ADMINISTRATION			
Printing and reproduction.....	25,000	40,000	+15,000
Other services.....	2,000,000	3,500,000	+1,500,000
Lands and structures.....	3,845,000	18,413,000	+14,568,000
Total, General Services Administration.....	5,870,000	21,953,000	+16,083,000
Total obligations.....	9,547,000	29,298,000	+19,751,000

Summary of Changes

1968 Appropriation	$10,715,000
1969 Appropriation request	12,495,000
Total change	+1,780,000

Increases

1. Appalachian health field station - construction	$5,310,000
2. Animal breeding and holding facilities, - site acquisition	236,000
3. Northeast marine health sciences laboratory - portable equipment	210,000
4. Northwest marine health sciences laboratory - portable equipment	170,000
5. Outpatient clinic, Cincinnati, Ohio - planning	72,000
6. Multi-level parking - construction	1,410,000
7. Neurology-allergy virus facility - planning	484,000
8. Repairs and improvements:	
(a) Disease prevention and environmental control	1,747,000
(b) Health services	2,200,000
(c) National Institutes of Health	606,000
(d) National Library of Medicine	50,000
Gross increases	12,495,000

Decreases

1. Dental health center addition	-2,558,000
2. Central air pollution facility	-1,815,000
3. NIH animal center	-120,000
4. Combined service facility, NIH	-200,000
5. NIH incinerator facility	-2,080,000
6. Multi-level parking	-100,000

Decreases (continued)

7. Repairs and improvements:	
(a) Disease prevention and environmental control.....	-1,352,000
(b) Health services.....	-925,000
(c) National Institutes of Health.....	-500,000
(d) National Library of Medicine.....	-75,000
(e) National Institute of Mental Health.....	- 990,000
	-10,715,000
Net change requested.....	+1,780,000

Introduction

This appropriation includes all proposed direct construction items of the Public Health Service except construction of Indian health facilities, and all continuing projects except Saint Elizabeths Hospital, the Mental health-neurology research facility, which was appropriated under "Mental Health activities" and "Neurology and blindness activities" in 1961, and the John E. Fogarty Center for Advanced Study in the Health Sciences, for which planning funds were appropriated in 1968.

The justifications following are grouped under the appropriate Bureau headings, which include for each Bureau its portion of the estimate for major alterations, repairs, and improvements.

Bureau of Disease Prevention and Environmental Control

Appalachian Health Field Station - Construction

1969 appropriation estimate $5,310,000

In 1966, $20,000 was appropriated for site planning of the Appalachian Laboratory in Morgantown, West Virginia. An additional $330,000 was appropriated in 1967 for the design of the facility. The structure will be located on the campus of West Virginia University in close proximity to its Medical Center.

Over the past years the major effort in dealing with the health problems of appalachia has been restricted to the occupational health program's Appalachian Laboratory for Occupational Respiratory Disease (ALFORD). One of the major reasons for the restricted activity has been the lack of space. The proposed laboratory will provide for expansion of ALFORD and the addition of other environmental health programs concerned with problems peculiar to the Appalachia region, including solid wastes disposal and control, recreational sanitation, housing hygiene, injury control, and domestic water supply and sewage disposal.

The environmental conditions and general level of health among the residents of the Appalachian region present a unique challenge to the Public Health Service. While the major concern will be with health problems in the Appalachian area, the results of studies conducted at the new laboratory will be applied, as appropriate, throughout the United States.

The structure, now in the latter stages of design, will be an "H"-shape, three stories in height, with a gross area of approximately 87,000 square feet and having 49,000 square feet of net usable space. One leg of the "H" contains office space, the second leg houses laboratory activities and the connecting link provides areas for laboratory support and clinical operations. The building's exterior walls will be of load-bearing, pre-cast concrete panels utilizing native materials.

The amount of this request includes $4,560,000 for construction and installation of fixed equipment plus the cost of initial portable equipment estimated at $750,000.

Estimated Progress Schedule

Design	
Award	May 1967
Completion	April 1968
Construction	
Award	September 15, 1968
Completion	May 15, 1970

Animal Breeding and Holding Facilities--Site Acquisition

1969 appropriation estimate.....$236,000

The National Communicable Disease Center Animal Breeding and Holding Facilities at Lawrenceville, Georgia, were planned in 1960 and funds for site acquisition and design were provided in the 1961 budget. The size and capacity of the acreage and facilities were based on the then anticipated growth of the NCDC in Atlanta.

The Lawrenceville activity is now producing large quantities of small research animals such as two-day to two-week old mice, guinea pigs and hamsters, and is providing the necessary grazing for the sheep, goats, burros and other large animals. These animals, or derivatives of their blood, are used in day-to-day research activities, including rabies, encephalitis, rubella, and hepatitis viruses as well as the bacterial and fungi problems in the health programs of the Center.

The present facilities include three main buildings, sewage treatment lagoons, service and isolation areas and pastures. They are located on about 82.5 acres of land, of which approximately 49 acres are available for animal grazing.

Since the original land acquisition the growth and increased complexity of scientific activities at the Center has resulted in a need for additional acreage at the Lawrenceville site. The original planning was based upon a primary need for small animals in the conduct of the Center's research. The nature of the research that is being conducted today has changed these requirements resulting in a greater need for larger animals.

Some 125 large animals are presently grazing on this pasture acreage. The number being grazed are the minimal now necessary for the production of many and varied immune sera, normal blood cells and other blood derivatives required by the Center. Although supplemental feeding is used, the acreage available for pasture is far below the recommendations of the Department of Agriculture and others concerned with the care of animals. With the continuing expansion of our laboratory program, additional grazing land is urgently needed. Based on our present and immediately perceivable level of operations, an additional 100 acres of improved pasture, including fencing and cross fencing, is required.

Northeast Marine Health Sciences Laboratory--Portable Equipment

1969 appropriation estimate.....$210,000

There was appropriated in 1967, $1,108,000 for the construction of an addition to the Northeast Marine Health Sciences Laboratory. Completion date of the facility is estimated to be December 1969. Construction funds do not include the amount required for the portable equipment.

Funds for the procurement of portable equipment are requested in 1969 because of the long lead time in obtaining delivery. Receipt of this equipment by the construction completion date is essential to permit the laboratory to be fully operational when completed.

Northwest Marine Health Sciences Laboratory--Portable Equipment

1969 appropriation estimate.....$170,000

There was appropriated in 1967, $1,000,000 for the construction of the Northwest Marine Health Sciences Laboratory. Construction will soon be underway for this facility and is expected to be completed by October 1969. These funds are requested to provide initial portable equipment for the laboratory. A significant portion of the equipment has a long lead time and is required to be ordered well before the building is completed in order that the program may be carried out without disruption.

Repairs and Improvements

1969 appropriation estimate.....$1,747,000

National Communicable Disease Center.....1,447,000

1. Lawrenceville Breeding and Holding Facility--$25,975

Surface treatment for all blacktop roadways, hard surfacing of outdoor feeding areas and painting water tank.

2. Chamblee Facilities--$156,000

Upgrading roadway, replacing the incinerator, and renovation and modification of space.

3. Clifton Road Facilities--$801,000

Installation of automatic watering devices in experimental rabbit rooms, shade screens on exterior of west side windows and a supplemental diesel-driven generator; renovation and modification of Building 5, entire enteric bacteriology area, air intakes to Buildings D and E, and the silent stage; surface treatment and packing of streets; upgrading cage sterilizers; relamping; interior painting; and replacement of walk-in box refrigerating equipment including motors, compressors, and chillers.

4. Technical Development Laboratories, Savannah, Georgia--$110,850

Renovation of all windows and doors to south porch of main building, replacement of six badly deteriorated portable buildings with three portable metal buildings, roof repairs, and drain field repairs.

5. Pesticides Research Laboratory, Perrine, Florida--$28,700

Renovation of electrical substation, exterior painting, roof repairs, and general repairs to Building 9.

6. Zoonoses Section, San Francisco, California--$10,000

Repairs and improvement for modification to the main laboratory.

7. Pesticides Research Laboratory, Wenatchee, Washington--$2,000

General repairs and improvements.

8. Foreign Quarantine Station, Staten Island, New York--$246,500

The Staten Island Foreign Quarantine facilities, some of which date back 75 or more years, require extensive repairs and improvements for essential and badly needed modernization to bring these facilities up to acceptable standards. Except for construction of a new dock, only the most urgent repairs and improvements have been made at this station in recent years. The current repairs and improvements will include: repairs to dock piling; painting interior of buildings; new electric service riser and panels in Buildings 5, 6, and 12; modernization of electrical distribution systems and transformer banks; installation of a standby generator; permanent enclosures for four transformer stations and safety curbs; road repairs; widening entrances to station; provision of off-street parking; replacing building boilers and obsolete electrical fixtures and wiring.

9. Foreign Quarantine Station, New Orleans, Louisiana--$38,975

Rehabilitation of main landing dock and road repairs.

10. Foreign Quarantine Station, Marcus Hook, Pennsylvania--$5,000

General repairs and improvements.

11. Ecological Investigations, Kansas City, Kansas--$1,000

Repairs to laboratory waste lines.

12. Field Station, Phoenix, Arizona--$21,000

Relocation of incinerator; installation of five individual a/c units, including condenser units, fancoil units; and installation of package boiler including necessary renovations to room.

National Center for Urban and Industrial Health.....240,000

1. Arctic Health Research Laboratory--$130,000

Construction of a water cooling system for the central plant distillation and refrigeration room equipment; installation of an air filtration system in the bacteriology and virology laboratories; and installation of a drainage system to eliminate hazardous icy conditions on sidewalks and parking lots.

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2. Solid Waste Facility, Johnson City, Tennessee--$18,000

Repair to access roads including asphalt surfacing of road to the windrow processing to retard fly breeding.

3. Northwest Marine Health Sciences Laboratory--$50,000

Renovation of existing warehouse structure to provide storage areas; installation of rip rap (stones and rocks) to prevent erosion of water front; and repairs to boat launching area.

4. Gulf Coast Marine Health Sciences Laboratory--$21,000

Reflooring and rewiring of several laboratories; modification of overhead windows; modification of incubator to temperature control environmental chamber and installation of electrostatic precipitator; installation of exhaust systems in chemistry laboratory and virus tissue culture facility; and construction of a breakwater seaward from present seawall.

5. Northeast Marine Health Sciences Laboratory--$21,000

Connection of boilers to natural gas supply; installation of boiler room escape hatch, fire detection system, three electric capacitators, and steam lines into emergency generator rooms; and replacement of tile floor with finish impervious to acids.

National Center for Radiological Health.....60,000

1. Northeastern Radiological Health Laboratory--$45,000

Installation of Phase I of a central air conditioning system using existing air handling units; inspection, replacement, and regraveling of roof on the entire facility; extension of the fire alarm system; and erection of a temporary shelter for outside covered storage.

2. Southeastern Radiological Health Laboratory--$15,000

Replacement of the air handling unit in the main administration building with a direct expansion unit; reroofing of three buildings; and interior renovation of three buildings.

Bureau of Health Services

Outpatient Clinic, Cincinnati, Ohio - Planning

1969 appropriation estimate..... $72,000

Funds are requested to provide for planning of an outpatient clinic to be included in the National Center for Urban and Industrial Health.

A study conducted two years ago established the need for 10,000 net square feet of clinical space for the subject facility which is now housed in 4,000 square feet in the Post Office and Court House Building in Cincinnati. As a part of this study, consideration was given to locating the expanded clinic in the present building, removal to the new Federal Office Building, leasing of special purpose clinical space, and relocating in the planned National Center for Urban and Industrial Health. The last named location was selected for the following reasons:

1. Travel of patients will be necessary no matter where the Clinic is located, and adequate parking can be assured only at the selected location;
2. The single greatest concentration of beneficiaries will be located at the NCUIH: and
3. The proximity of the NCUIH to the University of Cincinnati Medical School offers unique advantages for professional affiliation and access to consultant services.

Planning and construction will have the same schedule as that of the National Center, for which design funds have been appropriated. Total cost of the outpatient clinic is estimated at $893,000.

