United States General Accounting Office

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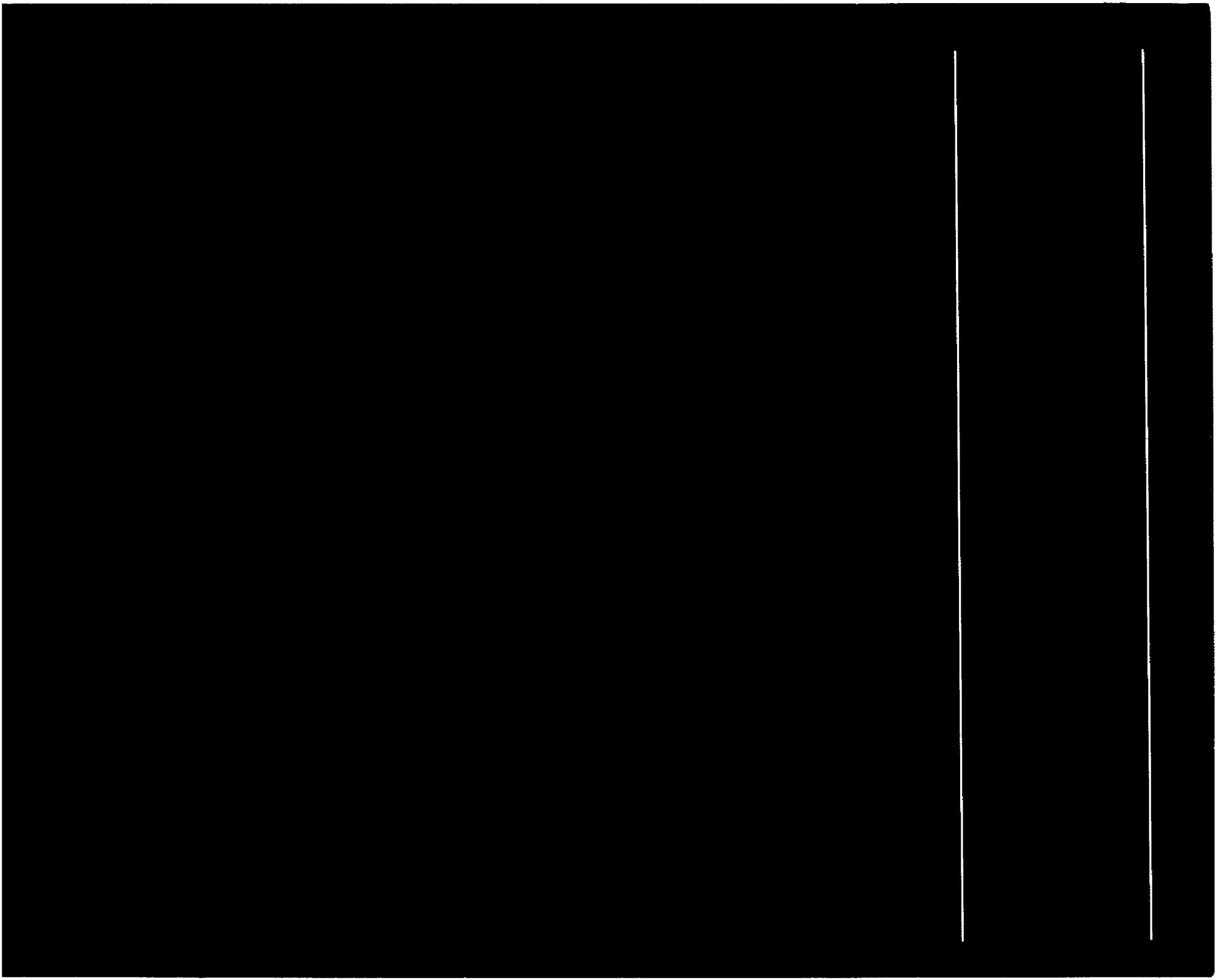
Report to Congressional Requesters

December 1993

BREASTFEEDING

WIC's Efforts to Promote Breastfeeding Have Increased



GAO

United States
General Accounting Office
Washington, D.C. 20548

150575

Human Resources Division

B-250914

December 16, 1993

The Honorable Richard J. Durbin
The Honorable Bill Emerson
The Honorable William D. Ford
The Honorable William F. Goodling
The Honorable Tony P. Hall
The Honorable Dale E. Kildee
House of Representatives

This report responds to your request that we determine the extent to which the U.S. Department of Agriculture's (USDA) Special Supplemental Food Program for Women, Infants, and Children (WIC) promotes breastfeeding and the impact that increased breastfeeding would have on WIC food costs.

Breastfeeding can help ensure the health and well-being of infants. The Department of Health and Human Services (HHS) established a year 2000 national objective to increase the percentage of women who breastfeed their infants to at least 75 percent at hospital discharge and to at least 50 percent at 5 to 6 months postpartum. Low-income women, such as those served by WIC, breastfeed at lower rates than other U.S. women. In 1989 only 35 percent of WIC participants breastfed at hospital discharge and 9 percent breastfed at 6 months, compared with rates for all women of 52 percent in hospital and 18 percent at 6 months (See table II.1).

The WIC program serves as an adjunct to health care, and provides supplemental food, nutrition and health education, and referrals to other health and social services to low-income pregnant, postpartum nonbreastfeeding, and breastfeeding women, and infants and children up to age 5 whose family income is at or below established income eligibility standards and who are found to be at nutritional risk. WIC, which is administered by USDA, served about one-third of U.S. infants and spent $404 million on infant formula in fiscal year 1991. Concern about WIC mothers' low rates of breastfeeding prompted the Congress to set aside $8 million per year in WIC funds to promote breastfeeding during fiscal years 1990 through 1994.[1]

You asked us to determine (1) how promotional funds for breastfeeding are being spent and what WIC is doing to promote breastfeeding, (2) to what degree breastfeeding promotion is an integral part of local WIC

[1]Public Law 101-147, The Child Nutrition and WIC Reauthorization Act of 1989, effective November 10, 1989.

services, (3) whether encouraging WIC participants to breastfeed would reduce WIC program food costs at the program's current funding level or if WIC were funded so that all eligible participants could be served, (4) how effective current WIC efforts to promote breastfeeding are, and (5) whether any changes in federal laws or regulations could encourage breastfeeding.

Results in Brief

State WIC programs have substantially increased their breastfeeding promotional efforts since the 1989 reauthorization of the WIC program. Most states spent substantially more than their proportionate share of the $8 million per year set-aside that is the minimum required to be spent to promote breastfeeding. State WIC programs have promoted breastfeeding through (1) training staff in breastfeeding education techniques and providing educational materials to staff and participants; (2) providing breastfeeding aids, such as breast pumps, to program participants; (3) requiring local WIC programs to plan their promotional efforts; and (4) coordinating with other health care providers and community groups.

Local WIC sites we visited integrated breastfeeding education into their nutrition education services. Some sites lacked educational materials printed in the foreign languages spoken by program participants. However, we found breastfeeding educational materials in some of these languages available at other sites. In addition, some USDA and state WIC programs we visited have not developed comprehensive written guidance for the local staff that clearly defines when to advise women not to breastfeed. Human immunodeficiency virus (HIV), the virus that causes acquired immunodeficiency syndrome (AIDS), can be transmitted through breast milk, as can illegal and some prescription drugs and other substances. Breastfeeding under such conditions could put some infants at risk.

Increasing the rate of breastfeeding among WIC participants may not lower total WIC food costs appreciably, even if the total amount of formula purchased is reduced. WIC provides breastfeeding mothers with enhanced food packages for themselves and with supplemental formula for their babies if mothers request it. The cost of these items may offset any savings in formula costs that might be achieved by convincing more mothers to breastfeed rather than bottle-feed their infants.

Between 1989 and 1992, the incidence of breastfeeding in-hospital increased nearly 12 percent among WIC participants, compared to 5 percent among nonparticipants, according to data from Ross Laboratories' Mothers Survey. Although these increases are promising and occurred

during a time when WIC breastfeeding promotion had increased, factors other than WIC prenatal participation, such as the amount of breastfeeding education received, may influence breastfeeding rates. In addition, health care providers, families and peer groups, and the media may actually discourage breastfeeding by encouraging the use of formula.

WIC directors we surveyed and interviewed suggested changes in federal laws and regulations, such as making breastfeeding aids and support services allowable Medicaid expenditures, which could encourage breastfeeding. We discuss some of the suggested changes in appendix VI. Congress passed laws in 1992 and 1993 that may help promote breastfeeding.

Scope and Methodology

To answer your questions, we

- analyzed information on infant feeding practices obtained from a nationally representative survey of U.S. mothers conducted by Ross Laboratories to determine, as a measure of program effectiveness, whether breastfeeding rates had increased since the WIC program's reauthorization;
- interviewed state officials, local WIC staff, and program participants at three local sites per state in Massachusetts, Tennessee, Virginia, and Washington to determine whether and how breastfeeding promotion had been integrated into local services;[2]
- analyzed responses to a survey we sent to all WIC directors in the 50 states, the District of Columbia, Puerto Rico, the Virgin Islands, and Guam (hereafter referred to collectively as "states") to develop national information on breastfeeding promotion activities and set-aside spending;[3] and
- estimated the effect of an increased breastfeeding rate on food costs to determine if increasing the rate of breastfeeding could decrease food costs.

In addition, we interviewed USDA and HHS officials to learn more about breastfeeding promotion and reviewed the literature on breastfeeding's health effects and on breastfeeding promotion. (See apps. I, III, and V for a more detailed discussion of our methodology and app. IV for a copy of the questionnaire and results.)

[2]We chose these states to provide regional diversity and to include both the Southeast, which has traditionally low rates of breastfeeding, and the Northwest, which has high rates of breastfeeding.

[3]Fifty-three out of 54 responded to the survey.

We performed our work from May 1992 through May 1993 in accordance with generally accepted government auditing standards. USDA and HHS provided written comments on this report, which are included in appendixes VII and VIII.

