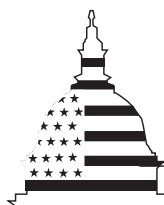


February 2006

BREASTFEEDING

Some Strategies Used to Market Infant Formula May Discourage Breastfeeding; State Contracts Should Better Protect against Misuse of WIC Name



G A O

Accountability * Integrity * Reliability

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Abbreviations

CDC	Centers for Disease Control and Prevention
FNS	Food and Nutrition Service
NIS	National Immunization Survey
USDA	United States Department of Agriculture
WIC	Special Supplemental Nutrition Program for Women, Infants, and Children

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United States Government Accountability Office
Washington, DC 20548

February 8, 2006

The Honorable Robert Bennett
Chairman
The Honorable Herb Kohl
Ranking Minority Member
Subcommittee on Agriculture, Rural Development,
and Related Agencies
Committee on Appropriations
United States Senate

The Honorable Henry Bonilla
Chairman
The Honorable Rosa L. DeLauro
Ranking Minority Member
Subcommittee on Agriculture, Rural Development,
Food and Drug Administration, and Related Agencies
Committee on Appropriations
United States House of Representatives

The Honorable Tom Harkin
Ranking Minority Member
Committee on Agriculture, Nutrition, and Forestry
United States Senate

Millions of U.S. mothers and infants each year forgo the health benefits of breastfeeding and rely on infant formula. Infants who are breastfed are less likely to develop infectious diseases and chronic health problems, such as diabetes and asthma, while breastfeeding mothers are less likely to develop certain types of cancer. Recognizing the health benefits of breastfeeding for infants and mothers, the U.S. Department of Health and Human Services' Healthy People 2010 campaign has recommended that more U.S. infants be breastfed and that babies be breastfed for longer periods of time. According to the U.S. Department of Agriculture (USDA), the U.S. would save a minimum of \$3.6 billion in health care costs and indirect costs, such as parents' lost wages, if breastfeeding increased to meet these Healthy People goals.

Breastfeeding rates are particularly low among infants who participate in the Special Supplemental Nutrition Program for Women, Infants and Children (WIC). WIC is administered by the USDA's Food and Nutrition

Service (FNS) in cooperation with state and local agencies. The program provides free food and infant formula to improve the health and nutritional well-being of low-income women, infants, and young children. Nearly half of infants born in the U.S. receive benefits through WIC.

Although formula manufacturers agree that breastfeeding is best, they market infant formula as an alternative for mothers who do not exclusively breastfeed. A congressional committee asked us to review the potential impact of infant formula marketing on breastfeeding rates, especially for infants in the WIC program.¹ We answered the following questions: 1) What are the estimated breastfeeding rates for infants in the general population and for infants on WIC, and how do these rates compare to recommended breastfeeding rates? 2) How is infant formula marketed to women in general and to women on WIC in particular? 3) What is known about the impact of infant formula marketing on the breastfeeding rates of women in the general population and women on WIC?

On December 14, 2005, we briefed interested congressional staff on the results of our analysis. This report formally conveys information provided during that briefing. In summary, we reported the following findings:

- WIC and non-WIC breastfeeding rates fell short of most national goals, but rates were substantially lower for WIC infants.
- Infant formula marketing targets non-WIC mothers and also reaches WIC mothers. Some of these marketing efforts use the trademarked WIC acronym in promotional materials. Although FNS requires states to restrict this practice in their WIC contracts, most states do not.
- A majority of studies we reviewed that examine giving free formula samples to mothers at hospital discharge found lower breastfeeding rates among both WIC and non-WIC mothers. However, little is known about the impact of most types of marketing.

In order to better protect the WIC acronym and logo from being inappropriately used in infant formula advertisements, we are recommending that the Secretary of Agriculture educate all states about

¹ The Senate Committee on Appropriations asked in the 2005 Agriculture, Rural Development, Food and Drug Administration, and Related Agencies appropriations report (*Senate Report 108-340*) that we conduct this study.

FNS' policy restricting the use of the WIC acronym and logo and ensure that all state formula contracts include provisions restricting the use of these trademarks in infant formula advertisements.

We used the following methodologies to develop our findings. To identify breastfeeding rates, we analyzed 2004 data from the Centers for Disease Control and Prevention's (CDC) National Immunization Survey (NIS) and compared the breastfeeding rates of WIC and non-WIC infants to the Healthy People 2010 breastfeeding goals. We also interviewed officials regarding survey methodology, and we determined that the survey and analysis were sufficiently reliable for the purposes of this briefing. To examine how infant formula is marketed to women in general and women on WIC, we analyzed data from market research company TNS Media Intelligence on television, radio, print, and outdoor infant formula advertisements between 1999 and 2004. To assess the reliability of the data, we talked with company representatives about data quality control procedures and reviewed relevant documentation. We determined the data were sufficiently reliable for the purposes of this briefing. To supplement the data, we surveyed state WIC directors and conducted interviews with women on WIC and with officials from infant formula companies and the National WIC Association. We also corresponded with FNS and reviewed state infant formula contracts, FNS policies, and infant formula advertisements. To assess the impact of infant formula marketing on breastfeeding rates of non-WIC and WIC participants, we reviewed U.S. studies published between January 1980 and July 2005 on the impact of infant formula marketing on breastfeeding rates. We examined each study's research methodology, including its sampling frame and analytic techniques, to determine whether the results should be included in our findings. Only two of the studies we reviewed included mostly WIC participants, and these studies had small samples. For additional information on our study review, please see appendixes III and IV. We conducted our work from June 2005 to November 2005 in accordance with generally accepted government auditing standards.

This study focused on the marketing of infant formula and its impact on breastfeeding rates. We did not assess the impact of other factors that may affect breastfeeding rates, such as cultural factors and whether women work outside of the home, because this was beyond the scope of our work. In addition, available data did not allow us to assess whether there is a causal relationship between trends in infant formula marketing and historical breastfeeding rates in the U.S.