Repairs and Improvements

1969 Appropriation Estimate..... $2,200,000

Repairs and Improvements..... $1,296,400

The sum of $1,296,400 is requested for specific repair and improvement projects to be accomplished in FY 1969. These projects must be accomplished to prevent further serious deterioration of the building exteriors, to correct fire hazard deficiencies, and to provide for relocation of outpatient clinics to accommodate increased patient workloads. They are projects which will not conflict with the hospital modernization program. A complete list of the individual proposals follows:

Baltimore	
Retile promenade roof	$20,000
Exterior painting	70,000
Boston	
Exterior painting	36,400
Detroit	
Replace roof gutters	24,000
Norfolk	
Fire doors	19,000
San Francisco	
Exterior painting and masonry repairs	106,000
Staten Island	
Fire doors and sprinklers	14,000
Jacksonville, Florida Outpatient Clinic	
Relocation	165,000
Memphis, Tennessee Outpatient Clinic	
Relocation	224,000

San Pedro, California Outpatient Clinic

Relocation	$432,000
Staten Island	
Multiphasic screening ($100,000 included FY 1968)	$186,000
Substotal, Repairs and Improvements	1,296,400
Buildings Service Equipment	$903,600

The sum of $903,600 is requested for replacement of worn-out, antiquated, and obsolete equipment which has far outlived its normal useful life expectancy and is increasingly hazardous and costly to continue in service.

A part of this equipment is required for abatement of air pollution. Other items are in a critical condition and require replacement on an emergency basis if continued operation is to be assured.

In addition to the above, an equipment requirement totaling $372,000 was identified from a $10,000,000 backlog of building services equipment which is past due for replacement. These funds will be used to replace the most critically needed items giving due consideration to the forthcoming hospital modernization and replacement program.

Scheduled Equipment Replacement

Lump Sum Subtotal		372,000
Equipment Replacement to comply with Executive Order 11282 for control of Air Pollution from Federal installations		
Baltimore		
Remove and replace incinerator, remove and replace three 150 h.p. boilers	75,000	
Detroit		
Remove and replace incinerator, remove and replace three 125 h.p. boilers	59,000	
Subtotal EO #11282		134,000

Emergency Equipment Replacement and Corrections

Baltimore	
Electrical service corrections	21,000
Boston	
Correct operating room air conditioning	16,600
Seattle	
Operating room air conditioning	18,000

Emergency Equipment Replacement and Corrections (continued)

Staten Island		
Electrical service renovations reprogramming	342,000	
Subtotal - Emergency Equipment Replacement		397,600
Total - Building Service Equipment		903,600

National Institutes of Health

Additional Multilevel Parking - General Office Building - Construction

1969 appropriation estimate..... $1,410,000

Planning funds of $100,000 were included in the 1968 President's Budget and construction funds of $1,410,000 are requested in 1969 for an addition to the multilevel parking facility previously authorized to serve the parking population of the General Office Building. This addition is intended to accommodate 550 cars, bringing the total capacity to 1,200 cars.

Construction will be similar to that of the previously authorized structure; lighting and ventilation as required; no elevators; and exterior finishes to be compatible with adjacent buildings.

Estimated Progress Schedule

Design
- Award..... June 1968
- Completion..... March 1969

Construction
- Award..... June 1969
- Completion..... June 1970

Neurology - Allergy Virus Facility - Planning

1969 appropriation estimate.....$484,000

In 1969, $484,000 is requested for planning of a virus facility to be used jointly by the National Institute of Neurological Diseases and Blindness and the National Institute of Allergy and Infectious Diseases. This building will provide two essential requirements for research in virus diseases: (1) a facility designed to reduce the hazards involved in the safe handling of viral agents; and (2) space for the expanding programs involving viruses in neurological and infectious diseases.

This facility will consist of a laboratory building with an estimated gross area of 86,500 square feet and a net area of 41,800 square feet. Space will be provided for research laboratories, animal holding facilities, and essential supportive functions, including offices as required for a staff of 120. The isolation area of the NIH Animal Center at Poolesville, Maryland has been selected as the tentative location.

The National Institute of Allergy and Infectious Diseases is currently conducting the major portion of their virology research in Building 7 on the NIH Reservation in Bethesda. During the time since viruses were first discovered, viral infections among laboratory personnel have dictated facilities which will reduce these hazards.

One of the major developments in the knowledge of virus infections which was completely unknown at the time Building 7 was designed is the proclivity of viruses to persist in tissue cells and to cause many late effects of infections. Certain adenoviruses cause tumors in animal tissues and may cause similar effects in humans. This type of virus may take a year or longer to cause a tumor when injected subcutaneously in hamsters. Intensive work in the current building at NIH with these viruses originated about 1953, and in the comparative life span of the human and the animal it has to be conjectured that several years might be required for similar tumors to appear in humans who have been exposed. Other tumor-causing viruses such as leukemia, sarcoma viruses of animals, and polyoma viruses are currently being handled without adequate facilities for human safety.

Since 1962, the National Institute of Neurological Diseases and Blindness has devoted increasing attention to the search for a virus etiology of a number of chronic neurological disorders, many of which had previously been considered of toxic, degenerative, or genetic origin. The program has developed along three principal avenues: (1) efforts are being made to transmit these diseases to animals through innoculation of material from affected humans; (2) studies of the serio-epidemiology of infectious diseases during pregnancy, and the effects of infectious diseases on the developing nervous system; and (3) field studies and epidemiological investigations of chronic and neurological disorders.

Planning funds of $484,000 are requested in 1969 with design to be completed in January 1971. Estimated cost of construction is $6,091,000.

Estimated Progress Schedule

Design	
Award	October 1968
Completion	April 1970
Construction	
Award	August 1970
Completion	October 1972

Repairs and Improvements

1969 appropriation estimate	$606,000
1. Additional work necessary to correct deficiencies in Clinical Center air-conditioning system	$156,000
2. Conversion of heating plant from fuel oil to natural gas	200,000
3. Replacement of defective water riser valves, Clinical Center	100,000
4. Major repairs to roadways	100,000
5. Oppossum and water fowl habitats and fencing - NIH Animal Center	50,000
Total NIH Repairs and Improvements	$606,000

National Library of Medicine

Repairs and Improvements

1969 appropriation estimate..... $50,000

Modification of the overhead lighting systems in the Main Reading Room and in the History of Medicine Reading Room to correct faulty design of the present system which requires a complete shutdown of these areas to accomplish relamping. The present design makes relamping a difficult, timeconsuming, and expensive operation. The modification will permit easier and more prompt replacement of expended light tubes without interruption of reading room use.

SCIENTIFIC ACTIVITIES OVERSEAS (SPECIAL FOREIGN CURRENCY PROGRAM)

WITNESSES

DR. JAMES E. BANTA, DIRECTOR, OFFICE OF INTERNATIONAL HEALTH
DR. S. PAUL EHRLICH, JR., ASSOCIATE DIRECTOR FOR BILATERAL PROGRAMS STAFF
DR. WILLIAM H. STEWART, SURGEON GENERAL
CHARLES MILLER, CHIEF FINANCE OFFICER
JAMES B. CARDWELL, DEPUTY ASSISTANT SECRETARY, BUDGET

OBJECT CLASSIFICATION (IN THOUSANDS OF DOLLARS)

	1967 actual	1968 estimate	1969 estimate
PUBLIC HEALTH SERVICE			
Travel and transportation of persons	888	186	973
Other services	7,284	14,346	28,313
Total obligations, Public Health Service	8,172	14,532	29,286
ALLOCATION TO NATIONAL SCIENCE FOUNDATION			
Other services	1,054	468	1,564
Total obligations, National Science Foundation	1,054	468	1,564
Total obligations	9,226	15,000	30,850

PROGRAM AND FINANCING (IN THOUSANDS OF DOLLARS)

Program by activities:			
Foreign health research (program costs, funded)	7,103	15,000	30,850
Change in selected resources [1]	2,123		
Total obligations	9,226	15,000	30,850
Financing:			
Unobligated balance available start of year	−76	−85	−850
Unobligated balance available end of year	850	850	
New obligational authority (appropriation)	10,000	15,000	30,000
Relation of obligations to expenditures:			
Total obligations (affecting expenditures)	9,226	15,000	30,850
Obligated balance, start of year	10,940	13,333	18,333
Obligated balance, end of year	−13,333	−18,333	−32,183
Expenditures	6,833	10,000	17,000
Expenditures are distributed as follows:			
Out of current authorizations	6,833	3,000	7,000
Out of prior authorizations		7,000	10,000

[1] Selected resources as of June 30 are as follows: Unpaid undelivered orders, 1966, $9,715,000; 1967, $11,838,000; 1968, $11,838,000; 1969, $11,838,000.

Mr. FLOOD. We now have the scientific activities overseas (special foreign currency program) and the presentation will be made by Dr. James E. Banta, Director of the Office of International Health.

BIOGRAPHICAL SKETCH OF PRINCIPAL WITNESS

I see you have a biographical sketch, Dr. Banta, and we will put it in the record.

(The biographical sketch follows:)

BIOGRAPHICAL SKETCH

Name: James E. Banta, M.D.

Position: Director, Office of International Health.

Birthplace and date: Tucumcari, N. Mex., July 1, 1927.

Education: Marquette University School of Medicine, 1950, medical degree; Hospital of the Good Samaritan, Los Angeles, Calif., rotating internship; Johns Hopkins School of Hygiene and Public Health, master's degree in public health.

Experience: July 1967 to present: Director, Office of International Health, Office of the Surgeon General, U.S. Public Health Service. January 1967: Chief, Technical Resources Staff, Office of International Health, Office of the Surgeon General, U.S. Public Health Service. April 1966: Head, Special International Programs Section, Office of International Research, Bethesda, Md. December 1965: Staff, Office of International Research, NIH, Bethesda, Md. August 1964: Director, Medical Program Division, Peace Corps, Washington, D.C. November 1963: Deputy Director, Medical Program Division, Peace Corps, Washington D.C. September 1962: Director, Ecology Field Station, U.S. Public Health Service, University of Missouri, Columbia, Mo. July 1960: Heart Disease Control Program, U.S. Public Health Service, Washington, D.C. (Chief, Coronary H.D. Unit). 1959–60: General clinical medicine, U.S. Naval Dispensary, Norfolk, Va. 1957–59: Research investigator, Virology Department and Department of Clinical Investigation, Naval Medical Research Unit No. 3, Cairo, Egypt, United Arab Republic. 1955–57: Research investigator, Virology Department, U.S. Naval Medical Research Institute, Bethesda, Md. 1954–55: Division of Preventive Medicine officer, 3d Marine Division, Fleet Marine Force, Japan, and Okinawa. 1952–53: Epidemiologist: Streptococcal Disease Research Unit, U.S. Naval Training Center, Bainbridge, Md. 1952: Graduated U.S. Naval Medical School, Bethesda, Md. (basic course, 9 mos.).

Academic appointments: September 1962 to present: Assistant professor, Community Health and Medical Practice (preventive medicine), University of Missouri.

September 1965 to present: Associate professor, Community Medicine and International Health, Georgetown University, Washington, D.C.

Consultantships: Consultant in Public Health, U.S. Peace Corps.

Association memberships: Fellow, American College of Preventive Medicine, American Association Advancement of Science, American Public Health Association Member: American Medical Association, New York Academy of Sciences, Association of Military Surgeons of the United States. Diplomate: American Board of Preventive Medicine in Public Health, Society of Sigma Xi.

Special awards, citations, or publications: 1967: Annual Award for Outstanding Achievement, Department of Community Medicine and International Health, Georgetown University School of Medicine.

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Seal, J. R.; Mogabgab, W. J.; Friou, G. J.; and Banta, J. E.: "Penicillin Prophylaxis of Epidemic Streptococcal Infections I and II," Journal of Clinical and Laboratory Medicine. 44:727–753 and 831–859, 1954.

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Banta, J. E.: "De Re Scientia Epidemiologica, New Physician, August 1961."

Sauer, H. I.; Banta, J. E.; and Marshall, W. W.: "Cardiovascular Diseases Mortality Patterns Among Middle-Aged White Males in Missouri," Missouri Medicine, 921–929, November 1964.

Banta, J. E.; Sauer, H. I.; and Hall, H. K.: "Epidemiologic and Demographic Problems in the Study of the Geographic Relationship of Trace Elements in Cardiovascular Disease, Symposia Geological Society of America," November 1963, Symposia Proceedings in press.

Banta, J. E.; Akers, T. G.; Arm, H. G.; Freeman, N. L.: "An Epidemiologic Study of Diarrhea in an Alien Student Population in Cairo, Egypt," A.J.P.H., 54:940–946, 1964.

Banta, J. E.: "Importance of Viral Infections in Medical Practice," Missouri Medicine, 823–827, October 1965.