Breastfeeding Provides Health and Social Benefits but Is Not Recommended for All Women

Breastfeeding provides many nutritional, health, and social benefits. It decreases frequency of gastrointestinal illness in infants because breast milk inhibits the growth of germs and stimulates the infant's immune system. It reduces infant mortality, protects against respiratory infections, reduces incidence and duration of ear infections, offers some protection for children from developing food allergies and eczema, and may protect against the development of certain chronic diseases such as juvenile diabetes (which is Type I diabetes) and lymphoma. Experts report that breastfeeding increases mother-child bonding and may also help protect nursing mothers from developing breast cancer. Public health experts, such as the American Academy of Pediatrics, the American Dietetic Association, and the Surgeon General, endorse breastfeeding as the preferred infant feeding method in most cases.

Breast milk is considered the optimum food for infants under most circumstances, but breastfeeding is not recommended for all mothers. The Centers for Disease Control and Prevention (CDC) in HHS has recommended that HIV-infected women refrain from breastfeeding, since the virus can be transmitted through breastfeeding, although the World Health Organization (WHO) has recommended that HIV-infected women in third world countries breastfeed. Illegal drugs and some prescription drugs, as well as environmental hazards, such as insecticides, herbicides, and heavy metals, can also enter a mother's milk and adversely affect her infant. Health experts advise that women who have significant amounts of such substances in their milk should not breastfeed.

WIC Has Increased Breastfeeding Promotion Since 1989

WIC program officials at the federal, state, and local levels promote breastfeeding as the preferred method for feeding infants. Nationally, USDA has developed a coalition, funded research, and made regulatory changes to promote breastfeeding. State WIC programs have trained staff in breastfeeding education, purchased educational materials and breastfeeding aids, and encouraged local agencies' promotional planning. Local staff at sites we visited educated WIC participants to encourage them to breastfeed. Some worked through local task forces to increase support for breastfeeding.

USDA Efforts to Promote Breastfeeding

Nationally, USDA has taken many steps to promote breastfeeding—some of them before the 1989 act that required specific actions to do so. For example, USDA and the American Academy of Pediatrics established the Breastfeeding Promotion Consortium, composed of nonprofit and professional groups and relevant government agencies. The consortium meets twice a year to exchange information and collaborate on breastfeeding promotion activities. USDA funded a study of breastfeeding promotion demonstrations and the development of technical assistance materials, including a guide to effective breastfeeding promotion strategies. Some of these strategies are currently used by local programs and have been incorporated into a 5-year, 16-site initiative funded by HHS.

Since the passage of the 1989 act, USDA has added additional foods to the food package for breastfeeding women whose infants do not receive supplemental formula from WIC. This action was taken to better meet their increased nutritional needs. USDA adopted standards for local breastfeeding promotion programs for training, planning, designing clinic policy, and designating a local breastfeeding promotion coordinator. USDA staff worked with the National Association of WIC Directors (NAWD) to develop Guidelines for Breastfeeding Promotion in the WIC Program, which details steps local programs can take to implement the standards. USDA is also funding eight 1-year demonstration projects to evaluate the effectiveness of incentives to encourage breastfeeding and has funded other research on breastfeeding.

States Trained Staff and Planned Breastfeeding Promotion

Congress wrote several provisions in the 1989 Child Nutrition and WIC Reauthorization Act to encourage breastfeeding. In addition to setting aside $8 million per year in nutrition services and administration funding to promote breastfeeding, the Congress also required each state WIC agency to (1) designate a state breastfeeding coordinator; (2) plan and evaluate breastfeeding promotion and support; (3) coordinate breastfeeding promotion activities with other programs in the state; (4) provide breastfeeding education and promotion training to clinic staff, and authorize the purchase of breastfeeding aids; and (5) provide materials on breastfeeding in languages other than English where substantial numbers of non-English-speaking people are being served.

We found that states have generally complied with the provisions of the act. From our survey of state WIC programs, we found that all responding states designated state-level officials to coordinate breastfeeding promotion. Almost all states reported preparing breastfeeding education

and promotion plans, assessing the need for breastfeeding education, and analyzing data on breastfeeding rates. Most states reported evaluating WIC's effectiveness in promoting breastfeeding at the local level. Fifty-two of 53 states reported developing written guidance for local staff on breastfeeding promotion and education. Forty of 53 state WIC agencies used state-level committees to promote breastfeeding. Most state WIC agencies had trained more than 90 percent of their WIC staff who provided nutrition education services in breastfeeding promotion or education as of October 1, 1992. (See app. IV.)

Because research has shown that a trained staff increases breastfeeding rates through direct participant education, states reported spending most of their breastfeeding promotional money on nutrition education, training, and educational materials.[4] In addition, in fiscal year 1992, 35 states reported purchasing breastfeeding aids, such as breast pumps, for breastfeeding mothers to use. States spent about 10 percent of their breastfeeding funds on breastfeeding aids.

Most states reported spending substantially more than the minimum WIC nutrition education and administrative funds required to promote breastfeeding. Forty of 48 states that provided nutrition education/administrative funding data on our survey reported that they spent more than the set-aside amount. States that spent more than the set-aside amount reported spending almost 70 percent more than was required in fiscal year 1991. In addition, in fiscal year 1991, 12 states reported receiving additional WIC discretionary funds to promote breastfeeding, and 9 states reported receiving breastfeeding promotion funds from sources other than USDA, such as from state Maternal and Child Health funds or local agency funds.

Although WIC staff conducted breastfeeding education and promotion activities before passage of the act, their programs' level of effort rose after its passage. For example, 12 states reported starting peer counselor programs in or before 1989, while 21 states began peer counselor programs during 1990 through 1993. In Tennessee and Virginia, existing peer counselor programs were expanded to more locations after 1989. In all the states we visited, breastfeeding training for WIC educational staff increased, and WIC staff reported new activities begun to promote breastfeeding.

[4]This funding information was reported by the state WIC directors and was not independently verified or audited by GAO.

Breastfeeding Is Encouraged by Local Staff

The 12 local sites we visited encouraged breastfeeding and educated women on proper techniques during the prenatal period. Many sites provided breastfeeding support to women postpartum. Local WIC staff provided breastfeeding education during individual sessions with pregnant participants. Some sites also offered group sessions or classes that included breastfeeding information. Twenty-one of the 22 WIC participants we interviewed reported that they had received breastfeeding education and supportive counseling from WIC staff.

The intensity of education and its focus differed among the states and sites we visited, depending on the availability of additional staff, generally paraprofessionals. Some sites in Washington, Tennessee, and Virginia used peer counselors or lactation aides trained in breastfeeding promotion to provide extra breastfeeding support beyond what the nutritionists normally provided. These peer counselors typically were WIC participants who had successfully breastfed their own infants and served as breastfeeding mentors to other participants. The intensity of services provided by peer counselors in the states we visited varied greatly, from having full-time peer counselors who provided extensive on-site counseling, telephone follow-up, and hospital and home visits when needed to having part-time peer counselors who provided limited telephone contact only. Peer counselors in Virginia and Washington focused their limited educational time and effort on pregnant women who said they either intended to breastfeed or were undecided. In contrast, local Tennessee staff reported providing extensive counseling, education, and support to all pregnant participants, regardless of their initial infant feeding preference.

In our survey, 42 state directors reported having task forces or committees at the local level that promoted breastfeeding. We found staff in some local sites worked individually or in organized groups, like a task force, with community health officials to promote breastfeeding. They carried out a number of activities to encourage breastfeeding, such as sponsoring breastfeeding workshops to train local health care providers, giving educational material to health care providers, and encouraging hospitals to adopt supportive breastfeeding practices.

Four state Maternal and Child Health and WIC programs, a university, and one local WIC program funded focus group research and the development of educational approaches and materials based on that research, which would be more likely to influence low-income women to breastfeed. Sites

in states we visited used the "Best Start" educational materials developed through this research.

Educational Materials in Foreign Languages Are Lacking

The 1989 act required states to provide local agencies with breastfeeding education materials in foreign languages in areas where a substantial number of participants do not speak English. The three sites that we visited that had Spanish-speaking participants displayed Spanish language breastfeeding education materials, although their nutritionists told us they would like additional Spanish language materials. However, sites in all four states we visited lacked other foreign language materials. In addition, we found materials promoting breastfeeding in certain foreign languages at some sites that had been identified as being needed by program staff at other sites.

The Food and Nutrition Information Center (FNIC) of USDA's Agricultural Library catalogs WIC nutrition education materials in English and other languages. FNIC issues a quarterly update on recent acquisitions and other items for WIC state agencies and others. Users can either borrow materials from the center or contact the originating source. We found that the Massachusetts state WIC office had materials available in Cambodian, French, and Russian, which, for example, could have helped WIC officials in Washington and Tennessee meet some of their foreign language needs. However, the French and Russian materials were not included in the FNIC database.

Some States Have Not Provided Guidance on When Breastfeeding Is Contraindicated

Fifteen of 53 states had no written guidance on informing women about specific situations when breastfeeding is not recommended, even though some infants could develop serious health problems from breastfeeding. Of the four states we visited, one provided no written guidance. The guidance provided by the other three was incomplete or confusing. One state's WIC manual says only that "all pregnant WIC participants must be encouraged to breastfeed unless contraindicated for health reasons (e.g., receiving cancer chemotherapy, testing HIV positive.)" The manual does not mention other major contraindications to breastfeeding, such as use of illegal or certain prescription drugs or exposure to high levels of environmental contaminants. Another state's manual discussed CDC's recommendation that HIV-positive women refrain from breastfeeding and the recommendation from WHO that HIV-infected women should breastfeed without indicating which policy the staff should follow. Officials from a third state reported that they followed CDC's recommendation, but had no

written policy of their own on contraindications to breastfeeding. WIC staff at all 12 local sites we visited reported having been given no written guidance from the state WIC program on contraindications to breastfeeding. No staff member interviewed identified all the major contraindications to breastfeeding.

Two of the states we visited—Massachusetts and Washington—were in the process of developing written guidance on some situations where breastfeeding was contraindicated. USDA has developed and will be distributing a resource manual for local agencies on providing drug abuse information to WIC participants. The manual discusses some contraindications of breastfeeding—including the potential dangers of prescription and illegal drug use, cigarette smoking, high alcohol intake, and HIV-positive status of the mother—to a breastfed infant. However, the manual does not mention environmental hazards. USDA has not developed policy on all situations when breastfeeding is contraindicated and when and how this information should be conveyed to WIC participants.