We provided a draft of this report to officials of the U.S. Department of Agriculture for review and comment and incorporated their comments where appropriate. On January 6, 2006, the officials provided us with oral comments. They stated they agreed with our recommendation that the Secretary of Agriculture educate all states about FNS' policy restricting the use of the WIC acronym and logo and ensure that all state formula contracts include provisions restricting the use of these trademarks in infant formula advertisements.

The officials noted that it may be necessary to include language in the state contracts allowing for fair use of the WIC name and acronym, as allowed by federal trademark law. They also explained that such use may serve a helpful purpose by informing health care providers and WIC participants of the infant formulas and medical foods that are available through WIC. We noted that our recommendation language was sufficiently broad to allow USDA to include language it considers appropriate in protecting the WIC trademark, including allowances for fair use.

Officials also noted that the report did not consider the impact of employment factors on breastfeeding rates and that such factors may be particularly important for WIC participants, many of whom are employed outside the home. We agreed and explained that assessing the importance of such factors was beyond the scope of this report.

We are sending copies of this report to relevant congressional committees and other interested parties and will make copies available to others upon request. In addition, this report will be available at no charge on GAO's Web site at www.gao.gov. If you or your staff have any questions about this report, please contact me at (415) 904-2272 or bellisd@gao.gov. Contact points for our Offices of Congressional Relations and Public

Affairs may be found on the last page of this report. Patrick di Battista (Assistant Director), Melissa Emrey-Arras (Co-Analyst-in-Charge), Marissa Jones (Co-Analyst-in-Charge), Rachael Chamberlin, Vivian Horn, Jim Lager, Jean McSween, Karen O'Connor, Dan Schwimer, and Jay Smale also made significant contributions to this report.

A handwritten signature in black ink, reading "David D. Bellis". The signature is written in a cursive style with a large, looped "D" and "B".

David D. Bellis
Director, Education, Workforce,
and Income Security Issues

Appendix I: Briefing Slides



Breastfeeding: Some Strategies Used to Market Infant Formula May Discourage Breastfeeding; State Contracts Should Better Protect against Misuse of WIC Name

Congressional Addressees:

**The Honorable Robert Bennett, Chairman
The Honorable Herb Kohl, Ranking Minority Member
Subcommittee on Agriculture, Rural Development, and Related Agencies
Committee on Appropriations
United States Senate**

**The Honorable Henry Bonilla, Chairman
The Honorable Rosa L. DeLauro, Ranking Minority Member
Subcommittee on Agriculture, Rural Development, Food and Drug Administration, and Related Agencies
Committee on Appropriations
United States House of Representatives**

**The Honorable Tom Harkin, Ranking Minority Member
Committee on Agriculture, Nutrition, and Forestry
United States Senate**

December 14, 2005

Objectives



A Congressional committee asked that we conduct this study. We answered the following questions:

- What are the estimated breastfeeding rates for infants in the general population and for infants on WIC, and how do these rates compare to recommended breastfeeding rates?
- How is infant formula marketed to women in general and to women on WIC in particular?
- What is known about the impact of infant formula marketing on the breastfeeding rates of women in the general population and women on WIC?

Scope and Methodology



Breastfeeding rates: We analyzed data from the Centers for Disease Control and Prevention's National Immunization Survey (NIS) for WIC and non-WIC infants, 2004.

Infant formula marketing:

- We analyzed market data from TNS Media Intelligence on television, radio, print, and outdoor advertisements, 1999-2004;
- Interviewed women on WIC and officials from the National WIC Association and the three major formula companies;
- Surveyed state WIC directors and corresponded with FNS; and
- Reviewed state infant formula contracts, FNS policies, and infant formula advertisements.

Impact of marketing: We reviewed U.S. studies examining the impact of infant formula marketing on breastfeeding rates, published between January 1980 and July 2005.

Our review was conducted in accordance with generally accepted government auditing standards.

Key Findings



- WIC and non-WIC breastfeeding rates fell short of most national goals, but rates were significantly lower for WIC infants.
- Infant formula marketing targets non-WIC mothers and also reaches WIC mothers. Some of these marketing efforts use the trademarked WIC acronym in promotional materials. Although FNS requires states to restrict this practice in their WIC contracts, most states do not.
- A majority of studies we reviewed that examine giving free formula samples to mothers at hospital discharge found lower breastfeeding rates among both WIC and non-WIC mothers. However, little is known about the impact of most types of marketing.

Background: Benefits of Breastfeeding



Health benefits of breastfeeding include:

- Infants: Less likely to get childhood diabetes or asthma and have fewer ear infections.
- Mothers: Less likely to get certain types of cancer.

Breastfeeding preferred form of infant feeding:

- The U.S. Department of Health and Human Services has established breastfeeding goals through the Healthy People 2010 initiative.
- The U.S. would save at least \$3.6 billion in direct and indirect health care costs if breastfeeding rates met federal Healthy People goals (USDA).¹
- FNS/USDA has identified increasing WIC breastfeeding rates as a priority.

Healthy People 2010 Breastfeeding Goals	
Any breastfeeding	At birth: 75% of infants 6 months: 50% of infants 12 months: 25% of infants
Exclusive breastfeeding	3 months: 60% of infants 6 months: 25% of infants

Note: Healthy People 2010 proposed the exclusive breastfeeding goals for public comment in August 2005.

¹ Jon Weimer, *The Economic Benefits of Breastfeeding: A Review and Analysis*, Food Assistance and Nutrition Research Report No. 13 (Washington, D.C.: Food and Rural Economics Division, Economic Research Service, U.S. Department of Agriculture, March 2001).

Background: WIC and Infant Formula



WIC: Started in 1972, WIC provides free food to improve the health and nutritional wellbeing of low-income women, infants, and young children.²

- Nearly half of infants born in the U.S. receive WIC benefits.
- WIC promotes breastfeeding by:
 - Educating mothers about how to breastfeed and providing breastfeeding aids
 - Giving women who breastfeed benefits for a longer period of time
 - Providing women who exclusively breastfeed enhanced food packages
- WIC provides free formula, usually through vouchers, to low-income women who choose not to exclusively breastfeed.