Banta, J. E.; and Jungblut E.: "Health Problems Encountered by the Peace Corps Overseas," A.J.P.H., 56:2121–2125, December 1966.

Banta, J. E.; and Pomerantz, J.: "Experience with Prophylactic Rabies Immunization in the Peace Corps, Proceedings National Rabies Symposum," 98–99 National Communicable Disease Center, Atlanta, Ga. May 1966.

Mr. FLOOD. I also notice your biographical sketch is about the same length as your statement. Are you what we would refer to as a prolific writer?

Dr. BANTA. No, I do not think so.

Mr. FLOOD. There is nothing wrong with that.

How do you wish to proceed, Dr. Banta?

Dr. BANTA. I would like to read the statement, Mr. Chairman, if you wish.

Mr. FLOOD. All right. Proceed.

GENERAL STATEMENT

Dr. BANTA. Mr. Chairman and members of the committee, I am James E. Banta, Director of the Office of International Health. This Office, a staff office of the Surgeon General, is responsible for—

1. Development of servicewide policies concerning the international health activities of the Public Health Service;
2. Participation with the State Department in formulating U.S. positions on international health matters;
3. Guidance to the five Bureaus of the PHS in their international health programs; and
4. The direction and coordination of the special foreign currency program of the service.

Funds were first appropriated in 1961 for the special foreign currency program. This program permits local foreign currencies derived from sales of U.S. agricultural commodities to be used to support scientific activities abroad which not only assist the PHS in achieving its mission, but also, and equally important, serve to promote U.S. foreign policy by providing assistance designed to enhance the health and well-being of the people in recipient countries.

BENEFITS TO UNITED STATES AND FOREIGN COUNTRIES

Benefits accrue directly to U.S. citizens through the conduct of programs designed to meet the threat of epidemic disease at the source rather than through communicable disease control programs in this country with attendant hazards of dangerous exposures. Indirectly, this foreign research affords the opportunity to acquire knowledge and experience not otherwise available in this country, giving us the ability

to deal more meaningfully with comparable health problems here at home.

Advantages likewise accrue to participating countries through programs designed to enhance the development of an effective health structure to meet their own priority health needs. Further, those programs directly improving the health and well-being of the populace contribute to economic development by increasing available effective manpower resources.

Two important elements in the development of new programs are now being stressed. First, they must contribute to the advancement of domestic PHS programs by utilizing unique opportunities available in participating countries and, secondly, programs must be developed so that they contribute to the health needs of the host country. This latter includes not only the health status of the country, but its ability to develop the necessary resources to meet its own problems in terms of health manpower and institutional development.

A variety of important and unique opportunities exist in excess currency countries to carry out studies and develop programs of great relevance to the health of the world community. The startling population increases occurring in many places on our globe represent a challenge to all mankind. Accordingly, it is proposed to reserve $5 million of our request for the support of studies in family planning to help meet this challenge. Projects will include the development and evaluation of contraceptive agents, studies in reproductive biology, and an examination of psychosocial and demographic forces in population growth.

These latter elements are essential to the evaluation of population and family planning programs now being initiated throughout the world. In many cases, these and other programs are carried out on a collaborative basis between two or more countries, and more recently with the expert advice and assistance of the World Health Organization.

The solution to the problem of providing adequate health services to all the people in the United States can be advanced by the study and evaluation of developing and developed health systems in the various participating countries. Health organization, costs, manpower, facilities, and quality of care can all be enhanced in excess currency countries while we learn from their experiences under a variety of situations.

Epidemiologic surveillance and study on an international basis will continue to contribute to our knowledge and understanding of many diseases prevalent throughout the world and posing a continuing threat to the health of the U.S. population. Advances already achieved in malaria, cholera, and smallpox can similarly be anticipated in plague, venereal diseases, and rabies. Problems which exist in heart disease, cancer, and other great killers of our population can be explored in new and unique ways which hold great promise of assisting us to effectively meet these health hazards.

Excess currency funds will continue to advance communication in the health sciences through translation and review of world medical literature. Programs such as these add greatly to our ability to introduce new health discoveries rapidly and effectively.

The $15 million appropriated in 1968 has been fully committed. More than 200 projects of high quality already developed, or being developed, will require the appropiration of $30 million for 1969, the amount we are requesting to move this program forward.

I shall be glad to answer any questions the committee may have.

Mr. FLOOD. You certainly do rush in where angels fear to tread. The appropriation for 1968 is $15 million and the request for 1969 is $30 million. That request is twice as much as 1968. And look at this: The request for the travel and transportation of persons is up five times, from $186,000 to almost $1 million.

When was this budget prepared; what month?

Dr. BANTA. It was finally prepared in January. We were operating on a continuing resolution and did not really receive our fiscal 1968 appropriation until December.

Mr. FLOOD. I understand. I think you should make the point, in case somebody is worrying about the outflow of dollars, that this program is financed with excess foreign currency. It is very important to make that point. But just the same, there is such a thing as too much fudge. Just because you have these zlotys and rupees is not justification in itself for spending them.

Dr. BANTA. This program has been in existence since 1961 and it reflects the activity necessary to find good investigators and unusual opportunities where studies can be pursued. We have identified studies and investigators that can fully commit these funds. In order for the program to be successful it requires close contact between the investigator and the host country and the responsible officer for the United States. The travel aspect represents communication and the officer's involvement.

I repeat we do have approved projects unfunded which will fully commit these funds. And, in the face of our dollar balance problems, this represents to us a mechanism whereby we can get research done in a foreign environment where we need to take advantage of these opportunities.

POSSIBILITY OF COMMITMENT OF FUTURE DOLLAR EXPENDITURES

Mr. FLOOD. And after the projects are finished, wouldn't the use of dollars follow?

Dr. BANTA. These projects do not represent any dollar drain. They are extensions of domestic programs and domestic responsibilities.

Mr. FLOOD. Can you build into your projects any assurances that the use of dollars will not follow thereafter just because the projects are there?

Dr. BANTA. This is already built into them. This is inherent in the grant. They are funded for finite periods of time such as 2 or 3 years, and they are funded only with excess currencies without a dollar component.

Mr. FLOOD. I know there is no dollar component now, but I am looking ahead.

Dr. BANTA. I know of no project where the excess currencies have been used up and where it has been necessary to continue the project with dollars.

Mr. FLOOD. That is not what I was talking about.

Dr. STEWART. I do not think there could be built into these a provision that it should not include the use of dollars, but if they are seeking dollars it would have to be in the budget and would come before you.

ALLOCATION TO NSF

Mr. FLOOD. The allocation for the National Science Foundation is more than double, from $468,000 to $1,564,000. Why such a large increase for the National Science Foundation?

Dr. BANTA. As you know, the National Science Foundation has been delegated principal responsibility from the Bureau of the Budget for our foreign translations. Where they have a program, rather than the National Library of Medicine competing with them, they utilize the contract resources of the National Science Foundation. There is a representative here from the National Library of Medicine.

Mr. FLOOD. All right.

Mr. KEFAUVER. In our Public Law 480 program one of the administrative problems for the last several years has been the limited allocation of funds. We have been able to support some projects only on a year-to-year basis. For example, it has been our wish to put a large project in Poland that requires around $530,000 for the translation of Polish journals, on a 2- or 3-year basis. It is clumsy to renegotiate it every year and there is anxiety about having the resources.

Mr. FLOOD. Anxiety about resources where?

Mr. KEFAUVER. Among the people wo do the work. We want to put this on a better administrative basis.

Mr. FLOOD. You have no fear about running out of zlotys?

Mr. KEFAUVER. No, sir.

Mr. CARDWELL. Could I underscore a point Dr. Banta made? At a time when we all are holding down hard dollar overseas activities under directives from the White House as well as directives of our own——

Mr. FLOOD. Including travel.

Mr. CARDWELL. That is right. It seems to us it is worthy of the consideration of Congress at such a time to make greater use of foreign currencies where they are in surplus, being careful at the same time not to drag hard dollars along.

Mr. FLOOD. That is what I am afraid of. It is my experience these things breed dollars overseas.

Dr. BANTA. Mr. Chairman, in this particular program this has not been our experience. If the investigator wishes to continue a program after these funds are exhausted he has to resubmit it for rereview under different criteria and at that time the controls can be exercised to prevent this from happening.

COAL MINING IN YUGOSLAVIA

Mr. FLOOD. You are aware of my more than a casual interest in the health problems related to coal mines. I am from the hard coal fields. Tell us about this project in Yugoslavia.

Dr. BANTA. We have a project in uranium mining. This is a long-term project to assess the hazards of radioactive materials.

Mr. FLOOD. But not in coal mines?

Dr. BANTA. No, sir.

Mr. FLOOD. At one time the cooperation you received from the Yugoslavs in your research program certainly left a great deal to be desired. What is the situation this afternoon?

Dr. BANTA. Well, sir, I have received no complaints from the investigators carrying on these programs as to any difficulties they have experienced with the Yugoslavs. I am not aware of any problems.

Mr. FLOOD. I am reading from page 240 of your justifications. I was asking about the problem with coal mining in Yugoslavia and you insisted on talking to me about uranium mining, and you said coal mining was not in the picture. I am reading from page 240:

> The large mining and manufacturing industries and the completeness of medical records in Yugoslavia provide a chance to study the role of coal, metal, and nonsiliceous mineral dusts in chronic occupational chest diseases, occupational fatigue, industrial noise and hearing loss, and the physiological effects of urban noise.

The reason I asked the question, you sent these justifications to the committee. I thought you knew something about coal mining in Yugoslavia that I didn't know. I know you didn't write this, but didn't you read it? It is not written in Polish or Slovene; it is in English.

Dr. BANTA. I think so far as the mining study in Yugoslavia, it is an occupational health problem.

Mr. FLOOD. You do not know anything about it, do you?

Dr. BANTA. The specific coal aspect; no.

Mr. FLOOD. Does anybody here know about it?

Dr. BANTA. We will file something for the record, sir.

(The information follows:)

PROJECT NO. DDPEC-OH-YUG-5 "CARDIOPULMONARY FUNCTION IN COAL MINERS EXPOSED TO COAL DUSTS OF DIFFERING COMPOSITION"

This is a 5-year project which began December 1, 1967, to study the cardiopulmonary function and work capacity of coal miners exposed to different amounts and composition of coal dust. These exposures will be related to the occurrence of such impairments as pulmonary emphysema, chronic bronchitis, the pneumoconoises, and allergic disorders. Groups of miners already showing some degree of pulmonary involvement will be selected from each of two mines. One mine produces hard coal with a low free silica in the dust, the other produces silica-free soft coal. Detailed records of exposure will be available and compared to examinations which will be made periodically over the next 5 years.

This study of a selected group of miners exposed to differing amounts and composition of coal dust for varying periods of time will attempt to establish the frequency of pulmonary disease in this group as well as provide a firm basis for establishment of factors relating to progression and ultimate outcome. Because of the relatively stable population in mining areas of Yugoslavia, long-term followup of groups of workers can be accomplished more readily than in the United States. The accomplishments listed above will add to our comparatively vague knowledge concerning development and progression of coal miner's pneumoconiosis, a disease which affects from 10 to 20 percent of American Appalachian coal miners. Exploration will also shed light on the relation between occupational respiratory disease and chronic chest disease in general.

DIRECT BENEFITS OF PROGRAM TO UNITED STATES

Mr. FLOOD. There are many projects discussed in the justifications, but you ought to pick out two or three and show us where there is a gain to the United States in these programs.

Dr. BANTA. One example is the discovery of a diagnostic test for a group of complex metabolic diseases of lipids, including Gaucher's, Tay-Sachs and Niemann-Pick. One of the important effects of those metabolic abnormalities is mental retardation in newborn infants. This particular diagnostic test was discovered in Israel.

Mr. FLOOD. It is a diagnostic test?

Dr. BANTA. Yes.

Mr. FLOOD. Are we making use of it?

Dr. BANTA. A patent application for this diagnostic test was filed with the U.S. Government in December 1967.

Mr. FLOOD. Pick another one.

Dr. BANTA. One of our problems is in the delivery of health service at a maximum benefit and at maximum economy in terms of methods of delivering services. This project is in relation to dental care and the delivery of dental care. The project demonstrates that by examining and treating people on a preventive basis the cost to the consumer is much less than if he waits until he has a carious lesion or has to have emergency repair work.

Mr. FLOOD. When did we first take advantage of that for the benefit of our people or for the benefit of our Government?