Impact of Increased Breastfeeding on WIC Food Costs Is Uncertain

USDA is promoting breastfeeding because of its health benefits to infants, not because of its impact on food costs. Advocates have argued that if more women breastfed, overall food costs would decrease because less formula would be needed. However, other factors affect WIC mother and infant food costs, including the amount of supplemental formula breastfeeding infants use, the costs of food packages given to different participants, and the number of women served.

Breastfed infants often receive supplemental formula from WIC, if their mothers request it, which increases WIC's food costs. However, the average amount of supplemental formula distributed to breastfed infants in WIC is unknown. Of 51 states that reported providing supplemental formula to breastfeeding women, only 14 collected information on the amount of formula distributed. Of these, only three could tell us the percentage of breastfed infants who receive supplemental formula from WIC and the average amount received. These three states provided very different amounts of supplemental formula. Maine provided 7 percent of breastfed infants with supplemental formula, typically in small amounts. In contrast, Pennsylvania provided 69 percent of breastfed infants with substantial amounts of supplemental formula.

The content of food packages can also affect costs. Different types of participants are eligible for different food packages that have different

costs depending on the allowable type and quantity of food. Because state WIC programs receive rebates from formula producers, infant formula has become less expensive than it previously was relative to other WIC foods. Also, food packages provided to breastfeeding women cost more than packages provided to postpartum nonbreastfeeding women and to formula-fed infants. Moreover, WIC has increased the amount of food, and thus the cost of the package, for breastfeeding women whose infants receive no supplemental formula from WIC.

The number of mothers served also affects food costs. The number of mothers who will be served is estimated to increase if WIC becomes funded so that all potentially eligible participants could be served. At present, the amount of money appropriated for WIC is not enough to serve all who are estimated to be eligible. WIC has a priority system for enrolling people in the program. Postpartum nonbreastfeeding mothers are considered a lower priority for enrollment in the WIC program than pregnant women, infants, and breastfeeding mothers. Therefore, more nonbreastfed infants are served in the program than are nonbreastfeeding mothers. The Congressional Budget Office estimates that more than double the current number of nonbreastfeeding postpartum women would be enrolled if WIC were funded so that all those eligible could be served.

We estimated that total WIC food costs to serve mothers and infants in fiscal year 1991 would have decreased had there been a 10-percent increase in breastfeeding rates, as long as formula-supplemented breastfed infants received on average no more than 10 percent of the monthly amount of WIC formula given to formula-fed infants (see p. 85). If average amounts of WIC formula given to supplemented breastfed infants reached 25 percent of the monthly amount of formula given to formula-fed infants, increasing breastfeeding rates would have increased the total cost of food provided to mothers and infants. Since we do not know how much supplemental formula is being used by breastfed infants, it is difficult to determine what effect breastfeeding rate increases would really have at current participation and funding levels.

However, if WIC were fully funded and were serving all eligible recipients, any increases in breastfeeding would lead to a decrease in total food costs as long as formula-supplemented breastfed infants received no more than 25 percent of the monthly amount of formula given to formula-feeding infants. Under full funding and serving all those eligible, the number of people served would be greater and total program costs would be higher than they are now. However, compared with these total costs at a baseline

breastfeeding rate, total costs would decrease if more WIC participants breastfed, as long as formula-supplemented breastfed infants received less than half as much formula on average as fully formula-fed infants. (See app. V for more details.)

Breastfeeding Rates Rose Among WIC Participants

Between 1989 and 1992,[5] breastfeeding in-hospital increased nearly 12 percent among WIC participants. The percentage increase in the breastfeeding rate of WIC participants was more than twice the percentage increase of other women in-hospital. (See table 1.) This increase reversed the trend between 1984 and 1989, when the percentage decrease in the breastfeeding rate of WIC participants was greater than the percentage decrease in the rate of other women. Despite the gains made, WIC participants continued to breastfeed at lower rates than nonparticipants, according to data from a national survey of infant feeding practices regularly conducted by Ross Laboratories.

The proportion of WIC mothers exclusively breastfeeding also increased slightly, but most of the increase in breastfeeding was due to women who both breastfed and formula fed. Breastfeeding rates continued to vary widely by state and region, although some states with initially poor rates made significant gains. (See app. II for breastfeeding rates by state for WIC participants and all women in 1989 and 1992.)

[5]We compared data for women who participated in the WIC program at any time within 6 months postpartum in 1989 to the most recent full year data available at the time of analysis—October 1991 through September 1992—hereafter referred to as "1992."

Table 1: Percentage of Women Who Breastfed in 1989 and 1992

Breastfeeding women	1989	1992[a]	Percentage point increase[b]	Percentage increase
WIC				
In-hospital	34.8	38.9	4.1	11.8
1 month	27.3	30.8	3.5	12.8
3 months	16.7	18.9	2.2	13.2
Non-WIC				
In-hospital	62.9	66.1	3.2	5.1
1 month	54.7	57.5	2.8	5.1
3 months	39.4	41.8	2.4	6.1

[a]Data are for the period October 1991 through September 1992.

[b]All percentage point changes in breastfeeding rates for WIC mothers and non-WIC mothers between 1989 and 1992 were statistically significant at the 0.05 level.

Source: Ross Laboratories' Mothers Survey.

The increase in breastfeeding among WIC participants, which followed WIC's increased breastfeeding promotion, may suggest that the WIC program is influencing the decisions of prenatal WIC participants to breastfeed. However, a multivariate analysis of the Ross Laboratories data showed that women who enrolled in WIC prenatally in 1991 were no more likely to breastfeed in the hospital than those who only enrolled in the program after their infants were born. (See app. I.) This finding suggests that other factors besides WIC prenatal participation may be influential—perhaps the type or amount of counseling on breastfeeding the women receive.

A USDA-funded study based on the 1988 National Maternal and Infant Health Survey data showed that prenatal WIC participants who reported receiving advice to breastfeed were more likely to initiate breastfeeding, while those who did not report receiving advice to breastfeed were less likely to initiate breastfeeding. When the factor of advice was removed from the analysis, women who had received WIC benefits were no more likely to initiate breastfeeding than were eligible nonparticipants.[6] Unlike this analysis, the Ross analysis of prenatal and postnatal WIC participants did not control for selection bias—that women who enter the program prenatally may differ systematically in important ways from income-eligible women who only enter the program postnatally or do not

[6]J.B. Schwartz and others, The WIC Breastfeeding Report: The Relationship of WIC Program Participation to the Initiation and Duration of Breastfeeding, USDA (Washington, D.C.: 1992).

enter the program at all. It also did not control for any unmeasured factors that influence breastfeeding, such as the amount of breastfeeding education received.

Influences on Breastfeeding Extend Beyond WIC

Negative influences on, or barriers to, breastfeeding extend beyond WIC's ability to affect them. Women's decisions to breastfeed are influenced by their families and friends, the media, and society at large. In addition, health providers and health care institutions can be powerful influences on women's decisions on infant feeding. If providers are neither supportive nor sufficiently knowledgeable about breastfeeding to educate and help women with any breastfeeding problems, providers could discourage breastfeeding. Hospital practices, such as those that separate infants from their mothers, give formula or sugar water feedings, or provide formula at discharge, can also discourage breastfeeding.

Families and friends may discourage breastfeeding if breastfeeding is not the norm for the group. Also, family and friends may lack knowledge about breastfeeding practices or perceive breastfeeding negatively. Having to return to work or school can also discourage breastfeeding if women are not allowed time to pump their milk or do not have facilities for milk storage available to them.

Proposals for Further Increases in Breastfeeding

In the opinion of WIC officials and other breastfeeding experts, a further significant increase in breastfeeding rates will require

- increased support by health care providers;
- making caring for the breastfeeding woman a routine part of health care training;
- more supportive hospital, provider's office, and clinic environments;
- immediate postpartum, in-hospital assistance in initiation of breastfeeding;
- increased community awareness of the benefits of breastfeeding; and
- more supportive workplace policies and increased public acceptance of breastfeeding.

WIC is not the only federal program that could be used to encourage breastfeeding. Federal funding supports health care for pregnant women through Medicaid, state Maternal and Child Health programs, Community and Migrant Health Clinics, and the Indian Health Service. Health care providers paid through these programs can influence low-income women

to breastfeed if the providers are appropriately trained and motivated to encourage breastfeeding.

Recent Congressional Action May Support Breastfeeding

Congress recently passed two laws that may positively influence breastfeeding rates. The Child Nutrition Amendments of 1992, which were suggested and encouraged by USDA, amended the Child Nutrition Act of 1966 to allow the Secretary of Agriculture to accept private funds to promote breastfeeding. The Family and Medical Leave Act of 1993 allows eligible employees to take up to 12 weeks of unpaid leave per year to care for a newborn child, among other health reasons. It may allow some women to breastfeed who might otherwise have had to return to the workplace sooner.

Conclusions

The increase in WIC breastfeeding rates is encouraging. Having the program set-aside and other required activities to promote breastfeeding has increased program emphasis on breastfeeding. USDA and state WIC directors will have to continue to emphasize breastfeeding promotion in order to maintain or improve breastfeeding rates.

More effort could be made by both USDA and state WIC programs to share nutrition education materials in foreign languages, including checking with HHS and other groups that may have developed appropriate materials. Because non-English-speaking individuals are clustered in both large and small areas throughout the United States, sharing foreign language materials is one way to avoid duplication of efforts in preparing this material and to enable local WIC agencies to better serve participants.

Encouraging breastfeeding should be balanced with providing clear information to potential breastfeeding mothers about risk. USDA needs to work with state WIC directors and CDC to develop written guidance on communicating contraindications to breastfeeding, and state WIC programs should ensure that the guidance is understood and followed locally.

Recommendations

We recommend that the Secretary of Agriculture direct the Administrator of USDA's Food and Nutrition Service to work with state WIC directors to

- improve the dissemination of foreign-language breastfeeding education materials in the WIC program, either by publicizing and encouraging increased utilization of the FNIC or by other means.

We also recommend that the Secretaries of Agriculture and Health and Human Services work with state WIC directors and state health directors to

- develop written policies defining when breastfeeding is contraindicated, including how and when to communicate this information to all pregnant and breastfeeding WIC participants.