Formula companies: Mead Johnson, Ross Laboratories, and Nestle produce most of the infant formula in the U.S. All three:

- Bid to be the primary WIC formula provider in states across the country.
- Agree breastfeeding is best, but promote formula for mothers who choose not to breastfeed or who supplement breast milk with formula.

² The WIC program serves women who are pregnant, postpartum, or breastfeeding, infants under the age of one, and children under the age of five. Eligible applicants must be low-income and nutritionally at risk (e.g. having a poor diet, low weight, or anemia) and must apply in the states in which they reside. WIC improves the health outcomes of low-income children, who often have less access to health care and poorer health.

Background: Efforts to Limit Formula Advertising



WIC acronym and logo in ads:

- USDA registered the acronym WIC and the WIC logo with the U.S. Patent and Trademark Office in 1991.
- FNS issued guidance to states in 1992 prohibiting the use of these trademarks in promotional materials by for-profit food manufacturers—this guidance applies to infant formula advertisements.
- FNS has since allowed for some exceptions to this guidance; however, the use of the WIC acronym and logo in formula advertisements remains restricted.

Formula advertising in WIC clinics:

- FNS/National WIC Association have issued guidance discouraging WIC programs from displaying materials produced by infant formula companies (including pictures or actual formula cans) in WIC clinics.

State restrictions:

- Massachusetts and New York have regulations limiting the distribution of free formula samples to all mothers when they are discharged from the hospital (called hospital discharge packs).

World Health Organization:

- Restricts the marketing of infant formula. However, these restrictions are not legally binding in the U.S.

Background: Breastfeeding Trends

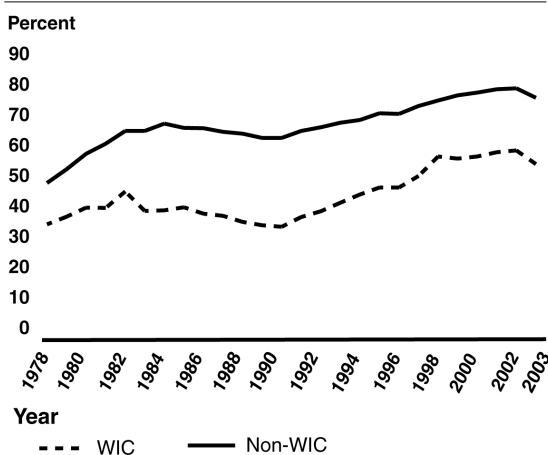


Historical data collected by Ross Laboratories suggest:³

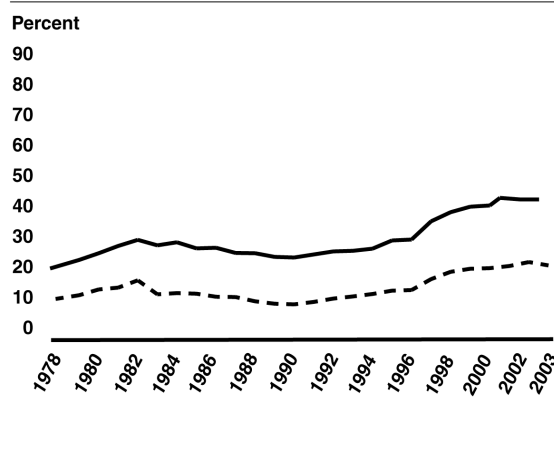
More infants fed at least some breast milk over last 25 years:

- Both in-hospital and 6-month rates have increased.
- Fewer WIC than non-WIC infants were breastfed.

Any breastfeeding of WIC and non-WIC infants in-hospital



Any breastfeeding of WIC and non-WIC infants at 6 months



Source: Mothers Survey, Ross Products Division, Abbott Laboratories.

³ The Ross *Mothers Survey* has low response rates and other limitations but provides information on breastfeeding trends. From 1997 to 2001, the mail survey averaged a 28 percent response rate, and Ross officials we interviewed reported the rate had been about 20 percent in recent years. Because officials do not know the WIC status of nonrespondents, they are unable to measure nonresponse rates among WIC participants or to weight the data accordingly. Due to limitations in survey methodology and analysis, we determined that the data is sufficiently reliable for background purposes only.

Background: Breastfeeding Trends

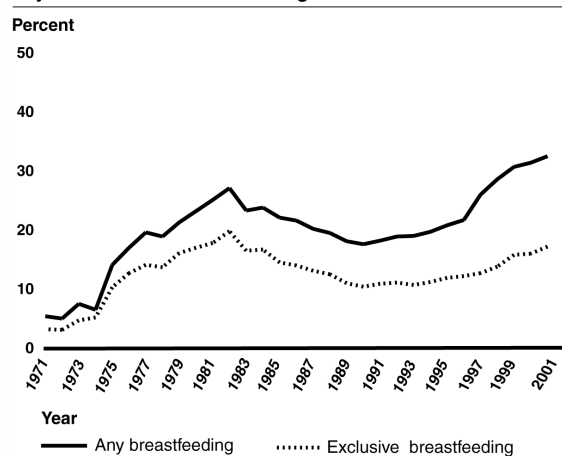


Ross data suggest:

Exclusive breastfeeding less common:

While more women have breastfed their infants, exclusive breastfeeding rates have remained lower, and the gap appears to have widened.⁴

Any and exclusive breastfeeding of US infants at 6 months



Source: Mothers Survey, Ross Products Division, Abbott Laboratories.

Gap between WIC and non-WIC infants:

At 6 months of age, the rate of infants exclusively breastfed has remained fairly constant between 1999 and 2002 at an average of:

- WIC: 10 percent
- Non-WIC: 22 percent

⁴ The Ross Mothers Survey defines exclusive breastfeeding as the provision of no infant formula and no milk except for human breast milk. However, solid foods may be provided.

Background: Breastfeeding Trends



Why WIC rates may be lower:

- Some observers – including formula company officials, researchers, and breastfeeding advocates – have expressed concerns that the WIC program itself may discourage breastfeeding by giving free formula to mothers.
- However, USDA has noted that women on WIC may have lower breastfeeding rates because breastfeeding is less common among women with lower incomes and less education, and WIC serves this population.