Dr. BANTA. I cite this as a model of the kind of information we have that can be used to our advantage.

LIBRARY PROGRAM IN INDIA

Mr. FLOOD. In the part of your justifications dealing with the National Library of Medicine, I notice some items that it would seem to me would be almost entirely for the benefit of the foreign country concerned. I quote:

> A program to support training for medical librarians and to improve regional medical libarary resources in India will be continued and expanded.

It looks to me as though 99 percent of the benefits of that program will go to India.

Dr. BANTA. In the field of biomedical communication it is a two-way street. In order for all of us collectively to benefit from medical research there has to be communication. That is one of the bottlenecks the investigator has when he is trying to produce new results or report a breakthrough. Therefore, anything that increases biomedical communication does benefit us as well as the Indians. Information becomes available to us through these new mechanisms of international communication.

USE OF FUNDS FOR STUDENTS TRAINING ABROAD

Mr. FLOOD. Are any of these funds being used to pay the expenses of medical students training abroad?

Dr. BANTA. Yes. In Israel there is such a program and there is one projected for India. They are operated with the collaboration of the

Association of American Colleges. By having this experience it provides an opportunity for students to learn methods that are different from those practiced here and they have the opportunity to learn about diseases they do not see as frequently in this country.

Mr. FLOOD. Why do we want to see them?

Dr. BANTA. Because they pose a threat to us domestically and to our servicemen overseas and to Americans who travel abroad.

Mr. FLOOD. Mr. Laird.

AMERICAN UNIVERSITY AT BEIRUT

Mr. LAIRD. I have a little difficulty in understanding why we are not approving grants to the medical school at the American University in Beirut.

Dr. BANTA. There are no special foreign currency funds in Lebanon. This question is out of my province.

Mr. LAIRD. What about that, Dr. Stewart? I was told that the NIH and the PHS has turned down all grants from the American University at Beirut, a school that was built with 100-percent U.S. financing?

Dr. STEWART. I am sorry, I don't know the answer to the question.

Mr. LAIRD. I don't know anything more about it, either. I was just told that this was the case and it surprised me.

Dr. STEWART. We will supply something on that for the record.

(The information follows:)

The following grants have been made to the American University in Beirut, Lebanon, during fiscal year 1968:

	Number	Amount
National Institutes of Health	4	$102,309
National Institute of Mental Health	1	35,400

In addition, one contract, in the amount of $41,320 was awarded to the University by the National Center for Chronic Disease Control.

Mr. FLOOD. Mr. Casey.

BENEFITS BECOME U.S. PROPERTY

Mr. CASEY. You spoke a while ago about one of the benefits being a particular diagnostic process which you say had been patented or an application filed?

Dr. BANTA. Yes, sir; to the U.S. Government.

Mr. CASEY. Was the application in the name of the Government?

Dr. BANTA. Yes.

Mr. CASEY. In other words, the results of this study is the property of our Government?

Dr. BANTA. That is correct.

GRANT RECIPIENTS

Mr. CASEY. How about the recipients and those who conduct the studies, are they all natives of the country in which these funds are spent?

Dr. BANTA. Yes, sir; the principal investigator is a member of the academic community or of the Ministry of Health in the excess currency country.

Mr. CASEY. Are you required by any international agreement or any other sort of agreement to use only those that are native to that country in the academic community or could U.S. citizens do it over there?

Dr. BANTA. Yes, sir; in some instances an American investigator will work with the local investigator as a team. There are some instances where this is done.

Mr. CASEY. Do they have any peculiar abilities or is it just the fact you have got these foreign currencies and can get the work done without the expenditure of the dollars that you conduct these particular programs where you do?

Dr. BANTA. It may be both. It is usually because of the uniqueness of the situation, such as a particular disease being present in a certain location, or because the particular investigator is an expert in his field. It may also be because of special language ability as in the case of translations, or because it can be done at great economy.

AIR POLLUTANTS

Mr. CASEY. Just what does a proposal to support research aimed at the development of a process for the production of sulfuric acid, heat and iron from coal pyrite mixtures have to do with health?

Dr. BANTA. This is under our National Center for Air Pollution Control and is related to the study of the whole process of atmospheric pollution and methods for the removal of these pollutants. This project is in Poland and is related——

Mr. CASEY. This one says in Yuvoslavia—this is page 240 in connection with that paragraph on Yugoslavia:

The Center proposes to support research aimed at the development of a process for the production of sulfuric acid, heat and iron from coal pyrite mixtures.

Dr. BANTA. This is a proposed project. They have in existence the one in Poland. I believe it is an extension of that activity.

Mr. CASEY. You have the same sort of thing going on in Poland, the same project?

Dr. BANTA. It is related. It is not exactly the same project but a study of air pollution as related to coal and sulfuric acid.

Mr. CASEY. Do you think you are going to come up with the idea of finding a new process for making sulfuric acid and iron?

Dr. BANTA. The projects are related to the development of a pilot plant and one of the objectives is to make the operation economically feasible. If there are products which can be sold as a result of the removal of the pollutant then this makes the process economically sound.

PROJECT BENEFITS TO THE UNITED STATES

Mr. CASEY. I am one of those suspicious whenever we start development new methods overseas for any competition for our own industry. We have done too much of that already.

On page 243 you have:

Following are examples of some of the areas which projects are being developed which the Bureau plans to carry out in India, Israel, Pakistan, Poland, Yugoslavia, Ceylon and Tunisia.

With reference to these I have the same question in my mind that the chairman has, as to what benefit we are going to get out of some of these proposed projects like regional hospital planning in urban and rural areas. We have a big project going on here in that regard. Are we just going to finance regional hospital planning for those particular countries?

Dr. BANTA. No, sir.

Mr. CASEY. Is that the idea?

Dr. BANTA. No, sir. One of our problems here of course is the rising cost of medical care, and by studying other health delivery systems and doing studies on the comparability between them we can learn of mechanisms and administrative techniques which we can use here to help reduce medical costs.

Mr. CASEY. You mean studies of what they have in existence?

Dr. BANTA. Yes, sir.

Mr. CASEY. This is not to help them set up facilities?

Dr. BANTA. That is right, not to help them set up.

Mr. CASEY. This just says projects, it does not say studies. You do have one study of National Health Services delivery systems. You have got that down there. But these others sound pretty much like it's to set up and do for them what we are trying to do over here in that regard.

Dr. BANTA. These are research projects.

FERTILITY PATTERNS IN YUGOSLAVIA

Mr. CASEY. Of what use will it be to the United States to have a research study to analyze the unusual variety of fertility patterns in several regions of Yugoslavia?

Dr. BANTA. One of the difficult problems in family planning is the relationship of psychosocial factors to acceptance of a program by any group of people. Again, this is an endeavor to further elucidate this aspect.

Mr. CASEY. Do you think a study of fertility patterns fertilization in various regions of Yugoslavia will be helpful to us?

Dr. BANTA. Yes.

Mr. CASEY. The patterns as you call it, variety of fertility pattern. What is a fertility pattern?

Dr. BANTA. This means essentially the number of pregnancies and children a woman has.

Mr. FLOOD. Why Yugoslavia?

Dr. EHRLICH. In some areas of Yugoslavia a very unusual pattern exists.

Mr. FLOOD. Do you know Yugoslavia?

Dr. EHRLICH. Not that well, sir; but there are areas where as opposed to the rest of the world the more affluent members of society have large numbers of children and the least affluent, the poor population, have fewer children. This is quite an unusual pattern and the factors that relate to this may be important to the success of our own family planning programs.

Mr. FLOOD. Would you supply a more complete statement of this project for the record?

(Information follows:)

STUDY OF FERTILITY PATTERNS IN YUGOSLAVIA (NCHS–Y4)

Yugoslavia has within its relatively small area the full range of demographic experience exhibiting strong contrasts in fertility patterns. The country includes areas with one of the highest and one of the lowest birth rates in the world. (See table below.) These reflect the nationality-religious-geographic differences in the country: The Roman Catholic, Croatian-Slovene peoples are located in the more industrialized areas in the north and are European oriented; the Muslim remnants of the Turkish Empire are located in poverty-stricken agricultural areas in the south of the country. Between the low birth rates of the former and the high rates of the latter, are members of the Serbian Orthodox Church and others. Yugoslavia is experiencing large migrations from the agricultural areas to the urban centers—which was typical of Western Europe in the last century when the demographic transition from high mortality and fertility rates changed to the current low rates for mortality and fertility. Data are not available to fully document demographic theories concerning this transition. Opportunity to study it in Yugoslavia while it is in the process of change will give a basis to determine what are the economic, social or cultural conditions which affect and are affected by the demographic change.

The study will be conducted in three phases: (1) Analysis of fertility trends from available data, (2) a national survey to collect information on factors affecting fertility including cultural and economic conditions, and (3) the analysis of the survey and a study of relationships to information collected in phase I.

In addition to obtaining an understanding of the socioeconomic and cultural factors influencing fertility patterns, we are interested in studying the effect of migration from agricultural areas to urban environments on birth rates. Also, we are supporting family planning programs in many countries with Muslim cultures. If there is anything to be learned from the experience of Muslim-oriented Yugoslavs in relation to the reaction to population policies or as a result of their emigration to industrial areas, it may prove useful to all the Muslim-oriented cultures of the world, and to the establishment of policy in the operation of U.S.-supported family planning programs.

ILLUSTRATION

	Infants per 1,000 women		
	All areas	Urban	Rural
Yugoslavia	137	106	144
Low fertility region	113	91	119
Slovenia	105	89	108
Croatia	109	88	114
Voivodina	110	93	116
Serbia proper	121	93	127
High fertility region	198	160	205
Montenegro	174	134	178
Bosnic and Hercegovina	185	135	191
Macedonia	202	179	208
Kosmet	264	227	269

Source: The population of Yugoslavia: Paul F. Myers and Arthur A. Campbell; Bureau of the Census, Washington, D.C., 1954.

Mr. CASEY. Do you think this is going to be helpful to us?

Dr. BANTA. Yes, sir.

Mr. CASEY. To know all of this about Yugoslavia.

Dr. BANTA. Its social and scientific principles are applicable to us; yes, sir.

Mr. CASEY. Why? Over here they say it is the non-affluent in Yugoslavia that have large families. What difference is it going to make whether the affluent in Yugoslavia have large families or not, to us?

Dr. BANTA. There are many aspects of fertility that are not really

very clearly understood, so I cannot really give you a definitive answer. That is one reason why we are doing the study.

Mr. CASEY. You have a list of those, and I think if you look at them closely they are subject to challenge to say the least as to what we would get. You have a list on page 251 and 252 in that regard.

That is all.

Mr. FLOOD. Mr. Shriver.

USE OF DOLLARS IN THE PROGRAM

Mr. SHRIVER. Is all of this travel and transportation purchased by the use of excess currency?

Dr. BANTA. Yes, sir.

Mr. SHRIVER. All of it?

Dr. BANTA. Yes, sir.

Mr. SHRIVER. Are there any funds in your request for taxpayers' dollars and not excess currency?

Dr. BANTA. No, sir; in this request there are no dollars.

Mr. SHRIVER. How are you paid?

Dr. BANTA. How am I paid?

Mr. SHRIVER. You are directing the program.

Dr. BANTA. Yes.

Mr. SHRIVER. Are you paid with excess currency?

Dr. BANTA. No, sir.

Mr. SHRIVER. Are the people on your staff?

Dr. BANTA. No, sir.

Mr. SHRIVER. Then the prior statement is not correct.

Dr. STEWART. The staff of the Office of International Health has many functions, one of which is keeping track of the program under Public Law 480. Dr. Banta's salary is in the appropriation for the Surgeon General's Office.

EXCESS ISRAELI POUNDS

Mr. SHRIVER. On page 236 of your justification it shows a large increase for Israel, and then on subsequent pages there are other items for Israel where there are increased amounts of excess currency. What is the total we will be using of excess currencies in Israel for this program?

Dr. BANTA. It is $10,347,876.

Mr. SHRIVER. That is for this particular part of it?

Dr. BANTA. Yes.

Mr. SHRIVER. There are others?

Dr. BANTA. The others add up to this, sir.

This is the total figure.

Mr. SHRIVER. How much excess currencies do we have in Israel; Israeli pounds?

Dr. BANTA. At the moment we do not know because this fluctuates.