Agency Comments

In commenting on a draft of this report, USDA and HHS generally agreed with our findings and recommendations. In addition, USDA and HHS made technical comments, which were incorporated as appropriate in this report. (See apps. VII and VIII.)

USDA concurred with our recommendation to improve the dissemination of foreign-language breastfeeding educational materials. USDA and HHS concurred with our recommendation to develop written policies on communicating with all pregnant and breastfeeding WIC participants when breastfeeding is contraindicated.

USDA agreed to work with HHS to develop national standards of practice for contraindications to breastfeeding. HHS suggested that opinions be obtained from the private sector, such as the American Academy of Pediatrics, as well as from relevant agencies within USDA and HHS, when developing policy on breastfeeding. We agree that this would be a reasonable approach for USDA and HHS to take when developing written policies on breastfeeding.

USDA expressed concern that our analysis of food costs had several technical inaccuracies—some of which were caused by information given to us by USDA officials. In response to their concerns, we have revised our analysis. However, our findings remain the same—many different factors contribute to WIC food costs, and an increase in the percentage of women who breastfeed will not necessarily reduce these costs. Increasing the rate of breastfeeding is more likely to decrease food costs when the WIC program moves towards full funding.

USDA was also concerned that the use of Ross Laboratories' Mothers Survey data in our cost analysis may not accurately reflect breastfeeding trends in the WIC population. However, USDA acknowledged that currently no other data are collected on an ongoing basis. As we stated in our report, national data from the Ross survey have agreed well in the past

with other surveys, including data on the WIC population. We would have used USDA data, had accurate data been available, to assess breastfeeding trends. But, as USDA pointed out, state WIC programs are not required to (1) report breastfeeding incidence and duration or (2) use a common format. If USDA wants to assess breastfeeding among WIC women, it will either have to improve the WIC program's data collection, or it will have to continue to rely on outside surveys such as Ross Laboratories' Mothers Survey.

As agreed with your offices, we will make no further distribution of this report until 4 days after its issue date. At that time we will send copies to the Secretaries of Agriculture and Health and Human Services. We will also make copies available to others upon request.

Please call me on (202) 512-6805 if you have any questions about this report. Major contributors are listed in appendix IX.

Gregory J. McDonald
Director, Human Services Policy
and Management Issues

Contents

Tables

Figure

Abbreviations

AIDS	acquired immunodeficiency syndrome
CDC	Centers for Disease Control and Prevention
FNIC	Food and Nutrition Information Center
FNS	Food and Nutrition Service
HHS	Department of Health and Human Services
HIV	human immunodeficiency virus
NAWD	National Association of WIC Directors
RLMS	Ross Laboratories' Mothers Survey
UNICEF	United Nations Children's Fund
USDA	Department of Agriculture
WHO	World Health Organization
WIC	Special Supplemental Food Program for Women, Infants, and Children

Breastfeeding Rate Cross-Tabulation and Regression Methodology and Regression Results

In order to examine recent trends in breastfeeding among Special Supplemental Food Program for Women, Infants, and Children (WIC) participants, nonparticipants, and all women, we contracted with Ross Laboratories for an analysis of data from a nationwide survey it conducts of infant feeding practices. Our analysis is based on 1989, 1991, and 1992 data from the Ross Laboratories' Mothers Survey (RLMS), a large national mail survey designed to determine patterns of feeding infants to 6 months of age.

We contracted with Ross Laboratories to prepare cross-tabulations and a logistic regression. We used the cross-tabulations to compare breastfeeding incidence at different periods for WIC participants, nonparticipants, and all women in order to determine if breastfeeding incidence had increased. The cross-tabulations compared breastfeeding incidence in 1989 and for the most recent 1-year period available at the time of analysis—October 1991 through September 1992, hereafter referred to as "1992." These comparisons were made nationally and by state. In addition, we used logistic regression, a multivariate statistical analysis technique, to examine the association of WIC participation and other characteristics with the likelihood of breastfeeding in the hospital.

Data Source

RLMS questionnaires are mailed monthly to a large representative sample of mothers whose infants are approximately 6 months old. The sample is drawn from a list of births that represents between 70 percent and 82 percent of all new mothers in the United States. In the survey, mothers are asked questions about their sociodemographic status and about what they fed their infants—breast milk, formula, or other kinds of milk—during the infants' first 6 months of life.

The response rate to the Ross survey has been about 50 percent. This low response rate may affect the reliability of the results if the women who respond differ systematically from women who do not respond. Ross Laboratories makes some effort to reduce this potential for bias by adjusting the statistical weights on the data. These adjusted weights, which were used in producing the cross-tabulations, are intended to adjust for any differences in response rates by different population subgroups, such as lower response rates among low-income and less educated women. Furthermore, our analysis focuses on comparative differences in breastfeeding rates between years and among prenatal WIC participants, postnatal WIC participants, and nonparticipants. These differences would only be affected by nonresponse if breastfeeding rates were substantially

different for the nonrespondents and the rate of nonresponse was substantially different either between years or between groups.

In order to be included in the regression analysis, respondents must have completed their questionnaires and answered questions on all variables of interest. Therefore, the percent of surveyed women included in the regression analysis is lower than the percent included for the cross-tabulations. Of the 232,461 mothers surveyed in the time period included in the regression, 116,094 responded to the survey. The regression analysis is based on the 79,428 respondents (34 percent of those surveyed) who provided complete information on all the variables that we included in the analysis.

While there is potential for biased results due to nonresponse in the Ross survey, national breastfeeding rates for all women and for WIC participants from the Ross survey have been similar to rates from other, federally sponsored surveys (the National Maternal and Infant Health Survey and the National Survey of Family Growth.) We cannot assess the level of consistency for state-level data, however, because the federal surveys did not analyze WIC breastfeeding rates at the state level.

The RLMS survey instrument asked mothers whether they participated in the WIC program after their infants were born. For 8 months in 1991, however, the survey contained additional questions that were designed to delineate mothers who participated in WIC prenatally from those who did not participate in the program until after giving birth.[1] We based our regression analysis on mothers who were in the survey during this time period because we wanted to compare the breastfeeding rates of prenatal participants with the breastfeeding rates of participants who only joined the program postnatally and with mothers who did not participate. We counted women who had participated both prenatally and postnatally in the prenatal group because our interest was in comparing in-hospital breastfeeding rates of women who could have been influenced by WIC before their infants' birth with women who could not have been because they only participated in WIC after their infants' birth.

Cross-Tabulation Analysis

The main purpose of our cross-tabulation analysis was to see if actual incidence and duration of breastfeeding among WIC participants increased after the 1989 act and whether the rate of increase was greater or less than

[1]In prior and subsequent surveys, it was not possible to determine whether a mother had participated in WIC prenatally.

that of nonparticipants. We were also interested in knowing in which states breastfeeding incidence and duration were increasing most and what the trends were for all women. See appendix II for tables giving the cross-tabulation results.

For the cross-tabulation, we categorized mothers as WIC participants if they were WIC participants at any time within the first 5 months postpartum. Therefore, the breastfeeding rate for the 1989 cross-tabulation is slightly higher than the rate published in Ryan and others, based on the same data.[2]

Logistic Regression Model

The main purpose of our multivariate analysis was to examine the relationship between WIC participation and the likelihood a mother breastfed her infant in the hospital, after accounting for the effects of other variables. Several independent variables were incorporated in the model. These variables, discussed in the following section, were categorized as shown in table I.1.

WIC Variable

WIC cannot be expected to directly influence a women's decision to initiate breastfeeding in the hospital if she was not enrolled in the program prior to delivery. Therefore, WIC only has the potential to affect in-hospital breastfeeding decisions of prenatal participants, not the decisions of participants who join the program after their infants' birth. For the logistic regression analysis, we categorized mothers as either prenatal WIC participants (who could also be participating postnatally), postnatal-only WIC participants, or nonparticipants. This enabled us to compare WIC participants with other mothers as well as compare prenatal with postnatal WIC participants. We were interested in comparing prenatal with postnatal participants as a means of assessing the impact of the WIC program.

Other Variables

In addition to the variable for WIC participation, our model also included variables reflecting mother's age, race, education, and family income; the number of children the mother bore previous to the current pregnancy (parity); the mother's marital status; the mother's employment status; the infant's birth weight; and whether the mother lived in a western state. We included these factors because we knew from previous research that these

[2]In the article authored by Ryan and others, a woman had to be participating in the month measured to be counted as a WIC participant for the cross-tabulation tables. (See "Recent Declines in Breast-Feeding in the United States, 1984 through 1989," Pediatrics, Vol. 88 (1991), pp. 719-727.)

variables were related to a mother's decision to breastfeed.[3] The WIC estimates obtained from the model and reported in table I.1 represent the net effect of WIC participation after accounting for the effect of these other sociodemographic variables.

Results

The logistic regression results are presented in table I.1 as adjusted odds ratios. The odds ratio is a measure of association that compares the likelihood of an event occurring (e.g., initiation of breastfeeding in the hospital) in one group relative to another—the reference group. The reported odds ratio indicates the effect of a particular factor (e.g., prenatal WIC participation versus no WIC participation), controlling for the effects of the other variables in the model. The estimate of the effect, reflected in the odds ratio, is the net effect for a particular variable. If there were no significant differences between two groups, their odds would be equal, and the ratio of their odds would be 1. The greater the odds ratio differs from 1, the larger the effect it represents.

When the other measured factors were controlled, the odds ratios show that prenatal participants are as likely to breastfeed as participants who only joined the program after their babies were born. (Their odds of breastfeeding are not significantly different—see table I.1.) This fact suggests that in 1991 prenatal WIC participation did not increase the likelihood of in-hospital breastfeeding among women eligible for WIC. Non-WIC participants had a higher odds ratio, indicating that they were more likely to breastfeed in the hospital. However, this analysis does not control for selection bias. There may be some systematic ways that women who enroll in the WIC program differ from income-eligible women who do not, and these differences may affect breastfeeding decisions. Also, unmeasured factors not available as variables in this database, such as the amount of breastfeeding education given, may influence breastfeeding decisions.