Breastfeeding Rates: Fell Short of Most Recommendations but Were Lower for WIC Infants



Overview of Finding 1:

- Breastfeeding rates did not meet most Healthy People goals and were lower for WIC infants.
- WIC and non-WIC infants also failed to meet goals for exclusive breastfeeding.
- WIC and non-WIC breastfeeding rates were lower among infants of mothers who were young, not college-educated, and unmarried.

Breastfeeding Rates: Did Not Meet Most Healthy People Goals and Were Lower for WIC Infants



NIS data show:⁵

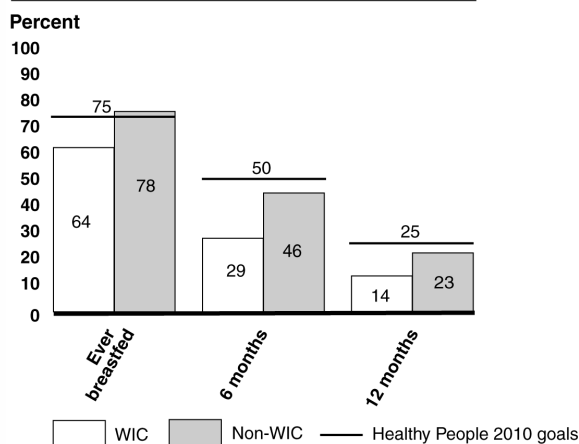
Breastfeeding rates did not meet most Healthy People goals in 2004:

- Non-WIC: Percentage of infants who had ever been breastfed exceeded goal, but rates at 6 and 12 months did not.
- WIC: Rates failed to meet any Healthy People breastfeeding goal.

Rates were significantly lower for WIC infants:

- 64 percent of WIC infants had ever been breastfed, compared to 78 percent of non-WIC infants.

Any breastfeeding of WIC and non-WIC infants, 2004, compared with Healthy People 2010 goals



Sources: National Immunization Survey and Healthy People 2010 goals.

Note: "Any breastfeeding" includes infants who were breastfed but may also have received infant formula or other foods. In addition, the Healthy People 2010 goal associated with "ever breastfed" is for the early post-partum period. The Healthy People 2000 breastfeeding goals were 75 percent for the early post-partum period and 50 percent for infants at 6 months, but they did not include a goal for infants at 12 months.

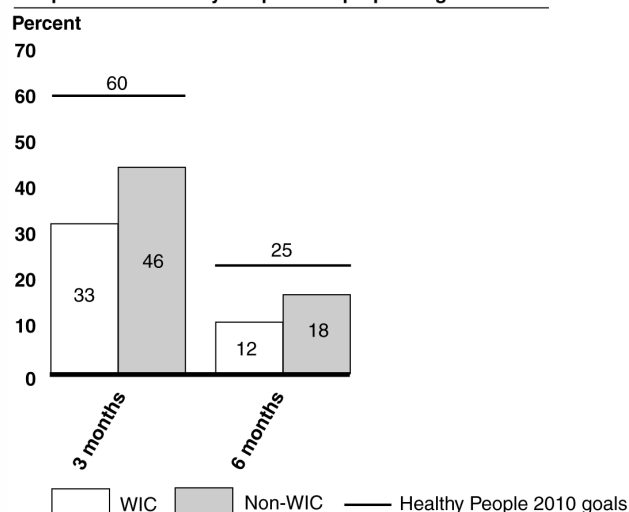
⁵ Because the NIS asks households with children 19 to 35 months to recall infant feeding practices, NIS data collected in 2004 reflect feeding practices for the previous several years. NIS data is collected through telephone interviews, and while NIS adjusts the data to account for households without telephones, FNS officials expressed concerns that the data may overstate WIC breastfeeding rates by omitting participants without telephones. FNS has found lower WIC breastfeeding rates than those identified by NIS. Rates from other sources also may vary due to methodological differences.

Breastfeeding Rates: Did Not Meet Goals for Exclusive Breastfeeding



- Both WIC and non-WIC rates also fell short of Healthy People 2010 proposed goals for exclusive breastfeeding.⁶
- 6-month rates were less than half of 3-month rates.

Exclusive breastfeeding of WIC and non-WIC infants, 2004, compared with Healthy People 2010 proposed goals



Sources: National Immunization Survey and Healthy People 2010 proposed goals.

Note: Healthy People 2010 proposed the exclusive breastfeeding goals for public comment in August 2005.

⁶ In 2004, NIS defined exclusive breastfeeding as feeding that included only breast milk and excluded water and other liquids and solids. While the NIS data do not allow us to examine WIC breastfeeding rates by state, FNS officials told us that WIC rates in some regions of the country met Healthy People 2010 breastfeeding goals.

Breastfeeding Rates: Associated with Age, Education, Marital Status, and Race



WIC and non-WIC infants were most likely to be breastfed if:

Their mothers were:

- Over 20 years old
- College graduates
- Married

Or the infants were:

- Hispanic, compared to non-Hispanic (WIC only)⁷

Infants were least likely to be breastfed if:

Their mothers were:

- Under 20 years old
- Not college-educated
- Unmarried

Or the infants were:

- African American, compared to other race groups (WIC only)⁸

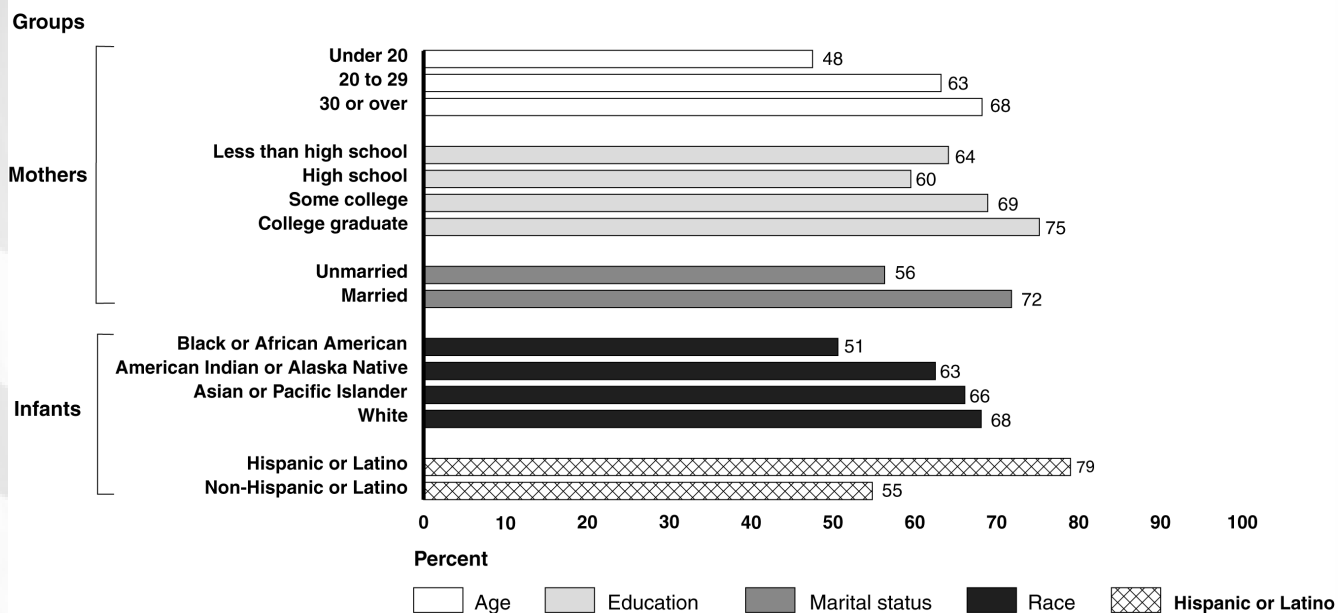
⁷ For non-WIC infants, the rate of Hispanics were not significantly different from those of non-Hispanics.

⁸ For non-WIC infants, the rates of African Americans were lower than those of Asians and Whites but not significantly different from those of Native Americans, due in part to the small number of Native Americans in the study.

Breastfeeding Rates: Associated with Age, Education, Marital Status, and Race



WIC infants ever breastfed by maternal and infant characteristics, 2004



Source: National Immunization Survey.

Formula Marketing: Targets Non-WIC Mothers, Reaches WIC Mothers, and Sometimes Uses WIC Trademark



Overview of Finding 2:

- Formula companies target non-WIC mothers and reach WIC mothers through marketing to the medical community and consumers.
 - Extent of marketing is difficult to quantify, but data show mass media advertising has increased.
 - Companies have used WIC trademark to market infant formula.
 - Most state WIC contracts do not comply with FNS restrictions on the use of the WIC acronym and logo in formula advertisements.
-

Formula Marketing: Companies Target Non-WIC Mothers and Reach WIC Mothers



Companies report that they do not target WIC mothers:

- WIC participants generally cannot choose the formula brand they receive.
- Formula companies would prefer to target marketing resources, such as free samples, to non-WIC mothers who have greater choice over brands.

Nevertheless, formula marketing reaches women on WIC:

- Formula companies market formula as WIC-approved or WIC-eligible to health care providers, including promoting special formulas for infants who have medical or dietary problems.⁹
- Women on WIC are exposed to advertising directed at the general population (about half of all infants are on WIC).

⁹ Doctors can prescribe these formulas for WIC infants with particular health problems. In states in which more than one special formula brand is approved for WIC clients, formula companies can compete to persuade doctors to prescribe their formula brand for WIC clients or to persuade mothers to request certain brands.

Formula Marketing: Companies Target Non-WIC Mothers and Reach WIC Mothers



Formula companies primarily market to the general population in two ways:

Through the medical community (examples):

- Formula ads and free samples given to pregnant women in doctors' offices
- Free or reduced-price formula given to hospitals for use in the hospital
- Free formula samples in hospital discharge packs
- "Dear Health Care Provider" letters explaining the benefits of particular formulas
- Training for health care professionals about various infant formula products
- Promotional items (e.g., pens, baby name cards, calendars)

Directly to the consumer (examples):

- Mass media advertising: television, radio, and print ads
- Coupons and free formula sent to the homes of pregnant women and new mothers
- Web sites promoting infant formula products
- Prominent displays of infant formula products on grocery store shelves to directly appeal to shoppers¹⁰

¹⁰ Formula companies reported that by contracting with state WIC programs, they are able to acquire greater shelf space in grocery stores and better market their products to non-WIC consumers.

Formula Marketing: Extent of Marketing Difficult to Quantify; Data Show Mass Media Advertising Has Increased



Measuring extent of infant formula marketing is difficult:

- Marketing data is generally proprietary and not regularly collected by government agencies.

However, GAO found that some forms of marketing are widespread and increasing:

- Officials from two major formula companies noted that most U.S. hospitals provide formula discharge packs to new mothers.¹¹
- An estimated 86 percent of WIC mothers received these discharge packs, according to a 1997 national USDA study.¹²
- Additionally, GAO purchased market research data and identified an increase in mass media advertising between 1999-2004.

¹¹ Hospitals that are certified as "baby friendly" do not distribute free formula samples to new mothers. The American Academy of Pediatrics discourages the distribution of formula discharge packs.

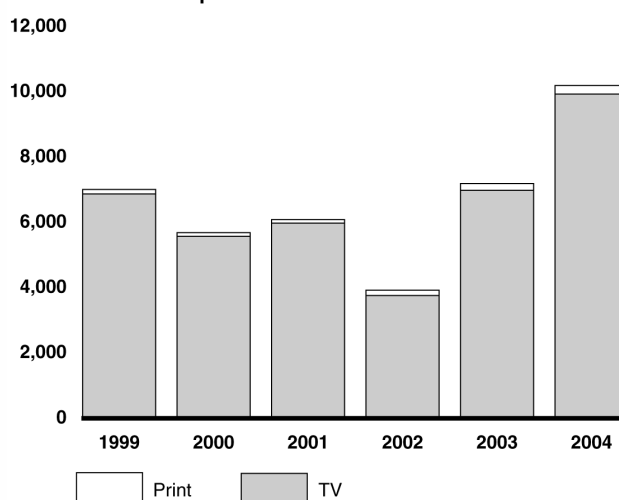
¹² Nazli Baydar, Margaret McCann, Rick Williams, Eric Vesper, *Final Report: WIC Infant Feeding Practices Study* (Alexandria, VA: U.S. Department of Agriculture, Office of Analysis and Evaluation, Food and Consumer Service, November 1997). Study covered the 48 contiguous states.