Mr. SHRIVER. The reason I ask, last year we added to the foreign aid bill about $6 million in Israeli pounds, the use of that excess currency for some schools. We added part of it on the floor of the House and part in the committee.

At that time we were told that there was something like $30 million worth of pounds. If you are using $10 million here, it is going to bring down the excess currencies we have for other projects such as education, this project you ask for. That is why I ask how much we have now in excess currencies in Israel.

Mr. CARDWELL. May I make a point by asking a question?

Mr. SHRIVER. Yes.

Mr. CARDWELL. I am assuming part of the $10 million has already been earmarked against the pool of Israeli pounds.

Mr. SHRIVER. So we do not want to deplete those pounds?

Mr. CARDWELL. I don't think you would be. I think the figure of $30 million you were given probably was net, but we could check that and supply the exact information for the record.

Mr. SHRIVER. Yes.

(The information requested follows:)

ANALYSIS OF FOREIGN CURRENCIES, DEC. 31, 1967

[In thousands of dollars]

Excess currency countries	Available for U.S. use				Available for country use			Cash balance on hand
	Non-restricted Public Law 480 money [1]	Non-restricted sales only	Restricted	Total available for U.S. use	AID accounts	Other Government agency accounts	Total available for country use	
Burma	636	10,319	3	10,958	8,184	0	8,184	19,142
Ceylon	3,991	1,941	4	5,936	3,108	0	3,108	9,044
Congo	390	67	1	458	1,184	0	1,184	1,642
Guinea	6,797	59	1	6,857	21,894	[2]	21,894	28,751
India	303,619	316,885	9,937	630,441	414,617	53,854	468,471	1,098,912
Isreal	10,832	682	666	12,180	17,072	3,896	20,968	33,148
Pakistan	29,723	82,883	4,012	116,618	91,053	23,060	114,113	230,731
Poland	471,395	0	3	471,398				471,398
Tunisia	2,869	9,350	2	12,221	10,302	1,261	11,563	23,784
United Arab Republic	125,352	9,321	6	134,679	101,647	158	101,805	236,484
Yugoslvaia	13,656	40,699	5	54,360	23,747	0	23,747	78,107
Total, excess currency countries	969,260	472,206	14,640	1,456,106	692,808	82,229	775,037	2,231,143

[1] Public Law 480 money subject to waivers and sales.
[2] Less than $50,000 not shown.

Mr. SHRIVER. Do you know for instance how much in excess currency we have in Yugoslavia?

Dr. BANTA. I do not know, sir. Again these fluctuate but we can certainly find it for the record for today.

Mr. SHRIVER. Why was the increase so great for the use of excess currencies in Egypt in the U.A.R.? From last year's estimate, it's more than double.

Dr. BANTA. These represent new projects. Just offhand, I don't know what they are in particular.

We can supply that for the record.

(Information follows:)

INCREASE IN U.A.R. EXPENDITURES

In order to take advantage of the unique research opportunities in the United Arab Republic during fiscal year 1969, the estimated expenditures will approximately double in the same proportion as the total budget.

Proposed projects include: (1) A study of the delayed effects of scalp irradiation in a larger group of people treated as children with X-rays for ringworm, (2) studies of schistosomiasis and tick-borne diseases, and (3) an assessment of attitudes and the impact of health measures on family size and population growth.

Mr. SHRIVER. Of course there is a large increase in the country of Yugoslavia as was pointed out by the chairman. I am wondering what the total of excess currencies we have in those countries is, to what extent this will deplete the excess currency and what the requirement might be in the future.

Dr. BANTA. We feel that these represent unique opportunities to study disease problems in those particular countries.

AMOUNT OF EXCESS CURRENCIES IN ALL COUNTRIES

Mr. FLOOD. If the gentleman will yield, I would suggest this is very easy information for you to obtain. You can get this by a telephone call, the amount of excess currencies in all of the countries. So put it in the record for all of these countries at the point where Mr. Shriver asked about Israeli pounds. As I say, I can think of Poland and India where you don't worry about that; you have no problem. But there may be a problem in some of the others we are sure about. So it would not be difficult to do and it is readily available and I think a lot of people might want to look at this. (See page 1160.)

EXAMPLES OF PROGRAM ACCOMPLISHMENTS

While I have interrupted, I asked you to pick out one or two projects, and you spoke of one or two where there would be a benefit to us. Let me assure you that when this bill gets on the floor, there are certain Members who are going to go through this with a fine-tooth comb and they are going to pick out some exotically worded project that you have someplace and point that out as a horrible example, like they do in Agriculture, on the examination of moth wings. Some of the Members upstairs make a point of this. So you had better be sure as far as you can you have something in the record there, because it is going to Mr. Shriver and Mr. Flood they are going to ask.

Mr. SHRIVER. Of course, there are many people in the country who believe that we should not be participating with Communist countries to aid their scientific development.

Are these projects listed in the justification firmed up projects you are going ahead with or illustrative?

Dr. BANTA. They are in all phases of development. Some are approved, some are extensions of currently funded projects, and others are in preliminary stages of development.

(Information follows:)

EXAMPLE OF PROGRAM ACCOMPLISHMENTS DIRECTLY BENEFITING THE UNITED STATES

PROJECT NO. BSS–DPR–UAR–1 "STUDY OF INCREMENTAL DENTAL CARE IN CHILDREN"

This project was initiated in Egypt in May 1965, primarily to acquire organizational and administrative data needed for the development of similar programs proposed by Congress for the children of the United States. This project

in the rural El Bradrashein area includes: an annual survey of approximately 8,000 children (6 to 12 years of age) to establish annual baseline information; clinical treatment via a mobile dental unit; preventive dental treatment by means of the topical application of stannous fluoride plus distribution of toothbrushes and toothpaste and instruction in their use; and water and dietary analysis.

Benefits accrued from these annual surveys and the resultant care provided are clearly demonstrating the effectiveness of such a program in an area where there are no dentists. The first two phases of the project in Egypt have shown that the delivery of comprehensive dental care in isolated areas by means of a mobile dental unit is practical in that large numbers of children can be treated who otherwise would not receive any form of dental services. To date 7,673 children have been examined twice, provided with health education materials, and have received initial dental care. A portion of that group has also received topical applications of stannous fluoride. All of these services were provided by five dentists plus a small supportive staff and with the use of only one mobile dental trailer. Detailed analyses will be available at the conclusion of the 5-year project but it has clearly been demonstrated so far that the provision of incremental dental care and preventive dental techniques can be accomplished in an area lacking an adequate supply of dental manpower. A similar but less severe situation exists in many parts of the United States.

Since the inception of the project in Egypt, Congress has authorized the establishment of pilot projects for similar incremental dental care programs in the United States. Information from studies of the type being conducted in Egypt ultimately can lead to the development of more effective community service programs in the United States.

PROJECT NO. 425115 "SYNTHESIS OF SPHINGOLIPIDS FOR USE IN DETERMINING THE METABOLIC ABERRATIONS IN HEREDITARY SPHINGOLIPIDOSES"

This project is being conducted in Israel at the Weizmann Institute to study the nature of several diseases which result from the accumulation of fatty substances in various organs of the body. Such diseases are the result of hereditary inborn metabolic errors and affect newborn infants and young children leading to early death or prolonged disability and mental retardation. This project has to date achieved two outstanding breakthroughs: (1) Two of the fatty compounds have been synthesized, something scientists have been working on for over 50 years and, (2) a diagnostic test has been developed so that the conditions can now be recognized early. These findings will hopefully lead to a successful method of treating these conditions which exist in the United States. An incidental benefit occurred from this study when informal discussions between NIH and Israeli investigators accelerated research at NIH in a related area by some 2 years.

PROJECT NO. 114301 "RESEARCH ON PROTEIN SUPPLEMENTS AND PROTEIN MALNUTRITION"

This project is being conducted at the Central Food Technological Research Institute, Mysore, India. The primary objective of the study is the development of protein-rich food supplements based on locally available protein sources to prevent the serious malnutrition found among preschool children in India and other developing nations. Several products have been tested and are now commercially available including an infant weaning formula. These can be offered at a price suitable for the prevailing Indian economy and hold great promise for reducing the malnutrition which exists today. The most important advance, however, is the development of a process which is capable of inactivating aflatoxin, a highly toxic substance produced by mold growth in a wide range of foodstuffs. Aflatoxin is strongly implicated in liver damage and as a cancer producing substance in animals and man. This development is of considerable importance to the United States both from the public health standpoint and that of agricultural and food economics. The technological innovations evolved are enriching the fund of scientific knowledge in the United States and contribute specifically to the technological know-how of the U.S. food industry.

Mr. SHRIVER. That is all.

Mr. FLOOD. Thank you.

JUSTIFICATION MATERIAL

PUBLIC HEALTH SERVICE

Scientific Activities Overseas (Special Foreign Currency Program)

Amounts Available for Obligation

	1968	1969
Appropriation	$15,000,000	$30,000,000
Unobligated balance brought forward	850,466	850,466
Unobligated balance carried forward	-850,466	---
Total	15,000,000	30,850,466

Obligations by Activity

Page Ref.		1968 Estimate	1969 Estimate	Increase or Decrease
235	Foreign health research (total obligations)	$15,000,000	$30,850,466	+$15,850,466

Obligations by Object

	1968 Estimate	1969 Estimate	Increase or Decrease
Public Health Service			
Travel and transportation of persons	$186,000	$973,000	+$787,000
Other services	14,346,000	28,313,466	+13,967,466
Total, Public Health Service	14,532,000	29,286,466	+14,754,466
Allocation to National Science Foundation			
Other services	468,000	1,564,000	+1,096,000
Total, National Science Foundation	468,000	1,564,000	+1,096,000
Total obligations by object	15,000,000	30,850,466	+15,850,466

Summary of Changes

1968 enacted appropriation	$15,000,000
Unobligated balance brought forward	850,466
Unobligated balance carried forward	-850,466
1968 total estimated obligations	15,000,000
1969 estimated obligations	30,850,466
Total change	+15,850,466

Increases

A. Program

1. Bureau of Health Manpower	433,300
2. Bureau of Disease Prevention and Environmental Control	10,875,000
3. Bureau of Health Services	3,975,000
4. National Institutes of Health	12,145,800
5. National Institute of Mental Health	758,300
6. National Center for Health Statistics	933,300
7. National Library of Medicine	1,716,800
8. Office of International Health	12,966
Total program increases	+30,850,466

Decreases

Nonrecurring program costs of prior year	-15,000,000
Total net changes requested	+15,850,466

Scientific Activities Overseas (Special Foreign Currency Program)

General Statement

The Agricultural Trade Development and Assistance Act of 1954, as amended, authorizes the use of excess foreign currencies derived from the sale of U.S. surplus farm products abroad and from other sources to:

> "collect, collate, translate, abstract, and disseminate scientific and technological information and conduct research and support scientific activities overseas including programs and projects of scientific cooperation between the United States and other countries such as coordinated research against diseases common to all of mankind or unique to individual regions of the globe, and promote and support programs of medical and scientific research, cultural and educational development, family planning, health, nutrition, and sanitation . . ." [Title I, Section 104 (b) (3)]

Excess foreign currencies are those currencies owned by the U.S. which have been determined by the Department of the Treasury to be in more than sufficient supply to finance for the next two or three years regular U.S. overseas operations. The dollars appropriated for the Public Health Service are used to purchase these excess foreign currencies from the Department of the Treasury and the dollars are credited to the account of the Commodity Credit Corporation thus reducing its need for direct appropriations.

The appropriation for this program has two other unique and essential fiscal provisions. These are that the funds remain available until used and are therefore not subject to fiscal year restrictions, and secondly that they are in addition to other Public Health Service appropriations. These important provisions have given the necessary flexibility to establish and maintain an effective and productive foreign research program in these developing countries.

The Public Health Service first received appropriations for the Scientific Activities Overseas Program in 1961. Only the National Institutes of Health developed projects in that year. In 1968 every bureau of the Service, including the National Library of Medicine and National Center for Health Statistics, is engaged in the Program.

A summary of estimated obligations by country follows:

	1968 Estimate	1969 Estimate
Burma	$5,000	$23,000
Ceylon	15,000	764,000
Guinea	---	25,000
India	2,501,399	7,024,853
Israel	6,761,642	10,347,876
Pakistan	2,283,206	2,186,527
Poland	1,543,073	2,817,593
Tunisia	285,000	649,400
U.A.R. (Egypt)	784,280	1,602,895
Yugoslavia	821,400	5,409,322
Total	15,000,000	30,850,466

The following program narratives indicate the kinds of projects contemplated in the current and budget year. The highest priority projects will be supported to the extent possible within the total funds appropriated. Five million dollars is specifically proposed for allotment to the National Institute of Child Health and Human Development, NIH, so that Institute may serve as a focal point for the development, stimulation and support of family planning studies throughout the Public Health Service.