Consistent with other studies cited earlier, we found that mothers with the following characteristics are more likely to breastfeed: older mothers, mothers who are not African-American, more educated mothers, more

[3]A number of papers in the bibliography discuss variables related to the likelihood of breastfeeding, including Barron and others (1988); Bee and others (1991); Bevan and others (1984); Black and others (1990); Eckhardt and Hendershot (1984); Emery, Scholey, and Taylor (1990); Faden and Gielen (1986); Ford and Labbok (1990); Forman and others (1985); Gielen and others (1991); Grossman and others (1990); Hendershot (1980); Hill (1991); Institute of Medicine (1991); Jacobson, Jacobson, and Frye (1991); Kurinij, Shiono, and Rhoads (1988); Martinez and Dodd (1983); Martinez, Dodd, and Samartgedes (1981); Martinez and Krieger (1985); Martinez and Nalezienski (1979 and 1981); Martinez and Stahle (1982); Rassin and others (1984); Ryan and others (1991); Schwartz and others (1992); Scrimshaw and others (1987); and Serdula and others (1991).

affluent mothers, married mothers, mothers who are either working part-time or not working, mothers whose infants were born at normal birth weight, first-time mothers, and mothers who live in western states.

Table I.1: Logistic Regression Results: Likelihood of In-Hospital Breastfeeding, by Selected Characteristics (1991)

Variable[a]	Category	Adjusted odds ratio
WIC participant	Prenatal	1.00 (Ref)[b]
	Postnatal	1.05
	Non-WIC	1.44 [c]
Mother's age	<20	1.00 (Ref)
	20-29	1.24
	30+	1.69 [c]
Mother's race	African-American	1.00 (Ref)
	Non-African-American	2.23 [c]
Mother's education	<12 yrs.	1.00 (Ref)
	12 yrs.	1.30 [c]
	12+ yrs.	2.67 [c]
Family income	<$10,000	1.00 (Ref)
	$10,000-19,999	1.25 [c]
	$20,000+	1.46 [c]
Marital status	Not married	1.00 (Ref)
	Married	1.38 [c]
Mother's employment status	Full time	1.00 (Ref)
	Part time	1.51 [c]
	Not employed	1.57 [c]
Infant birth weight	Low birth weight[d]	1.00 (Ref)
	Normal birth weight	1.67 [c]
Other children in family	Yes	1.00 (Ref)
	No	1.29 [c]
Region	Nonwestern	1.00 (Ref)
	Western	2.34 [c]

Note: Results based on 79,428 mothers surveyed in 1991.

[a]The dependent variable in the model was coded as 1 if the mother responded to the Ross survey that she breastfed her infant in the hospital; otherwise, the variable was coded as 0.

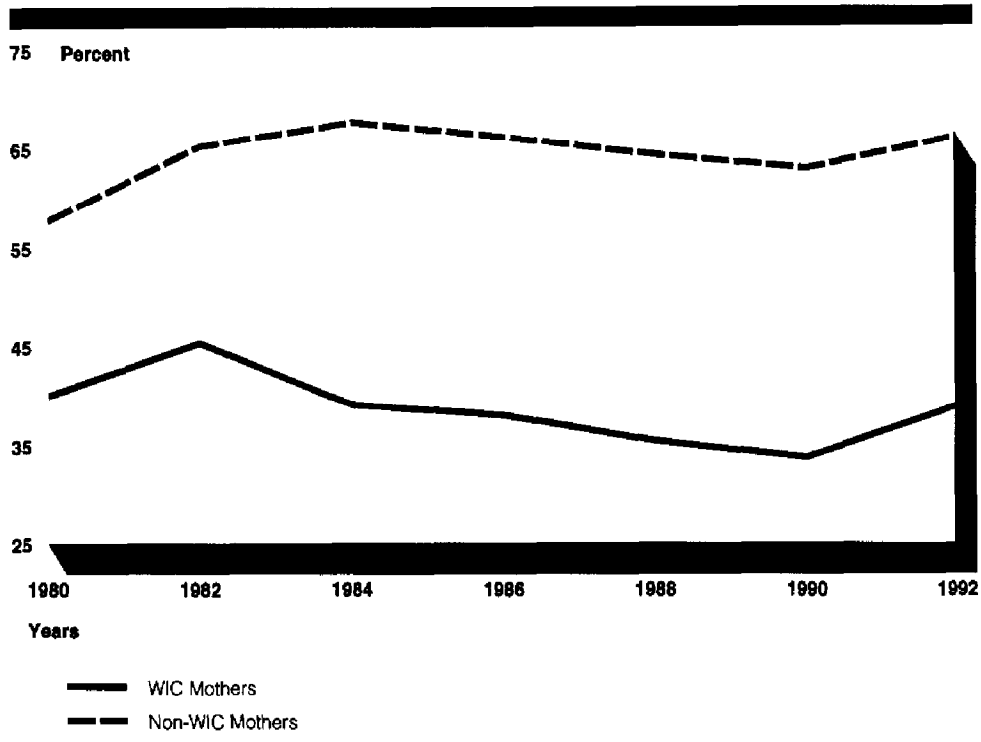
[b]The odds ratio reflects the relative likelihood of breastfeeding in the hospital. If there were no significant differences between two groups, their odds would be equal, and the ratio of their odds would be 1. The odds ratios in this table were computed in relation to a defined reference group ("Ref") for each variable. For example, when the other measured factors shown in the table were controlled, such as mother's age, race, and education, the larger odds ratio for married women showed that they are more likely to breastfeed than unmarried women (the reference group).

[c]Odds ratio is significant at the 95-percent confidence level.

[d]Low birth weight is defined as less than 5 lbs., 9 oz. Normal birth weight is defined as equal to or greater than 5 lbs., 9 oz.

Breastfeeding Rates for WIC Participants and All Women, Calendar Year 1989 and Fiscal Year 1992

Figure II.1: Rate of In-Hospital Breastfeeding for WIC and Non-WIC Mothers, 1980-92



Note: For 1988 and 1990, a WIC mother is defined as one who is currently participating in WIC. For all other years, a WIC mother is one who has had any participation at all in WIC since her infant's birth.

Table II.1: Breastfeeding Rates In-Hospital, at 1 Month, and at 6 Months, by State, for WIC Participants and All Women, 1989 and 1992

		Some breastfeeding				Exclusively breastfeeding			
State		1989 percent	1992 percent	Percentage point difference,[a] 1989-92	Percent change,[b] 1989-92	1989 percent	1992 percent	Percentage point difference, 1989-92	Percent change, 1989-92
Ala.	**WIC**								
	In-hosp.	19.3	25.5	**6.2**	32.3	13.8	19.0	**5.2**	37.6
	1 mo.	14.5	18.5	**4.1**	28.1	11.1	13.4	2.3	20.5
	6 mos.	3.6	6.1	**2.5**	68.0	1.7	3.4	**1.7**	101.2
	All								
	In-hosp.	36.8	39.0	2.1	5.8	31.2	32.4	1.2	3.7
	1 mo.	29.3	31.2	1.9	6.3	23.8	24.9	1.1	4.7
	6 mos.	9.9	11.7	**1.8**	18.4	6.4	7.2	0.8	13.1
Ak.	**WIC**								
	In-hosp.	*	67.3	*	*	*	55.9	*	*

(continued)

State		Some breastfeeding				Exclusively breastfeeding			
		1989 percent	1992 percent	Percentage point difference,[a] 1989-92	Percent change,[b] 1989-92	1989 percent	1992 percent	Percentage point difference, 1989-92	Percent change, 1989-92
	1 mo.	*	55.3	*	*	*	41.8	*	*
	6 mos.	*	23.5	*	*	*	12.0	*	*
	All								
	In-hosp.	82.9	75.9	**-7.0**	-8.4	74.7	66.9	**-7.8**	-10.5
	1 mo.	75.8	66.5	**-9.3**	-12.3	63.4	54.7	**-8.7**	-13.7
	6 mos.	31.8	32.3	0.5	1.6	17.6	19.1	1.5	8.6
Ariz.	**WIC**								
	In-hosp.	59.7	59.9	0.2	0.3	47.2	47.1	-0.1	-0.2
	1 mo.	50.5	47.1	-3.4	-6.8	40.2	33.2	**-7.0**	-17.5
	6 mos.	18.4	15.6	-2.8	-15.3	11.7	8.0	-3.8	-32.0
	All								
	In-hosp.	71.4	69.0	-2.5	-3.4	61.3	57.4	**-3.9**	-6.3
	1 mo.	62.2	57.7	**-4.5**	-7.2	51.5	45.2	**-6.3**	-12.3
	6 mos.	26.8	24.3	-2.5	-9.3	17.5	13.9	**-3.6**	-20.8
Ark.	**WIC**								
	In-hosp.	24.6	27.8	3.2	12.9	18.8	22.0	3.2	16.7
	1 mo.	19.9	22.2	2.3	11.6	17.3	17.3	-0.1	-0.5
	6 mos.	3.6	5.6	2.0	56.7	2.0	3.9	1.9	96.5
	All								
	In-hosp.	35.1	37.7	2.6	7.5	28.2	31.1	2.9	10.4
	1 mo.	29.5	30.9	1.4	4.9	25.2	24.6	-0.6	-2.3
	6 mos.	8.2	10.4	2.2	27.2	6.1	7.0	1.0	16.0
Calif.	**WIC**								
	In-hosp.	51.0	54.0	**3.0**	5.9	37.9	35.1	**-2.9**	-7.5
	1 mo.	40.5	44.2	**3.6**	9.0	29.4	28.2	-1.2	-4.0
	6 mos.	14.5	15.9	1.3	9.1	7.6	6.9	-0.7	-9.6
	All								
	In-hosp.	68.2	67.9	-0.3	-0.4	57.1	52.9	**-4.2**	-7.4
	1 mo.	58.5	58.7	0.2	0.3	47.2	44.4	**-2.8**	-5.9
	6 mos.	25.3	25.6	0.3	1.1	14.7	14.2	-0.5	-3.7
Colo.	**WIC**								
	In-hosp.	53.6	59.6	6.0	11.3	43.5	47.7	4.2	9.7
	1 mo.	43.2	48.8	5.6	12.9	35.1	39.4	4.2	12.1
	6 mos.	17.2	17.5	0.3	1.9	7.7	11.2	3.4	44.4
	All								
	In-hosp.	71.3	72.1	0.8	1.1	59.2	60.4	1.2	2.0

(continued)

Appendix II
Breastfeeding Rates for WIC Participants and All Women, Calendar Year 1989 and Fiscal Year 1992