Formula Marketing: Extent of Marketing Difficult to Quantify; Data Show Mass Media Advertising Has Increased



- Annual number of TV and print ads in the US increased from about 7,000 in 1999 to over 10,000 in 2004, totaling over 40,000 during this period.

Number of TV and print infant formula ads shown in U.S.



Source: TNS Media Intelligence and GAO analysis.

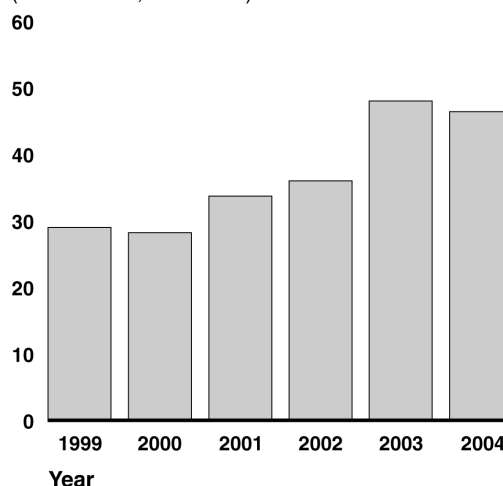
Note: Each time an ad is shown, it is counted. However, it is possible that this is an underestimate of the number of ads shown across the country, because the data only tracks ads shown in major media markets in the U.S. Data are not available for the number of radio advertisements shown. For additional information on the advertising data, see appendix II.

Formula Marketing: Extent of Marketing Difficult to Quantify; Data Show Mass Media Advertising Has Increased



- Annual formula company expenditures for TV, print, and radio ads grew from an estimated \$29M in 1999 to over \$46M in 2004, for a total of almost \$223M during this period.
- More ads were placed through television than through any other type of mass media, 1999-2004:
 - Print advertising, including newspapers and magazines, was less common.
 - Infant formula was rarely advertised on the radio, and we found no ads on outdoor billboards.

Estimated infant formula ad expenditures in U.S.
(2004 dollars, in millions)



Source: TNS Media Intelligence and GAO analysis.

Note: These estimates are based on official advertising costs in major U.S. media markets and do not include discounts negotiated by advertisers or the costs of creating the advertisements. We determined that the data were sufficiently reliable for the purposes of estimating trends in annual formula company expenditures. Data include expenditures for TV, print, and radio advertisements.

Formula Marketing: Companies Have Used WIC Trademark to Market Infant Formula



Examples of formula marketing materials using WIC acronym:

- Prescription pad for doctors entitled “**WIC** Program Prescription for Special Formula.”
- Glossy posters for health care providers promoting a formula as “**WIC** Eligible” in big letters and depicting a flag with the **WIC** acronym.
- “Dear Health Care Provider” letter noting that a particular formula for babies with special medical needs is “approved for use by **WIC** patients in all 50 states” and that recommending this formula to patients “may save your state money.”
- A consumer advertisement and coupon indicating a formula for babies with colic is “**WIC** approved in all 50 states.”

Formula Marketing: Companies Have Used WIC Trademarks to Market Infant Formula



Concerned that use of the WIC acronym and logo may imply a WIC endorsement of commercial products, FNS issued written guidance to states in 1992:

- Food manufacturers are forbidden from using the trademarked WIC acronym and logo in all advertisements.¹³
 - While no exceptions for food manufacturers are noted in the written guidance, FNS has recognized some exceptions that allow formula companies to use the WIC acronym.¹⁴
- All state WIC contracts with food manufacturers are required to include this restriction; the guidance also instructs states to amend existing contracts accordingly.
 - Having this restriction in state contracts provides greater legal protection for WIC's trademarks.

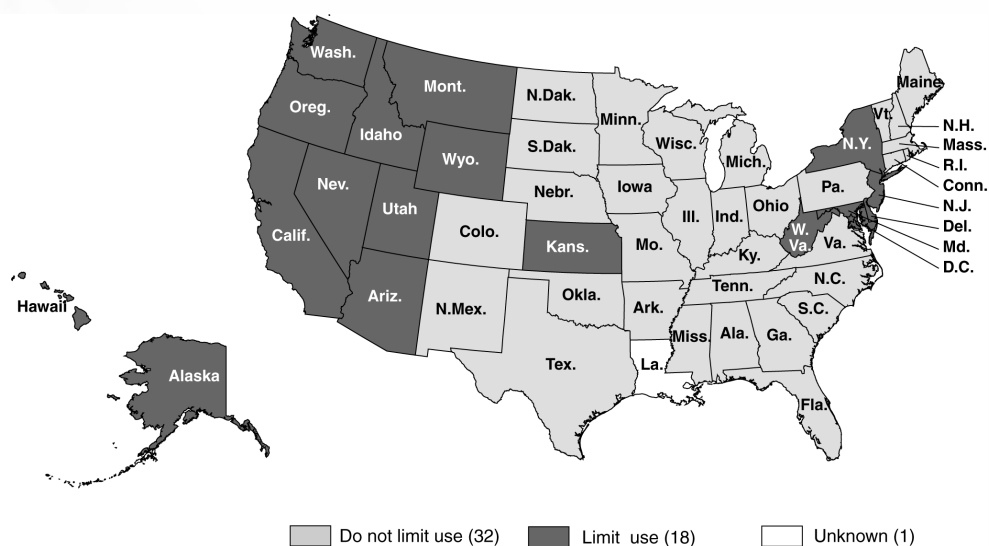
¹³ FNS Instruction 800-2. FNS considers formula companies to be food manufacturers.