Bureau of Health Manpower

The Bureau of Health Manpower was established to provide a national source of information on health manpower needs now and for the future. The Bureau is a central point for planning and carrying out education and training programs designed to provide additional and better-qualified manpower for health.

Project Extensions

In 1969, the Dental Division proposes to expand projects begun in Israel during 1968 for the study of oral abnormalities and for research in dental materials.

Restorative Materials Development. The introduction of new dental materials for restorative work in dentistry requires clincial trials before the material is introduced in private practice. This study involves placing paired anterior and posterior restorations in patients of the Tel Aviv School Dental Clinics using conventional amalgams and new restorative materials in the same patient. A special evaluative technique will be used for clinical assessment of the materials. This study will complement work going on in the United States and help stimulate further research on restorative materials.

Other Disease Prevention and Control. Through the study of the prevalence and genetics of oral abnormalities among the population, involving examinations of all grade school children by specially trained dentists to note any oral or dental abnormalities, data will be analyzed for genetic relationships of these conditions and the relationship of oral malformations to other congenital malformations and syndromes. These studies will provide valuable information in support of our own studies of congenital malformations in the United States.

Proposed Program

Water Fluoridation. The Division proposes to support fluoridation research in Yugoslavia. Since fluoridation is to be an important dental public health measure in combating dental decay, more knowledge is needed of the relationship between ingested fluorides and dental caries. Data obtained from this study will supplement information gathered in the United States.

Estimated obligations by Country

	1968 Estimate	1969 Estimate
Israel	$285,000	$267,000
Yugoslavia	---	166,300
Total	285,000	433,300

Bureau of Disease Prevention and Environmental Control

The Bureau of Disease Prevention and Environmental Control supports scientific activities overseas which are within the program interests and responsibilities of the Bureau and are of mutual interest and benefit to host countries and its investigators. Various foreign countries provide unique circumstances that are not present in the United States for study of environmental hazards, epidemiology, and prevention of diseases. A summary of the projects to be undertaken by the Bureau's National Centers follows:

The National Center for Chronic Disease Control will support research agreements in Ceylon, India, Israel, Poland, Yugoslavia, and the United Arab Republic. In Ceylon a survey will be taken to study oral cancer patients and the natural history of the disease so that screening methods can be developed. Research programs planned for India will be concerned with the control of epilepsy, the detection and control of glaucoma, and improved methods of treating speech and hearing defects. Studies in Israel will deal with the prevention of heart disease, the epidemiology of glaucoma, and the psycho-social aspects of coping with chronic disease. Research scientists in Poland will study the role of emotional strain and chronic fatigue in relation to heart disease and will undertake a diagnostic study of peripheral vascular disease to develop improved means of early detection. In Yugoslavia studies are planned to develop better methods of detecting and treating hearing impairments. In addition, an exchange research program is proposed to collaborate in heart disease control problems. Research programs in the United Arab Republic will study the relationships of heart disease to the development of hearing loss.

The National Communicable Disease Center is planning to study communicable diseases including plague, leptospirosis, shigellosis, blastomycosis, arbovirus infections, venereal diseases, rabies, trichinosis, and water-borne enteric viruses. The Center proposes to conduct these studies in the United Arab Republic, Ceylon, India, Israel, Poland, and Yugoslavia. Research in these particular countries is desirable because the incidence of the above mentioned diseases is much higher there than in the United States. Most of these projects will continue for two or more years and will supplement similar research projects conducted in the United States.

The National Center for Urban and Industrial Health plans to support agreements in India, Israel, Poland, and Yugoslavia. In India studies will be supported on problems of water supply, infectious industrial pneumoconiosis, and the role of manganese in industrial disorders. In Israel the presence of distinct ethnic groups, the hot climate, the contrasts between highly industrial and urban populations, and the well organized medical and health facilities and records systems afford a unique opportunity to study many problems of concern to the United States. Some areas of concern include osteoporosis and fractures, licensing of motor vehicle drivers who have heart trouble, solid waste disposal, heat and dust in

lung diseases, heat stroke, and industrial noise and hearing loss. Poland's many heavy industrial and mining activities provide for studies of chest disorders in coal and metal mining, effect of noise and vibration on the health of the worker, methods for diagnosis of acute toxicity to industrial materials, and chronic carbon monoxide poisoning. The large mining and manufacturing industries and the completeness of medical records in Yugoslavia provide a chance to study the role of coal, metal and non-siliceous mineral dusts in chronic occupational chest diseases, occupational fatigue, industrial noise and hearing loss, and the physiological effects of urban noise.

The National Center for Air Pollution Control plans to support research projects in India, Israel, Poland, and Yugoslavia. Scientists in India will be working on the development of methodology and techniques for the removal of pyritic sulfur from coal and the hydro-desulfurization of coal extracts and residual oils. Translations of technical journals and scientific papers will be supported in Israel. In Poland studies are planned to improve the char absorbtive capacity of sulfur oxides and to improve sulfur oxide removal from stack gases. Also proposed for Poland is a project concerning the development of a two-stage combustion process. In Yugoslavia the Center proposes to support research aimed at the development of a process for the production of sulfuric acid, heat, and iron from coal-pyrite mixtures.

The National Center for Radiological Health proposes to support research agreements in Israel and the United Arab Republic. In Israel and the United Arab Republic dosimetry studies are proposed to determine the dose-range received by tinea capitis patients by X-ray expilation. In addition, the Center plans to support another tinea capitis project in the United Arab Republic concerning the delayed effects of scalp X-irradiation.

Estimated obligations by Country

	1968 Estimate	1969 Estimate
Ceylon	---	$462,000
India	$1,457,000	1,833,000
Israel	3,690,000	5,019,000
Poland	501,000	928,000
U.A.R. (Egypt)	437,000	681,000
Yugoslavia	335,000	1,952,000
Total	6,420,000	10,875,000

Bureau of Health Services

The development of the Bureau of Health Services' long range international health programs was accentuated during the latter part of 1967 by the designation of an Assistant Bureau Director for International Health. This was done to provide a focal point for the coordination of the Bureau's international programs and to assist the divisions in developing high quality research protocols related to ongoing national programs of the Bureau and designed to complement and strengthen them.

Inasmuch as the primary goal of the BHS is the improvement of planning and delivery of health care services for the American people, much emphasis is given to the health services area in the Bureau's foreign research planning. For example the Division of Medical Care Administration is now involved in the support of an international collaborative study of medical care utilization. This study will provide analyses of patterns of medical care utilization and utilization of physicians' services in a number of countries. This information will assist in making more effective use of health services resources in this country. The study is currently supported with P.L. 480 funds in Yugoslavia and an agreement is now being developed in Poland.

The Division of Indian Health and the Division of Direct Health Services of the Bureau have broad national clinical responsibilities and for this reason are developing foreign research programs that will concentrate on the evaluation of new and different techniques of preventing, diagnosing, and treating diseases. For example these Divisions are currently supporting studies on the prevalence and etiology of anemia in Pakistan and the many uses of photocoagulation in the treatment of eye disease in India.

The Bureau also has national responsibilities in the area of family planning. Research programs are being developed to improve family planning services and evaluate methods to increase acceptance of these services. Currently support is being provided to a study of intrauterine devices in a rural health center in India.

Within this Bureau is the responsibility for assisting states and cities in providing the necessary medical services when a disaster occurs. Projects are being developed that will assist in improving the planning, stockpiling, and rapid delivery of emergency services.

In the design of many of the Bureau's research projects, an effort is being made to involve American university medical faculty and advanced medical students in the planning and the carrying out of research projects on site in the foreign country. In this way American medical personnel will become aware of new and different research techniques, unusual health programs and problems and different methods of health care delivery. In order to expedite this program the Bureau of Health Services has contracted with the Association of American Medical Colleges to select American medical faculty and advanced medical students to take part in certain foreign

research projects. The program was inaugurated last year in Yugoslavia and this year will be expanded to Israel, India and other interested and appropriate countries.

Professional staff from the Bureau and the divisions are presently exploring and arranging new research projects in the countries where there are available excess currencies, quality research capability and an interest in health studies directly related to the mission of this Bureau.

Following are examples of some of the areas in which projects are being developed which the Bureau plans to carry out in India, Israel, Pakistan, Poland, Yugoslavia, Ceylon and Tunisia:

Health program planning and evaluation
Organization and administration of health and medical care
Costs of health care services
Regional hospital planning in urban and rural areas
Evaluation of adequacy and effectiveness of the medical education of general practitioners
Utilization of hospital care
Study of national health services delivery systems
Uniform system for follow-up of medical care
Computerization of clinical laboratories
Automation of diagnostic techniques
Organization and administration of rural medical care services
Migrant health services
Evaluation of trachoma control and treatment
Evaluation of utilization of allied health personnel
Use of sub-professional personnel in family planning
Transmission of leprosy
Studies of hospital information systems
Relationship of Glaucoma to Trachoma
Analysis of degree of acceptance of various types of family planning programs

Estimated obligations by Country

	1968 Estimate	1969 Estimate
Burma	$5,000	---
Ceylon	5,000	$141,000
India	250,000	697,000
Israel	700,000	1,292,000
Pakistan	100,000	353,000
Poland	100,000	146,000
Tunisia	235,000	287,000
Yugoslavia	300,000	1,059,000
Total	1,695,000	3,975,000

National Institutes of Health

The objective of this NIH program is to support, through utilization of U.S. - owned excess foreign currencies, scientific activities overseas which will contribute to biomedical research in the U.S. and which are within the program interests and responsiblity of the NIH and also of mutual interest to the host country and its institutions and research investigators. The NIH attempts to achieve this objective through the instrument of collaborative research agreements in support of projects involving U.S. biomedical scientists both within NIH intramural laboratories and at U.S. academic and foreign research institutions to assure that academic, intellectual, scientific and health benefits accrue to the U.S. as well as the participating foreign country.

To assure an essential level of scientific merit all new and renewed projects are submitted to dual review first by regular NIH Study Sections for evaluation of scientific merit and secondly by an NIH Institute to provide an additional scientific review and determination of relevance to Institute programs. This review assures that the individual research projects supported by this program are an integral part of the research programs of the individual Institute.

Emphasis in this program is given to utilization of resources unique to the country whether they be manpower, laboratory facilities, cultural, ecological or clinical material. These resources will be especially directed toward the critical world problems of population and family planning by earmarking $5,000,000 of our request for the National Institute of Child Health and Human Development. These funds will allow the Institute to serve as a focal point for the development, stimulation and support of family planning studies throughout the Public Health Service. Studies will be focused in four general areas: 1) the development and evaluation of contraceptive agents such as gonado tropic antibodies, low dosage androgens in males, sperm antibodies, and low dose progestin administration; 2) reproductive biology with emphasis on fertility regulations such as studies on gamete transport, mechanism controlling ovulation, and physiology of reproductive organs; 3) psychosocial studies of attitudes, motives, incentives and demography; and 4) evaluation of studies of systems for delivering family planning services.

Burma, India and Pakistan offer excellent opportunities for investigations of malnutrition and parasitic and infectious diseases in all stages. Of these, India is fortunate in having the greatest supply of scientific manpower. In addition to malnutrition problems, Egypt offers a reservoir of schistosomiasis or blood fluke and ticks and tickborne diseases. Israel, scientifically the most productive country in which this program operates, offers excellent opportunities for cross-cultural studies of growth and development, especially congenital abnormalities. Israel also has one of the most outstanding biophysical laboratories in the world with which NIH maintains close association through both intramural and extramural channels and programs. Poland, a foci for investigation of cystic fibrosis, offers a valuable augmentation of a limited

domestic effort. Poland's contribution to descriptive neuro-anatomy, pathology and physiology cannot be matched in the U.S. or elsewhere in the world, where such work, although important, has ceased to be a popular research interest with scientists. Yugoslavia has offered the opportunity for an extensive epidemiological investigation of coronary heart disease. Initial efforts are underway to exploit the reservoir of interest and training in neurophysiology and also biophysics which exists in Yugoslavia. Many of the proposed collaborators in Yugoslavia are U.S. - trained people. It can be seen from the brief foregoing comments that this program fortuitously encompasses many elements of national strategic importance at this time both from the standpoint of the indigenous diseases under investigation and from the geographical areas involved.