State		Some breastfeeding				Exclusively breastfeeding			
		1989 percent	1992 percent	Percentage point difference,[a] 1989-92	Percent change,[b] 1989-92	1989 percent	1992 percent	Percentage point difference, 1989-92	Percent change, 1989-92
	1 mo.	62.3	63.6	1.3	2.1	51.3	51.8	0.4	0.9
	6 mos.	28.1	28.8	0.7	2.5	16.1	17.8	1.7	10.7
Conn.	**WIC**								
	In-hosp.	34.3	38.2	3.9	11.3	25.9	29.6	3.7	14.1
	1 mo.	29.2	30.1	0.9	3.2	20.9	22.2	1.3	6.2
	6 mos.	8.8	8.8	0	0.1	3.5	4.5	1.0	30.4
	All								
	In-hosp.	55.6	57.9	2.3	4.1	47.6	49.0	1.5	3.1
	1 mo.	47.7	50.1	2.4	5.1	38.7	39.9	1.2	3.1
	6 mos.	19.9	18.2	−1.7	−8.6	11.1	9.7	−1.4	−12.5
Del.	**WIC**								
	In-hosp.	*	40.3	*	*	*	32.9	*	*
	1 mo.	*	31.2	*	*	*	24.7	*	*
	6 mos.	*	10.7	*	*	*	7.2	*	*
	All								
	In-hosp.	52.8	59.0	6.2	11.7	49.7	52.7	3.0	6.1
	1 mo.	46.6	49.1	2.4	5.2	36.7	42.5	5.8	15.9
	6 mos.	16.9	21.4	4.6	27.2	8.3	14.3	**5.9**	71.0
D.C.	**WIC**								
	In-hosp.	28.6	28.5	0	0	20.1	16.2	−3.9	−19.5
	1 mo.	25.5	23.6	−1.9	−7.4	17.4	13.8	−3.6	−20.6
	6 mos.	9.0	8.5	−0.5	−5.0	5.0	5.3	0.3	5.6
	All								
	In-hosp.	44.0	39.1	−4.9	−11.1	33.5	26.9	−6.6	−19.6
	1 mo.	39.1	34.5	−4.6	−11.7	30.0	24.3	−5.8	−19.1
	6 mos.	17.5	14.1	−3.4	−19.3	8.1	8.1	0	0.1
Fla.	**WIC**								
	In-hosp.	32.0	36.4	**4.4**	13.9	23.2	25.9	2.7	11.6
	1 mo.	23.9	28.9	**5.0**	20.9	16.4	20.4	**4.0**	24.5
	6 mos.	6.8	8.0	1.3	18.5	2.5	4.5	**1.9**	76.3
	All								
	In-hosp.	49.4	52.8	**3.3**	6.8	39.9	40.8	0.9	2.2
	1 mo.	41.2	44.1	**2.9**	6.9	32.3	33.7	1.5	4.5
	6 mos.	14.7	15.8	1.1	7.3	9.0	10.0	1.0	11.6
Ga.	**WIC**								
	In-hosp.	23.7	29.7	**6.0**	25.4	18.7	22.6	**3.9**	20.8

(continued)

Appendix II
Breastfeeding Rates for WIC Participants and All Women, Calendar Year 1989 and Fiscal Year 1992

State		Some breastfeeding				Exclusively breastfeeding			
		1989 percent	1992 percent	Percentage point difference,[a] 1989-92	Percent change,[b] 1989-92	1989 percent	1992 percent	Percentage point difference, 1989-92	Percent change, 1989-92
	1 mo.	16.4	23.4	**6.9**	42.2	12.2	18.0	**5.8**	47.5
	6 mos.	5.4	7.4	**1.9**	36.0	3.3	4.0	0.7	22.8
	All								
	In-hosp.	40.5	43.6	**3.1**	7.6	34.6	35.6	1.0	2.8
	1 mo.	32.4	36.1	**3.6**	11.2	26.6	28.9	**2.3**	8.6
	6 mos.	12.1	13.2	1.2	9.6	7.9	8.1	0.2	2.2
Hawaii	**WIC**								
	In-hosp.	52.2	64.9	**12.7**	24.4	31.2	44.7	**13.5**	43.3
	1 mo.	45.9	54.6	8.7	19.0	29.5	36.3	6.8	23.2
	6 mos.	18.9	19.7	0.8	4.0	8.1	10.5	2.4	30.0
	All								
	In-hosp.	69.0	72.7	3.7	5.4	47.6	49.8	2.3	4.8
	1 mo.	61.3	64.0	2.7	4.4	40.7	45.0	4.4	10.7
	6 mos.	24.7	27.9	3.3	13.3	12.0	15.3	3.2	26.7
Id.	**WIC**								
	In-hosp.	70.4	70.9	0.5	0.7	64.6	60.7	-3.9	-6.1
	1 mo.	63.1	56.7	-6.3	-10.1	57.1	47.7	**-9.4**	-16.4
	6 mos.	23.3	20.2	-3.2	-13.7	15.4	14.2	-1.2	-7.9
	All								
	In-hosp.	75.8	76.8	1.0	1.3	66.4	66.6	0.2	0.3
	1 mo.	69.1	66.0	-3.1	-4.4	61.1	56.3	**-4.9**	-8.0
	6 mos.	34.1	28.2	-5.9	-17.3	21.0	19.8	-1.1	-5.3
Ill.	**WIC**								
	In-hosp.	24.5	28.7	**4.3**	17.4	19.5	20.3	0.8	4.3
	1 mo.	18.6	22.8	**4.2**	22.9	14.6	16.1	1.5	10.5
	6 mos.	4.2	7.5	**3.2**	76.5	2.3	4.2	**2.0**	87.1
	All								
	In-hosp.	46.4	48.1	1.6	3.5	39.3	37.8	-1.5	-3.7
	1 mo.	39.3	41.0	1.7	4.4	32.4	32.2	-0.1	-0.4
	6 mos.	16.8	17.1	0.2	1.4	10.3	10.6	0.3	2.9
Ind.	**WIC**								
	In-hosp.	37.2	35.8	-1.4	-3.7	30.8	30.6	-0.2	-0.6
	1 mo.	28.8	26.7	-2.1	-7.2	23.4	21.7	-1.7	-7.3
	6 mos.	8.5	8.3	-0.2	-1.9	4.7	5.2	0.4	9.6
	All								
	In-hosp.	49.6	49.9	0.3	0.6	43.6	43.5	-0.1	-0.2

(continued)

State		Some breastfeeding				Exclusively breastfeeding			
		1989 percent	1992 percent	Percentage point difference,[a] 1989-92	Percent change,[b] 1989-92	1989 percent	1992 percent	Percentage point difference, 1989-92	Percent change, 1989-92
	1 mo.	41.1	41.1	–0.1	–0.1	34.9	34.0	–0.9	–2.4
	6 mos.	16.4	16.5	0.1	0.3	10.6	10.4	–0.2	–2.2
Ia.	**WIC**								
	In-hosp.	36.3	41.3	5.0	13.8	30.7	35.3	4.6	15.0
	1 mo.	27.9	32.7	4.8	17.1	21.6	26.3	4.7	22.0
	6 mos.	8.6	9.7	1.1	12.3	4.0	5.7	1.8	44.4
	All								
	In-hosp.	54.9	55.0	0.1	0.1	48.4	48.1	–0.3	–0.6
	1 mo.	45.6	46.2	0.5	1.2	38.3	37.6	–0.7	–1.8
	6 mos.	18.1	17.6	–0.5	–2.8	10.9	10.5	–0.4	–3.9
Kans.	**WIC**								
	In-hosp.	43.5	47.0	3.6	8.2	39.3	40.4	1.1	2.7
	1 mo.	35.3	37.5	2.3	6.5	31.5	28.4	–3.1	–9.9
	6 mos.	8.4	12.5	4.1	48.6	4.4	6.6	2.2	50.8
	All								
	In-hosp.	56.3	60.0	3.7	6.5	50.0	52.8	2.8	5.5
	1 mo.	46.8	50.9	**4.1**	8.9	40.1	40.8	0.6	1.6
	6 mos.	17.3	21.2	**3.8**	22.0	10.7	12.9	2.2	20.8
Ky.	**WIC**								
	In-hosp.	21.2	25.9	**4.7**	22.2	18.4	21.9	3.5	18.9
	1 mo.	16.4	20.2	3.8	23.2	14.9	16.6	1.7	11.6
	6 mos.	6.1	6.1	0	–0.2	3.8	3.8	–0.1	–1.6
	All								
	In-hosp.	37.8	38.9	1.1	2.9	33.9	34.0	0.1	0.3
	1 mo.	32.1	32.0	0	–0.1	27.6	26.6	–1.0	–3.6
	6 mos.	12.7	11.9	–0.8	–6.1	8.5	7.4	–1.2	–13.5
La.	**WIC**								
	In-hosp.	17.5	20.7	3.2	18.2	12.3	16.3	**4.0**	32.3
	1 mo.	13.7	15.7	2.0	14.7	10.2	11.8	1.6	15.6
	6 mos.	2.3	5.0	**2.8**	123.6	1.2	2.5	**1.4**	120.9
	All								
	In-hosp.	30.8	33.2	2.4	7.7	26.0	28.4	2.5	9.5
	1 mo.	25.4	26.7	1.3	5.1	21.2	22.0	0.7	3.4
	6 mos.	7.8	9.5	**1.7**	22.1	4.6	5.4	0.8	16.7
Me.	**WIC**								
	In-hosp.	35.5	43.6	8.1	22.9	32.2	38.5	6.3	19.7

(continued)

Appendix II
Breastfeeding Rates for WIC Participants and All Women, Calendar Year 1989 and Fiscal Year 1992