¹⁴ For example, FNS has permitted some uses of the WIC acronym in ads that are unlikely to mislead consumers into thinking that USDA prefers the formulas being advertised, sometimes referred to as "fair use". In these cases, the WIC acronym is used to describe how consumers can obtain the formulas.

Formula Marketing: Most State WIC Contracts Do Not Comply with FNS Restrictions



As of 2005, the majority of state WIC contracts with infant formula companies (at least 32) do not limit the use of the WIC acronym or logo in advertisements.



Source: GAO review of WIC contracts and survey of state WIC directors in 2005.

Note: Kentucky and New Hampshire reported having language in their state policies restricting the use of the WIC trademark, but they do not have such language in their infant formula contracts.

Impact of Marketing: Formula Samples in Discharge Packs May Discourage Breastfeeding



Overview of Finding 3:

- A majority of the studies we reviewed found lower breastfeeding rates among women receiving formula samples in discharge packs.
- WIC mothers who received formula discharge packs also had lower breastfeeding rates.
- Little is known about the impact of other types of formula marketing.

Impact of Marketing: Majority of Studies Found Lower Breastfeeding Rates Among Women Receiving Formula Samples in Discharge Packs



In 7 of 11 sound studies we reviewed, breastfeeding rates were lower for women receiving discharge packs:¹⁵

- These studies varied in the points in time rates were measured, and each found effects for at least one, but not necessarily all points in time.
 - For example, one study found lower rates at 3 weeks but did not find a difference at 1 week,¹⁶ while some other studies did not measure breastfeeding at these times.
 - More studies examined and found decreases in breastfeeding at 2 weeks or later than examined and found decreases in the percentage of women who had ever breastfed.
- The remaining 4 studies found no effects of infant formula discharge packs on breastfeeding rates.

Findings may not apply to all U.S. mothers but are informative

Although the results we reviewed apply only to study participants, the studies as a group help us examine the effects of infant formula marketing on breastfeeding.

¹⁵ See appendix III for information on our study identification and review, and see appendix IV for the list of studies. Two of these studies were supported by infant formula companies.

¹⁶ B.J. Snell, Marie Krantz, Rebecca Keeton, Karen Delgado, and Carol Peckham, "The Association of Formula Samples Given at Hospital Discharge with the Early Duration of Breastfeeding," *Journal of Human Lactation* 8:2 (1992).

Impact of Marketing: WIC Mothers Receiving Formula Discharge Packs Also Had Lower Breastfeeding Rates



Two of the 11 studies we reviewed included mostly WIC participants, and both found lower breastfeeding rates.¹⁷ Mothers receiving discharge packs:

- Were less likely to begin breastfeeding and less likely to still be breastfeeding at 7-10 days in a study of over 200 African-American WIC participants in Baltimore.
- Were less likely to breastfeed and more likely to use formula in a study of over 100 Indochinese refugee mothers in northern California.

¹⁷ See appendix IV for information on these studies. The Baltimore study focused exclusively on WIC participants, while the California study included mostly WIC mothers. Given study limitations such as small size, lack of random assignment, and not being racially representative of the entire WIC population, the results of these two studies are limited to study participants, and associations should not be considered causal.

Impact of Marketing: Little Is Known about the Effects of Other Types of Formula Marketing



- Apart from discharge packs given to women after birth, one study found that giving formula samples and materials to pregnant women before birth decreased breastfeeding rates before leaving the hospital and shortened breastfeeding for women with uncertain or limited breastfeeding goals.¹⁸
- We cannot assess the impact of other types of formula marketing on breastfeeding rates because we found no rigorous studies of mass media advertisements, direct mail coupons, marketing through health care providers, or other advertising activities.

¹⁸ Cynthia Howard, Fred Howard, Ruth Lawrence, Elena Andresen, Elisabeth DeBlieck, and Michael Weitzman, "Office Prenatal Formula Advertising and Its Effect on Breast-Feeding Patterns," *Obstetrics & Gynecology* 95: 2 (February 2000). The results of this study are limited to the study participants, and the study did not find that discharge packs affected overall breastfeeding initiation or long-term duration.

Conclusions



- Too few U.S. infants breastfeed, according to national recommendations, and breastfeeding rates are even lower for infants on WIC. If rates do not increase, many mothers and infants will continue to miss out on the health benefits of breastfeeding. This is particularly important for low-income children, who often have less access to health care and poorer health. The U.S. will also spend billions of dollars more in avoidable health care costs.
- While the health community and formula companies agree that breastfeeding is best, advertising of formula is widespread and increasing. Studies have shown that some infant formula marketing, particularly hospital discharge packs, may discourage breastfeeding. WIC participants may not understand that the WIC program strongly recommends breastfeeding.
- To promote their products, some companies have used the WIC acronym in their marketing efforts. To avoid the perception that FNS is promoting formula feeding over breastfeeding, it is important that FNS protect its trademarks from potentially inappropriate use in infant formula advertisements.
 - States may be unaware of FNS' policy restricting the use of the WIC trademark and may not fully understand what uses of the trademark are not allowed in advertisements.
 - FNS would be better able to guard against the misuse of the WIC acronym and logo if all state WIC contracts restrict the use of these trademarks in formula advertisements.

Agency Recommendation



We recommend that the Secretary of Agriculture educate all states about its policy restricting the use of the WIC acronym and logo and ensure that all state formula contracts include provisions restricting the use of these trademarks in infant formula advertisements.

Appendix II: Advertising Data

To understand how infant formula is advertised through the mass media in the U.S., GAO purchased and analyzed data from TNS Media Intelligence on infant formula advertising between 1999 and 2004 in major U.S. markets. These data identified infant formula advertisements in the following media outlets:

Television

- network TV,
- spot TV,
- cable TV, and
- syndicated TV

Print

- magazines,
- Hispanic magazines,
- business to business publications,
- national newspapers,
- Hispanic newspapers, and
- other newspapers

Radio

- national spot radio
(Data was only available on radio advertising expenditures, not the number of ads aired.)