The diversity of subject matter which characterizes the 89 collabortive research projects currently active in the seven countries of Burma, Israel, India, Pakistan, Poland, U.A.R. and Yugoslavia is inherent in a program which has the objective of limiting support to highly selected, promising investigators and projects utilizing unique research opportunities, facilities or competence indigenous to the country. The homogeneity of the NIH Special Foreign Currency Program becomes apparent when it is considered within the context of being a part or a geographical extension of regular research programs, both intramural and extramural, of the individual Institutes.

Distribution of NIH Active Agreements by Institute

Institute	1*	2**	Total
National Institute of Allergy and Infectious Diseases	7	12	19
National Institute of Arthritis and Metabolic Disease	10	3	13
National Cancer Institute	7	3	10
National Institute of Child Health and Human Development	1	3	4
National Institute of Dental Research	3	10	13
National Heart Institute	5	3	8
National Institute of Mental Health 1/	3	0	3
National Institute of Neurological Diseases and Blindness	11	7	18
Division of Biologics Standards	1	0	1
Total	48	41	89

* No. Intramural
** No. Extramural

1/ Projects will be transferred to new Bureau (NIMH) if extended beyond current agreement.

Estimated obligations by Country

	1968 Estimate	1969 Estimate
Ceylon	---	$125,000
Guinea	---	25,000
India	$360,014	3,851,853
Israel	1,668,842	2,814,776
Pakistan	2,108,206	1,782,261
Poland	299,258	742,993
Tunisia	---	275,000
U.A.R. (Egypt)	347,280	814,395
Yugoslavia	121,400	1,714,522
Total	4,905,000	12,145,800

National Institute of Mental Health

The promotion of studies and research activities aiming at a better understanding of mental illness is one of the most important functions of the National Institute of Mental Health.

Biological, psychological and cultural factors play varying roles in the etiology, evolution and outcome of mental disorders. These factors can be better identified and understood when comparative and parallel studies are carried out utilizing as subjects individuals from different ethnic groups, living in different socio-cultural environments.

Countries in which P.L. 480 funds are available provide ideal conditions for such studies and research.

Another area in which NIMH proposes to utilize the P.L. 480 funds is in sponsoring research seminars and workshops, creating the opportunity for scientists and mental health workers from various areas of the globe and our scientists to exchange ideas and discuss the results of their research studies.

In other countries the existence of laboratory facilities and familiarity with local medicinal herbs and native medicines and procedures presents a valuable opportunity for searching for new drugs to be utilized in the treatment of mental illness. Such is the case, for example, with India and Israel.

Types of projects proposed to be carried out in these countries are as follows:

India:

Pharmacological properties of indigenous plants.
Clinical uses of indigenous plants.

Israel:

Chemical components of marihuana.
Socio-cultural aspects in involutional crises.
Cross-cultural studies of psychotic patients.
International research seminar on community mental health programs.

Poland:

Psychophysiological studies.

Yugoslavia:

Conference on cooperative clinical drug studies.
Epidemiology of mental illness.

Estimated obligations by Country

	1968 Estimate	1969 Estimate
India	$67,385	$170,000
Israel	150,800	242,000
Poland	104,815	206,300
Yugoslavia	22,000	140,000
Total	345,000	758,300

National Center for Health Statistics

The National Center for Health Statistics conducts a special program designed to encourage and promote international research activities in the areas of vital and health statistics. All projects of the program are scientific research studies primarily designed to develop new and improved methods for the scientific study of human populations, their growth, and their health. This focus on scientific methodology ensures that the projects make a contribution to scientific knowledge generally applicable to the United States, the country where the projects are conducted, and to other countries with related methodological problems. Accordingly, these activities enhance the scientific knowledge of the United States, provide an opportunity for the exchange of scientific information and techniques on an international level, and supply a source of comparative statistics which enables the Center to better evaluate its statistical data and identify areas that may require further attention and research.

Two important trends in the development of the program are now being stressed. One is the development of projects in which parts are carried on in more than one country so that comparable results from several countries are available. For example, projects are now under way in India and Egypt on the analysis of the physical measurements of school age children. These data will be comparable with information collected in the U.S. National Health Survey. Together, the three-country comparison of data will give significant basic information on child growth and development.

Another example is a detailed feasibility study of methods for measuring the utilization of medical care. This has been a very successfully coordinated project with comparable aspects carried on in the United States, England and Yugoslavia. Only the Yugoslavia portion of this three-country project is financed from this appropriation.

Interrelated projects are being conducted in Pakistan and India in the microsimulation of dynamic populations and the testing of survey-registration methods for collecting data relating to death and birth rates. Phases of these projects relate to similar methodological studies being conducted as part of the research program of the National Center for Health Statistics in the United States.

The other major trend in the development of this program is the involvement of research talent from the faculties of various United States universities. The ability to coincide with the work programs of these universities permits the utilization of more American directed research talent than is available from the Center's regular staff and also assures that the projects are closely related to U.S. research interests. Faculty members from several of the major United States universities have undertaken responsible roles as consultants or project officers. In 1968 and beyond, further advantage will be taken of this trend.

In 1969, the program will also include Burma. In developing countries such as Burma, Ceylon, Pakistan, India, Tunisia, and Egypt, emphasis will be placed on methodological and simulation studies on various aspects of the population dynamics problem. Since censuses, even when they are adequate, give measurements of population change only over long intervals and with considerable delay, these special studies are essential to the development of short-term population growth estimates. The areas of study in the more developed countries (Israel, Poland, and Yugoslavia) will concentrate on methodological research with emphasis on cross-national comparability, particularly with the United States.

More specifically, the studies projected for the several countries are reflected below. In each instance, the studies will continue over periods from three to four years and, to the extent this may be possible, agreements will be written to cover the entire period and will be funded from the 1969 request.

Egypt

Development of microsimulation models on population dynamics. Utilizing sampling surveys to measure the completeness of birth and death registration, as well as the attitudes toward and the impact of health measures on family size and population growth.

India

Study population dynamics through computer simulation methods and testing models against actual situations. Develop a "population laboratory" for testing methods of applying health programs, the efficacy of health programs, etc. Study mortality conditions of premature infants.

Israel

Assess health differentials in migrants as compared to the stable population.

Pakistan

Conduct methodological research for the development of an effective birth and death registration system which would provide continuing and improved measurement of population change, as well as to furnish indices of health conditions.

Poland

Expand a chronic respiratory disease study, as related to atmospheric factors, initiated on a pretest basis during 1965-1967.

Tunisia

Several studies on population dynamics to obtain independent validations of the findings in other developing countries with respect to methodology and the values of population parameters.

Yugoslavia

A research study to analyze the unusual variety of fertility patterns in several regions of Yugoslavia will be undertaken.

Ceylon

Sample surveys will be developed to measure the adequacy of birth and death registration.

Burma

Surveys and other methodological devices will be explored in order to update population and vital statistics in Burma, with special emphasis upon the relationship between population trends to economic development.

Estimated obligations by Country

	1968 Estimate	1969 Estimate
Burma	---	$22,000
Ceylon	$10,000	35,000
India	295,000	320,000
Israel	75,000	75,000
Pakistan	75,000	50,000
Poland	---	70,000
Tunisia	50,000	86,300
U.A.R. (Egypt)	---	106,000
Yugoslavia	20,000	169,000
Total	525,000	933,300

National Library of Medicine

The special international communications program of the National Library of Medicine seeks to expand and improve international health information exchange among workers in the health sciences. Some projects provide a stimulus to the development of regional and national capabilities for effective health communications service within and among the cooperating countries. Other projects will improve and supplement access to the world's literature in selected health fields through translation, publication and dissemination to the U.S. scientific community and abroad.

The program will focus to an increasing extent on subject coverage rather than language or national coverage. Emphasis will be given, for example, to reports on subjects of major significance such as nutrition, environmental health, family planning and population dynamics, tropical medicine, epidemiology, research on drug efficacy and toxicity, and dental research.

India

The research agreement between the National Library of Medicine and the Indian Council of Medical Research, for the preparation of critical reviews on health science topics, will be funded for the second year. An extension of this agreement will be negotiated after review of the project, and six or more new critical review, history of medicine and related scholarly projects will be supported. Emphasis will be placed upon studies of Indian health care developments, tropical medicine, and evaluations of research on disease and other health problems unique to India or of major importance in that region.

A program of the National Library of Medicine and the Indian Academy of Medicine Sciences begun in 1968 to establish a biomedical audiovisual exchange program and film repository in India will be funded for the second year. This project supports personnel, supplies and equipment, rent and utilities for the film repository resource and related activities, production of audiovisual aids, and travel.

An NLM-India project to acquire, catalog and index current titles and historically important documents for health science libraries in India and the NLM will be funded for the second year.

A program to support training for medical librarians and to improve regional medical library resources in India will be continued and expanded.

Israel

In 1969, the Library must provide substantial support to continue translations, abstracting, indexing and critical review programs in Israel. As in the past, abstract and translation projects will be extended for more

than one year, to permit orderly planning and proper fiscal management of these projects. Abstracting and translations projects are:

Drug Digests - 7/69-6/71
Drug abstracts - 1/70-12/73
Oral research abstracts - 1/70-12/73
Translation and printing of selected articles and monographs - one year

The Library will also fund for the third year the current NLM - Israel Journal of Medical Sciences agreement for a research program which includes indexer training and indexing and critical review and history of medicine projects. The costs support five indexers and trainees for one year and six new scholarly writing projects. The Library will also continue planning and initial funding of biomedical communications research and development, training for biomedical librarians and other information specialists in Israel, and limited support for a medical library resource program.

Poland

The National Library of Medicine supports the production in Poland of English-language editions of ten Polish health science periodicals. In 1969 these will be funded for the period 1/70 - 12/71. Funding for two years rather than for one is necessary to permit orderly fiscal management of this major translations program; this has been achieved for other NLM foreign currency programs, which have already been adjusted to a forward financing basis. Support for translations activities for the Polish biomedical literature will be expanded and modified on the basis of studies of the relevant literature undertaken by the Library in 1968.

The National Library of Medicine critical review program in cooperation with the Polish Coordinating Commission for Polish-American Scientific Collaboration and the Principal Medical Library will be expanded, to support six to ten new projects on topics including various aspects of veterinary medicine related to human health, environmental and occupational health, child health, bacteriology and other appropriate topics.

Yugoslavia

The National Library of Medicine will continue to support production in Yugoslavia of English-language versions of three Yugoslav health science journals for the period 1/70 - 12/70. Expansion of this program to provide further cover-to-cover or selective translations of Yugoslav biomedical literature will follow an evaluation in 1968 of the Yugoslav journal translations.

The Library will also develop a research project to provide rapid access to important current research reports, in cooperation with Yugoslav scientists. Support for the preparation of critical reviews in health science fields by scientists in Yugoslavia will be increased and the development of Yugoslav regional communications centers will be explored.

Estimated obligations by Country

	1968 Estimate	1969 Estimate
India	$72,000	$151,000
Israel	192,000	636,000
Poland	538,000	722,800
Yugoslavia	23,000	207,000
Total	825,000	1,716,800

Office of International Health

Travel funds are requested by the Office of International Health to enable the PHS program coordinator and members of the professional staff to visit countries in which excess currencies are available. Travel will be performed for the purpose of developing policy and program objectives consistent with both United States and host country interests. Staff will develop working relationships with the Ministries of Health and will explore potential project areas. Looking toward U.S. responsibilities for providing leadership in the search for solutions to important international health problems in fields such as nutrition, population, communicable disease and environmental health, staff will attempt to assure maximum benefit of P.L. 480 research toward progress in these areas.

Estimated obligations by Country

	1968 Estimate	1969 Estimate
Burma	---	$1,000
Ceylon	---	1,000
India	---	2,000
Israel	---	2,100
Pakistan	---	1,266
Poland	---	1,500
Tunisia	---	1,100
U.A.R. (Egypt)	---	1,500
Yugoslavia	---	1,500
Total	0	12,966

THURSDAY, MARCH 14, 1968.