State		Some breastfeeding				Exclusively breastfeeding			
		1989 percent	1992 percent	Percentage point difference,[a] 1989-92	Percent change,[b] 1989-92	1989 percent	1992 percent	Percentage point difference, 1989-92	Percent change, 1989-92
	1 mo.	30.7	31.4	0.7	2.2	25.1	28.1	3.1	12.3
	6 mos.	12.9	8.5	-4.5	-34.6	6.0	4.1	-2.0	-32.5
	All								
	In-hosp.	51.5	56.9	5.5	10.7	48.6	52.9	4.3	8.8
	1 mo.	43.3	47.7	4.4	10.1	37.8	41.7	3.9	10.4
	6 mos.	17.6	18.9	1.3	7.4	10.4	11.7	1.3	12.2
Md.	**WIC**								
	In-hosp.	22.2	28.1	**5.9**	26.6	19.7	21.1	1.4	7.0
	1 mo.	17.5	21.5	3.9	22.5	15.4	16.1	0.8	4.9
	6 mos.	6.5	8.1	1.6	24.8	4.2	4.3	0	0.5
	All								
	In-hosp.	42.9	49.0	**6.1**	14.3	37.9	40.8	2.9	7.6
	1 mo.	37.1	42.1	**5.0**	13.4	32.6	34.2	1.6	4.9
	6 mos.	14.6	17.5	**2.9**	20.1	8.7	10.2	1.5	17.4
Mass.	**WIC**								
	In-hosp.	33.7	42.3	**8.6**	25.4	26.9	33.6	**6.7**	25.1
	1 mo.	23.6	32.4	**8.8**	37.1	16.4	23.9	**7.5**	45.6
	6 mos.	8.0	10.0	1.9	24.2	5.5	4.9	-0.7	-12.0
	All								
	In-hosp.	50.9	54.4	**3.5**	7.0	46.1	47.7	1.7	3.6
	1 mo.	42.9	45.5	**2.6**	6.0	36.0	37.2	1.2	3.4
	6 mos.	17.7	19.2	1.5	8.3	10.0	9.8	-0.3	-2.7
Mich.	**WIC**								
	In-hosp.	30.5	36.6	**6.2**	20.3	22.5	28.9	**6.4**	28.7
	1 mo.	25.5	28.3	2.8	10.8	18.8	21.6	2.8	14.8
	6 mos.	8.9	8.9	0	-0.3	5.0	5.2	0.2	4.6
	All								
	In-hosp.	47.7	50.3	**2.6**	5.5	37.1	40.0	**2.9**	7.8
	1 mo.	41.5	41.9	0.4	0.9	32.2	32.5	0.3	1.0
	6 mos.	16.6	16.6	0	0	10.0	9.9	-0.1	-0.9
Minn.	**WIC**								
	In-hosp.	49.9	52.3	2.4	4.9	43.3	46.3	3.0	6.9
	1 mo.	40.6	42.5	1.9	4.6	33.9	33.6	-0.2	-0.6
	6 mos.	12.2	13.0	0.8	6.7	6.2	7.5	1.2	19.6
	All								
	In-hosp.	62.2	65.7	**3.4**	5.5	56.2	59.2	3.0	5.3

(continued)

State		Some breastfeeding				Exclusively breastfeeding			
		1989 percent	1992 percent	Percentage point difference,[a] 1989-92	Percent change,[b] 1989-92	1989 percent	1992 percent	Percentage point difference, 1989-92	Percent change, 1989-92
	1 mo.	53.3	56.9	**3.6**	6.7	44.6	46.7	2.1	4.8
	6 mos.	19.5	21.7	2.2	11.1	11.1	11.9	0.8	7.5
Miss.	**WIC**								
	In-hosp.	17.0	19.4	2.3	13.8	12.7	14.0	1.3	9.8
	1 mo.	11.5	14.3	2.8	24.1	8.8	10.4	1.6	18.2
	6 mos.	2.8	4.5	1.7	60.6	1.5	2.3	0.9	61.4
	All								
	In-hosp.	28.3	28.8	0.5	1.8	22.7	22.9	0.3	1.1
	1 mo.	21.8	22.6	0.8	3.8	17.9	17.8	–0.1	–0.7
	6 mos.	7.1	8.1	1.0	13.6	4.2	4.9	0.7	15.9
Mo.	**WIC**								
	In-hosp.	32.2	34.8	2.6	8.0	29.5	29.6	0.1	0.3
	1 mo.	26.9	27.3	0.4	1.4	22.8	21.8	–1.0	–4.2
	6 mos.	8.1	8.4	0.3	3.4	5.4	4.9	–0.5	–9.0
	All								
	In-hosp.	49.6	49.5	–0.1	–0.1	45.1	44.3	–0.8	–1.8
	1 mo.	41.5	41.0	–0.5	–1.3	35.2	34.4	–0.9	–2.4
	6 mos.	17.4	15.2	**-2.1**	–12.4	10.7	9.3	–1.4	–13.5
Mont.	**WIC**								
	In-hosp.	67.1	69.6	2.5	3.8	56.7	58.1	1.4	2.5
	1 mo.	57.1	55.9	–1.1	–2.0	48.9	44.1	–4.7	–9.7
	6 mos.	18.9	23.8	4.9	25.7	14.4	13.9	–0.6	–4.0
	All								
	In-hosp.	70.8	76.3	**5.5**	7.7	61.1	64.7	3.6	5.8
	1 mo.	63.0	66.2	3.2	5.0	51.7	54.4	2.7	5.2
	6 mos.	28.2	31.0	2.8	10.1	18.1	18.8	0.7	3.9
Nebr.	**WIC**								
	In-hosp.	40.9	46.6	5.8	14.1	38.8	39.0	0.2	0.6
	1 mo.	35.0	36.6	1.6	4.6	33.5	28.7	–4.8	–14.4
	6 mos.	12.4	14.6	2.2	17.5	9.2	9.6	0.4	4.1
	All								
	In-hosp.	53.7	57.4	3.8	7.0	48.7	50.5	1.8	3.7
	1 mo.	47.1	48.3	1.3	2.7	40.2	40.1	–0.1	–0.2
	6 mos.	19.2	20.3	1.1	5.6	13.2	13.0	–0.2	–1.7
Nev.	**WIC**								
	In-hosp.	*	48.7	*	*	*	38.8	*	*

(continued)

State		Some breastfeeding				Exclusively breastfeeding			
		1989 percent	1992 percent	Percentage point difference,[a] 1989-92	Percent change,[b] 1989-92	1989 percent	1992 percent	Percentage point difference, 1989-92	Percent change, 1989-92
	1 mo.	*	37.6	*	*	*	28.7	*	*
	6 mos.	*	12.7	*	*	*	6.4	*	*
	All								
	In-hosp.	60.2	63.0	2.8	4.7	52.2	52.0	-0.1	-0.2
	1 mo.	50.2	52.5	2.2	4.5	40.4	41.9	1.5	3.8
	6 mos.	16.8	20.1	3.3	19.7	10.0	11.4	1.4	13.9
N.H.	**WIC**								
	In-hosp.	*	44.5	*	*	*	40.0	*	*
	1 mo.	*	32.9	*	*	*	29.4	*	*
	6 mos.	*	13.6	*	*	*	8.3	*	*
	All								
	In-hosp.	64.1	59.6	-4.5	-7.1	60.4	54.7	-5.7	-9.4
	1 mo.	55.2	49.1	-6.1	-11.1	48.2	43.3	-4.9	-10.2
	6 mos.	25.6	21.8	-3.8	-15.0	17.1	12.9	-4.3	-24.9
N.J.	**WIC**								
	In-hosp.	26.1	28.8	2.7	10.4	18.2	19.4	1.2	6.5
	1 mo.	20.6	24.0	3.4	16.3	13.5	15.3	1.8	13.3
	6 mos.	5.6	6.5	0.9	16.9	2.1	3.2	1.1	52.9
	All								
	In-hosp.	47.6	47.3	-0.3	-0.7	38.9	37.5	-1.4	-3.6
	1 mo.	39.8	40.7	0.9	2.3	30.5	30.5	0	-0.1
	6 mos.	15.4	16.4	1.0	6.2	8.6	9.2	0.6	6.8
N.M.	**WIC**								
	In-hosp.	53.6	61.5	**7.9**	14.6	46.3	49.3	3.0	6.5
	1 mo.	43.9	50.3	6.4	14.5	36.7	40.2	3.5	9.5
	6 mos.	17.8	19.6	1.8	10.1	10.9	11.7	0.7	6.7
	All								
	In-hosp.	65.8	68.1	2.3	3.5	59.0	54.3	-4.7	-8.0
	1 mo.	55.4	58.6	3.1	5.7	46.4	47.3	1.0	2.1
	6 mos.	27.2	26.7	-0.4	-1.6	18.2	16.2	-2.0	-10.8
N.Y.	**WIC**								
	In-hosp.	37.5	38.8	1.3	3.6	25.5	23.8	-1.8	-6.9
	1 mo.	30.1	32.4	**2.3**	7.7	19.0	18.6	-0.5	-2.4
	6 mos.	10.6	10.9	0.4	3.5	4.5	4.4	-0.1	-1.1
	All								
	In-hosp.	47.3	49.1	**1.8**	3.9	36.3	35.9	-0.4	-1.1

(continued)

Appendix II
Breastfeeding Rates for WIC Participants and All Women, Calendar Year 1989 and Fiscal Year 1992