TNS Media Intelligence also searched for infant formula advertisements on outdoor signs but did not find any during this time period.

To assess the reliability of the data, we talked with company representatives about data quality control procedures and reviewed relevant documentation. We determined the data were sufficiently reliable for the purposes of estimating trends in marketing by formula companies.

Appendix III: Literature Review

To identify research that evaluates the impact of infant formula marketing on breastfeeding rates among the general population and WIC participants in particular, we searched relevant databases from January 1980 through July 2005 using Dialog, including Agricola, Biosis, and CAB. We also consulted with USDA, the Centers for Disease Control and Prevention, the National WIC Association, infant formula companies, and other experts in the field. In addition, we identified studies through citations in previously identified studies, as well as through online journals and search engines.

In order to focus on evaluation of the impact of infant formula marketing, we identified studies that met the following criteria:

- The document is an original research study or an analysis of research data evaluating the impact of infant formula marketing on breastfeeding rates among U.S. women in general or WIC participants specifically.
- The document has been published in a refereed medium (for example, a journal article, book or book chapter, or USDA-issued report).
- The document's publication date is 1980 or later.
- All of the research described in the document was conducted in the United States.
- The document is in English.

Some studies were excluded because the research was not conducted in the United States or because they did not otherwise meet our criteria. For example, we excluded one study of the impact of hospital discharge packs on breastfeeding rates because the study had been conducted in Canada.

We identified 17 studies meeting our review criteria, and we conducted detailed reviews of each study's research methodology, including its research design, sampling frame, selection of measures, data quality, limitations, and analytic techniques.¹ We excluded 5 studies due to methodological limitations and retained 12 for analysis (listed in appendix IV).

¹ The studies used different measures of breastfeeding, such as one week or one month, and defined exclusive breastfeeding in different ways, ranging from consumption of nothing but breast milk to consumption of no other milk or formula.

Eleven of the remaining 12 studies examined the impact on breastfeeding of giving new mothers free infant formula samples in hospital discharge packages.² Only 2 of these studies included mostly WIC participants. One study examined the impact on breastfeeding of formula samples distributed to pregnant women in doctors' offices.

² Some studies compared receipt of formula discharge packs to receipt of no packs, while others compared them to receipt of breastfeeding promotion packs or other infant supply packs. Two of the studies were supported by infant formula companies.

Appendix IV: Studies in Literature Review

Studies of Infant Formula Discharge Packs Included in Our Review

Bliss, Mary Campbell, Joy Wilkie, Curt Acredolo, Susan Berman, and Kathleen Phillips Tebb. "The Effect of Discharge Pack Formula and Breast Pumps on Breastfeeding Duration and Choice of Infant Feeding Method." *Birth* 24:2 (June 1997): 90-97. (This study was supported by infant formula manufacturer Mead Johnson.)

Caulfield, Laura E., Susan M. Gross, Margaret E. Bentley, Yvonne Bronner, Lisa Kessler, Joan Jensen, Benita Weathers and David M. Paige. "WIC-Based Interventions to Promote Breastfeeding Among African-American Women in Baltimore: Effects on Breastfeeding Initiation and Continuation." *Journal of Human Lactation* 14:1 (1998): 15-22. (Study focused exclusively on WIC participants.)

Dungy, Claibourne I., Mary E. Losch, Daniel Russell, Paul Romitti, and Lois B. Dusdieker. "Hospital Infant Formula Discharge Packages: Do They Affect the Duration of Breast-feeding?" *Archives of Pediatrics & Adolescent Medicine* 151 (July 1997): 724-729.

Evans, Cynthia J., Nancy B. Lyons, and Marcia G. Killien. "The Effect of Infant Formula Samples on Breastfeeding Practice." *Journal of Obstetric, Gynecologic, and Neonatal Nursing* (September/October 1986): 401-405.

Feinstein, Joel M., Jay E. Berkelhamer, Mary Ellen Gruszka, Cynthia A. Wong, and Ann E. Carey. "Factors Related to Early Termination of Breast-feeding in an Urban Population." *Pediatrics* 78:2 (August 1986): 210-215.

Frank, Deborah A., Stephen J. Wirtz, James R. Sorenson, and Timothy Heeren. "Commercial Discharge Packs and Breast-Feeding Counseling: Effects on Infant-Feeding Practices in a Randomized Trial." *Pediatrics* 80:6 (December 1987): 845-854.

Neifert, Marianne, Jane Gray, Nancy Gary, and Bonnie Camp. "Effect of Two Types of Hospital Feeding Gift Packs on Duration of Breast-feeding Among Adolescent Mothers." *Journal of Adolescent Health Care* 9:5 (1988): 411-413.

Ryan, Alan S., Jeffrey L. Wysong, Gilbert A. Martinez, and Stephen D. Simon. "Duration of Breast-feeding Patterns Established in the Hospital." *Clinical Pediatrics* 29:2 (February 1990): 99-107. (This study was conducted by infant formula manufacturer Ross Laboratories.)

Romero-Gwynn, Eunice. "Breast-feeding Pattern Among Indochinese Immigrants in Northern California." *American Journal of Diseases of*

Children 143 (July 1989): 804-808. (Study included mostly WIC participants.)

Snell, B.J., Marie Krantz, Rebecca Keeton, Karen Delgado, and Carol Peckham. "The Association of Formula Samples Given at Hospital Discharge with the Early Duration of Breastfeeding." *Journal of Human Lactation* 8:2 (1992): 67-72.

Wright, Anne, Sydney Rice, and Susan Wells. "Changing Hospital Practices to Increase the Duration of Breastfeeding." *Pediatrics* 97:5 (May 1996): 669-675.

Study of Prenatal Infant Formula Advertising Included in Our Review

Howard, Cynthia, Fred Howard, Ruth Lawrence, Elena Andresen, Elisabeth DeBlieck, and Michael Weitzman. "Office Prenatal Formula Advertising and Its Effect on Breast-Feeding Patterns." *Obstetrics & Gynecology* 95:2 (February 2000).

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