RETIRED PAY OF COMMISSIONED OFFICERS

WITNESSES

DR. LEO J. GEHRIG, DEPUTY SURGEON GENERAL
DR. JOHN J. WALSH, DIRECTOR, DIVISION OF DIRECT HEALTH SERVICES
G. R. CLAGUE, DEPUTY CHIEF FINANCE OFFICER, PUBLIC HEALTH SERVICE
JAMES B. CARDWELL, DEPUTY ASSISTANT SECRETARY, BUDGET

OBJECT CLASSIFICATION (IN THOUSANDS OF DOLLARS)

	1967 actual	1968 estimate	1969 estimate
Benefits for former personnel	5,587	6,307	7,198
Other services	3,700	5,997	6,374
Services of other agencies	1,550	1,496	1,518
Total obligations	10,838	13,800	15,090

PROGRAM AND FINANCING (IN THOUSANDS OF DOLLARS)

Program by activities:			
1. Retirement payments	5,497	6,207	7,086
2. Survivors' benefits	90	100	112
3. Dependents' medical care	5,250	7,493	7,892
Total obligations	10,838	13,800	15,090
Financing: New obligational authority (appropriation)	10,838	13,800	15,090
Relation of obligations to expenditures:			
Total obligations (affecting expenditures)	10,838	13,800	15,090
Obligated balance, start of year	1,785	4,206	5,006
Obligated balance, end of year	−4,206	−5,006	−5,096
Expenditures	8,416	13,000	15,000
Expenditures are distributed as follows:			
Out of current authorizations	7,052	9,800	11,000
Out of prior authorizations	1,364	3,200	4,000

Mr. FLOOD. The next matter before us is that of the retired pay of commissioned officers and the statement by the Deputy Surgeon General, Dr. Leo J. Gehrig will be placed in the record.

(The statement follows:)

GENERAL STATEMENT

RETIRED PAY OF COMMISSIONED OFFICERS

Mr. Chairman and members of the committee, this appropriation authorizes such amounts as may be necessary for certain mandatory payments under two separate programs.

PAYMENTS TO RETIRED OFFICERS AND SURVIVORS

The first program covers payments to retired officers of the Public Health Service and to survivors of deceased retired officers. The amounts of these benefits are fixed by law and payments are not subject to administrative control. The estimated requirement of $7,198,000 for fiscal year 1969 is based on a projection of beneficiaries now being paid with adjustments for anticipated additions and terminations. On June 30, 1967, 705 retired officers and 43 survivor annuitants were on the roll. It is estimated that the number of retired officers will reach 785 by June 30, 1968, and 873 by the end of fiscal year 1969. The projection contemplates that payments will be made to 49 survivor annuitants on June 30, 1968, and to 55 on June 30, 1969.

DEPENDENTS' MEDICAL CARE

The second program financed under this appropriation is the provision of medical care to dependents and retired personnel under the Dependents' Medical Care Act. Expenses of the dependents' medical care program cover the cost of medical care provided under contractual arrangements either in non-Federal or uniformed service facilities, to dependents of eligible personnel of the Coast Guard, the Environmental Science Services Administration, and the Public Health Service. The Military Medical Benefits Amendments of 1966 (Public Law 89-614) liberalized the medical provisions of the Dependents' Medical Care Act to provide benefits to retired personnel and dependents that are more in line with those provided under the Federal Employees Health Benefits Act and the Social Security health program for the aged. The major new benefits provide outpatient care and improved inpatient care to dependents, care in civilian hospitals for retired personnel and their dependents, and aid to military parents who have physically or mentally handicapped children who need special care.

The 1969 estimate of $7,892,000 is $399,000 above estimated requirements for fiscal year 1968. An increase of $227,000 will provide for an estimated increased patient load in both Federal and non-Federal facilities as well as for higher average daily rates in non-Federal hospitals. An estimated increase of $172,000 will be required to carry out the expanded program under the Military Medical Benefits Amendments of 1966.

The total estimate for 1969, covering both programs, is $15,090,000. I shall try to answer any questions which you may have.

Mr. FLOOD. You have no administrative control over these costs, do you?

Dr. GEHRIG. No, sir; they are mandatory by law.

Mr. FLOOD. So there is no point in spending a lot of time talking about this.

Thank you, gentlemen. This completes the hearings on the appropriation items other than the National Institutes of Health.

JUSTIFICATION MATERIAL

PUBLIC HEALTH SERVICE

Retired Pay of Commissioned Officers

Amounts Available for Obligation

	1968	1969
Appropriation (Indefinite).....	$13,800,000	$15,090,000

Obligations by Activity

Page Ref.		1968 Estimate	1969 Estimate	Increase or Decrease
265	Retirement payments...	$6,207,000	$7,086,000	+$879,000
267	Survivors' benefits...	100,000	112,000	+12,000
268	Dependents' medical care.....	7,493,000	7,892,000	+399,000
	Total obligations.	13,800,000	15,090,000	+1,290,000

Obligations by Object

	1968 Estimate	1969 Estimate	Increase or Decrease
Benefits for former personnel.....	$6,307,000	$7,198,000	+$891,000
Other services.....	5,997,000	6,374,000	+377,000
Services of other agencies..	1,496,000	1,518,000	+22,000
Total obligations by object.....	13,800,000	15,090,000	+1,290,000

Summary of Changes

1968 enacted appropriation (Indefinite)	$13,800,000
1969 estimated obligations (Indefinite)	15,090,000
Total change	+1,290,000

Increases

A. Built-in:	
1. Projection of estimated retirements during 1968 to full year	$219,000
2. Estimated additional retirements during 1969	660,000
3. Estimated increase in survivors' benefits	12,000
4. Increased patient load and per diem cost of non-Federal hospitalization	205,000
5. Estimated increased costs of new health program provided under Public Law 89-614	172,000
6. Increased patient load and patient days of Federal hospitalization	22,000
Total built-in items	1,290,000
Total change requested	1,290,000

Explanation of Changes

An estimated increase of $879,000 is to provide for the full year of 1969 the payments to officers placed on the retired roll during 1968 and for the net increase of 88 officers estimated to be added to the retired list during 1969.

An increase of $205,000 is estimated to provide for increased patient load in non-Federal hospitals and for higher average daily rates for contract hospitalization of dependents.

An increase of $172,000 is estimated to carry out the provisions of the Military Medical Benefits Amendments of 1966 (P.L. 89-614) approved September 30, 1966.

An increase of $22,000 is requested to provide for an estimated increase in patient load and patient days in Federal facilities.

Retirement payments

1968 Estimate	1969 Estimate	Increase or Decrease
$6,207,000	$7,086,000	+$879,000

This estimate provides for mandatory payments to officers who have been retired for age, disability, or specified period of service in accordance with provisions of law. Twenty-two officers will be eligible for age retirement during 1969, and provision is made for the retirement of 10 officers for disability and 66 officers for years of service.

On June 30, 1967, there were 705 officers on the retired list. During fiscal year 1968, through January 1, 1968, six officers have been retired for disability, forty-three officers for service, and seven for age. Six additional officers will become eligible for age retirement. It is estimated that a total of 90 officers will be retired during the fiscal year and that 10 will be dropped from the roll, resulting in an estimated 785 officers on the retired list as of June 30, 1968.

It is estimated that 66 officers will be retired for service and 10 for disability during 1969. Since twenty-two officers will reach the mandatory retirement age of 64 years, provision has been made for the retirement of a total of 98 officers during 1969. It is estimated that 10 officers will be dropped from the roll during the year, resulting in an estimated total of 873 officers on the retired list as of June 30, 1969.

Table of Increases and Decreases of Retirements

	Fiscal Year 1963	Fiscal Year 1964	Fiscal Year 1965	Fiscal Year 1966	Fiscal Year 1967	Estimate Fiscal Year 1968	Estimate Fiscal Year 1969
Retired for:							
Disability.....	11	12	10	10	10	11	10
Age.....	10	12	12	19	16	13	22
Years of service.....	25	47	54	66	71	66	66
Total retirements....	46	71	76	95	97	90	98
Dropped:							
Death.....	16	12	15	12	9	10	10
Other.....	2	0	0	1	1	0	0
Total dropped..	18	12	15	13	10	10	10
Net increase or decrease in officers on retired roll, end of fiscal year.....	28	59	61	82	87	80	88
Officers on retired roll, end of fiscal year.....	416	475	536	618	705	785	873

Survivors' benefits

1968 Estimate	1969 Estimate	Increase or Decrease
$100,000	$112,000	+$12,000

This estimate provides for the payment of annuities to the survivors of deceased retired officers who elected to receive reduced retirement payments under the Retired Serviceman's Family Protection Plan.

The estimate is based on payments to the survivors of the following numbers of officers:

June 30, 1967	43
June 30, 1968 (est.)	49
June 30, 1969 (est.)	55

Dependents' medical care

1968 Estimate	1969 Estimate	Increase or Decrease
$7,493,000	$7,892,000	+$399,000

The Dependents' Medical Care Act (10 U.S.C., Ch. 55), as amended by PL 89-614, provides for an expanded and uniform program of medical care for active duty and retired members of the uniformed services, and dependents of active duty, retired, and deceased members. This activity covers the cost of inpatient and outpatient care, including care of the handicapped, outside the Public Health Service, in both non-Federal and uniformed service facilities, to dependents of eligible personnel of the Coast Guard, the Environmental Science Services Administration, and the Public Health Service; and to retired personnel of these services.

A comparison of the estimated costs is shown in the following table:

	1968 Estimate	1969 Estimate
I. Non-Federal care		
A. Initial program-Dependents active duty personnel		
Average daily patient load of hospitalization	118	121
Total annual patient days	43,192	44,165
Average cost per day	$76.35	$79.32
Cost of initial program (Rounded)	$3,298,000	$3,503,000
B. New Program		
Estimated cost of dependents of active duty personnel in Outpatient facilities	35,400	37,000
Estimated cost of dependents of retirees (Inpatient-outpatient)	1,508,500	1,603,000
Estimated cost of retirees (Inpatient-outpatient)	1,053,700	1,119,000

		1968 Estimate	1969 Estimate
I.	Non-Federal care--Continued		
	B. New Program--Continued		
	Estimated cost of handicapped.....	101,400	112,000
	Cost of New Program (Rounded)...	2,699,000	2,871,000
	Total, non-Federal care (Rounded)...	5,997,000	6,374,000
II.	Federal care		
	A. Dependents (other than handicapped)		
	Average daily patient load of hospitalization.....	75	76
	Total annual patient days.....	27,450	27,740
	Average cost per day.....	$46.25	$46.25
	Total, dependents (Rounded).....	$1,269,000	$1,282,000
	B. Retired personnel		
	Average daily patient load of hospitalization.....	23	24
	Total annual patient days.....	8,418	8,760
	Average cost per day.....	$27.00	$27.00
	Total, retired personnel (Rounded)..	$227,000	$236,000
	Total, Federal hospitalization.....	1,496,000	1,518,000
III.	Total cost of dependents and retired personnel medical care.....	7,493,000	7,892,000

The expenses incurred for this activity are mandatory obligations of the Public Health Service. They arise because a dependent or a retired person utilizes an approved hospital facility. The amount of expense incurred varies, depending upon the hospital system which the Public Health Service beneficiary enters: (1) if care is rendered by a Public Health Service facility there is no charge under the Dependents' Medical Care Act (these costs are chargeable to "Patient care and special health services"); (2) if care is received from a facility of another uniformed service, the Public Health Service is billed directly by that organization; and (3) if medical care is given by a private facility, a contractor such as Blue Cross pays the hospital and bills the executive agent in the Department of Defense, who in turn bills the Public Health Service for the services rendered. Since unit costs are variable to an extensive degree and the workload is not created through program operations of the Public Health Service, the costs of the Dependents' Medical Care program are neither precisely predictable nor subject to administrative controls.

P.L. 89-614, approved September 30, 1966, liberalized the medical provisions of the Dependents' Medical Care Act to provide benefits to retired personnel and dependents that are more in line with those provided under the Federal Employee Health Benefits Act and the new Social Security health program for the aged. The major new benefits provide outpatient care and improved inpatient care to dependents. They provide a program of care in civilian hospitals for retired personnel and their dependents. They provide aid to military parents who have physically or mentally handicapped children who need special care. The provisions of this law became effective January 1, 1967, except for those provisions related to patient care for active duty dependents. This part of the amendment became effective October 1, 1966.

The 1969 increase of $399,000 results from an increase for non-Federal hospitalization of $377,000 - ($205,000 in the initial program as the result of an estimated increased patient load and per diem cost and $172,000 in new program costs). The increase in Federal hospitalization of $22,000 results from an estimated increase in average daily patient load.

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