State		Some breastfeeding				Exclusively breastfeeding			
		1989 percent	1992 percent	Percentage point difference,[a] 1989-92	Percent change,[b] 1989-92	1989 percent	1992 percent	Percentage point difference, 1989-92	Percent change, 1989-92
	1 mo.	40.0	42.3	**2.3**	5.7	29.4	29.6	0.1	0.4
	6 mos.	16.4	16.8	0.4	2.4	8.7	8.8	0.1	0.7
N.C.	**WIC**								
	In-hosp.	22.1	27.9	**5.8**	26.3	19.6	23.2	**3.6**	18.3
	1 mo.	15.0	20.7	**5.7**	38.2	12.9	16.5	**3.6**	27.7
	6 mos.	4.8	7.3	**2.5**	52.0	3.4	4.3	0.9	26.6
	All								
	In-hosp.	40.8	43.9	**3.1**	7.5	36.7	39.1	2.4	6.5
	1 mo.	32.7	35.6	**2.9**	8.8	28.2	29.8	1.6	5.8
	6 mos.	11.9	14.1	**2.2**	18.4	7.8	8.6	0.8	10.4
N.D.	**WIC**								
	In-hosp.	55.5	52.1	-3.4	-6.1	51.6	44.9	-6.8	-13.1
	1 mo.	42.8	43.1	0.3	0.7	36.2	37.2	1.0	2.7
	6 mos.	13.9	14.9	1.1	7.6	6.4	8.6	2.3	35.5
	All								
	In-hosp.	60.9	57.2	-3.6	-6.0	56.0	51.4	-4.6	-8.2
	1 mo.	52.1	48.8	-3.3	-6.3	45.3	41.5	-3.8	-8.5
	6 mos.	21.8	17.9	-3.9	-18.0	13.8	12.3	-1.5	-11.1
Ohio	**WIC**								
	In-hosp.	26.6	31.8	**5.2**	19.4	22.7	25.3	2.7	11.7
	1 mo.	21.1	24.8	**3.7**	17.4	17.3	19.8	2.5	14.5
	6 mos.	7.4	8.6	1.2	16.7	5.1	5.3	0.2	3.3
	All								
	In-hosp.	44.7	47.3	**2.5**	5.7	38.5	39.5	1.1	2.8
	1 mo.	38.1	40.0	**2.0**	5.2	32.1	33.3	1.2	3.8
	6 mos.	16.6	16.8	0.3	1.5	10.9	10.5	-0.3	-3.1
Okla.	**WIC**								
	In-hosp.	41.2	45.0	3.7	9.0	33.2	38.6	**5.4**	16.2
	1 mo.	31.7	34.7	3.0	9.5	24.8	27.7	2.9	11.6
	6 mos.	8.6	9.8	1.2	13.7	4.8	5.5	0.6	13.3
	All								
	In-hosp.	51.5	56.3	**4.8**	9.3	45.7	49.8	**4.1**	9.1
	1 mo.	43.3	45.4	2.1	4.8	37.5	37.6	0.2	0.4
	6 mos.	15.2	16.6	1.4	9.4	10.3	10.1	-0.2	-2.1
Oreg.	**WIC**								
	In-hosp.	73.1	74.0	0.9	1.3	64.3	66.4	2.0	3.2

(continued)

Appendix II
Breastfeeding Rates for WIC Participants and All Women, Calendar Year 1989 and Fiscal Year 1992

State		Some breastfeeding				Exclusively breastfeeding			
		1989 percent	1992 percent	Percentage point difference,[a] 1989-92	Percent change,[b] 1989-92	1989 percent	1992 percent	Percentage point difference, 1989-92	Percent change, 1989-92
	1 mo.	58.6	60.2	1.5	2.6	49.6	49.9	0.3	0.7
	6 mos.	23.5	24.6	1.2	4.9	12.9	15.2	2.2	17.3
	All								
	In-hosp.	80.2	80.6	0.4	0.5	72.6	73.9	1.4	1.9
	1 mo.	69.2	70.0	0.7	1.1	58.9	59.4	0.5	0.9
	6 mos.	33.4	33.8	0.5	1.4	20.1	21.7	1.6	8.2
Pa.	**WIC**								
	In-hosp.	27.9	34.8	**6.9**	24.8	23.7	28.2	**4.5**	19.0
	1 mo.	20.4	26.8	**6.3**	31.0	15.8	20.9	**5.1**	32.4
	6 mos.	6.1	9.6	**3.5**	57.5	3.6	5.9	**2.4**	65.6
	All								
	In-hosp.	47.5	49.4	1.9	3.9	41.7	42.0	0.3	0.8
	1 mo.	40.2	41.3	1.1	2.7	33.5	33.3	–0.1	–0.4
	6 mos.	18.6	18.5	–0.1	–0.5	12.1	11.2	–0.9	–7.0
R.I.	**WIC**								
	In-hosp.	*	32.0	*	*	*	23.0	*	*
	1 mo.	*	26.1	*	*	*	19.5	*	*
	6 mos.	*	9.5	*	*	*	7.3	*	*
	All								
	In-hosp.	42.9	45.9	3.0	7.0	38.2	37.8	–0.4	–1.2
	1 mo.	37.2	38.3	1.2	3.2	30.5	30.4	–0.1	–0.2
	6 mos.	15.1	16.2	1.1	7.6	10.5	10.6	0.2	1.5
S.C.	**WIC**								
	In-hosp.	19.4	25.4	**6.0**	31.0	16.5	21.1	**4.6**	27.6
	1 mo.	14.3	19.3	**5.0**	34.8	11.9	15.4	3.6	30.2
	6 mos.	3.3	5.8	**2.6**	78.6	1.5	3.7	**2.2**	143.0
	All								
	In-hosp.	38.6	40.5	1.9	4.8	34.8	35.7	0.9	2.4
	1 mo.	30.5	32.9	2.4	7.9	26.1	27.8	1.7	6.5
	6 mos.	11.3	12.1	0.8	6.9	7.4	7.7	0.4	4.9
S.D.	**WIC**								
	In-hosp.	*	56.3	*	*	*	43.2	*	*
	1 mo.	*	45.4	*	*	*	32.7	*	*
	6 mos.	*	18.3	*	*	*	10.8	*	*
	All								
	In-hosp.	62.1	64.0	1.9	3.0	49.6	51.7	2.1	4.3

(continued)

State		Some breastfeeding				Exclusively breastfeeding			
		1989 percent	1992 percent	Percentage point difference,[a] 1989-92	Percent change,[b] 1989-92	1989 percent	1992 percent	Percentage point difference, 1989-92	Percent change, 1989-92
	1 mo.	53.5	53.8	0.3	0.6	42.3	40.5	-1.8	-4.3
	6 mos.	18.2	21.8	3.6	20.0	11.4	12.3	0.9	7.7
Tenn.	**WIC**								
	In-hosp.	25.8	29.9	**4.1**	15.7	22.0	24.8	2.8	12.8
	1 mo.	19.3	23.5	**4.1**	21.4	15.9	19.1	**3.2**	20.5
	6 mos.	5.8	7.6	1.8	30.2	3.2	4.6	1.4	44.1
	All								
	In-hosp.	43.7	43.4	-0.3	-0.8	38.9	37.9	-1.0	-2.5
	1 mo.	36.0	36.1	0.1	0.3	30.8	29.8	-1.0	-3.4
	6 mos.	14.3	13.6	-0.7	-4.9	9.3	8.6	-0.7	-7.5
Tex.	**WIC**								
	In-hosp.	34.9	37.4	**2.5**	7.2	26.7	27.1	0.4	1.4
	1 mo.	25.7	28.4	**2.7**	10.5	19.3	20.3	1.0	5.0
	6 mos.	8.0	8.2	0.2	2.4	4.7	4.2	-0.5	-10.1
	All								
	In-hosp.	50.1	52.1	**2.0**	3.9	42.4	42.1	-0.3	-0.7
	1 mo.	41.5	43.0	**1.6**	3.8	33.6	34.3	0.7	2.0
	6 mos.	15.4	15.5	0.1	0.5	9.7	9.4	-0.3	-3.3
Utah	**WIC**								
	In-hosp.	66.1	69.2	3.1	4.7	48.1	51.5	3.4	7.2
	1 mo.	57.1	59.2	2.0	3.6	41.0	43.9	3.0	7.2
	6 mos.	22.8	25.3	2.5	11.1	10.9	15.4	4.4	40.4
	All								
	In-hosp.	73.1	75.2	2.0	2.8	54.3	55.8	1.5	2.8
	1 mo.	68.4	67.7	-0.7	-1.0	50.5	51.4	1.0	1.9
	6 mos.	34.3	34.6	0.3	0.9	19.5	20.5	1.0	5.2
Vt.	**WIC**								
	In-hosp.	*	41.0	*	*	*	40.1	*	*
	1 mo.	*	30.9	*	*	*	27.3	*	*
	6 mos.	*	12.7	*	*	*	8.1	*	*
	All								
	In-hosp.	51.2	56.9	5.6	11.0	49.0	54.6	5.6	11.5
	1 mo.	41.5	49.1	7.6	18.3	36.2	41.0	4.8	13.2
	6 mos.	18.8	24.3	5.4	28.8	11.4	15.2	3.8	33.6
Va.	**WIC**								
	In-hosp.	19.1	29.7	**10.7**	56.0	15.4	22.9	**7.5**	48.8

(continued)

State		Some breastfeeding				Exclusively breastfeeding			
		1989 percent	1992 percent	Percentage point difference,[a] 1989-92	Percent change,[b] 1989-92	1989 percent	1992 percent	Percentage point difference, 1989-92	Percent change, 1989-92
	1 mo.	14.1	23.3	**9.2**	65.5	11.9	18.5	**6.7**	56.2
	6 mos.	5.3	7.5	2.3	43.4	3.9	4.0	0.1	2.0
	All								
	In-hosp.	43.5	50.0	**6.5**	14.8	38.3	42.0	**3.7**	9.6
	1 mo.	36.7	42.1	**5.5**	14.9	30.5	34.2	**3.7**	12.0
	6 mos.	15.9	16.7	0.7	4.6	10.3	10.2	-0.1	-1.1
Wash.	**WIC**								
	In-hosp.	67.3	67.5	0.2	0.3	58.3	59.4	1.2	2.0
	1 mo.	54.7	53.5	-1.2	-2.2	44.4	44.8	0.4	0.8
	6 mos.	20.6	19.8	-0.9	-4.3	13.3	11.9	-1.4	-10.3
	All								
	In-hosp.	77.2	77.2	0.1	0.1	68.7	69.5	0.8	1.1
	1 mo.	67.4	66.4	-1.0	-1.5	56.4	56.0	-0.4	-0.8
	6 mos.	31.5	31.1	-0.4	-1.3	20.6	19.4	-1.2	-5.8
W.Va.	**WIC**								
	In-hosp.	32.9	31.7	-1.2	-3.6	24.2	26.6	2.4	10.1
	1 mo.	22.4	24.5	2.2	9.6	15.3	19.5	4.2	27.4
	6 mos.	5.2	7.7	2.5	48.3	3.8	5.4	1.6	40.7
	All								
	In-hosp.	43.9	43.9	-0.1	-0.1	37.3	37.7	0.4	1.2
	1 mo.	34.5	35.6	1.1	3.3	28.7	29.4	0.8	2.7
	6 mos.	11.7	14.6	2.9	24.8	7.6	10.2	2.6	34.0
Wis.	**WIC**								
	In-hosp.	40.2	45.0	4.8	11.8	33.2	36.4	3.2	9.6
	1 mo.	33.8	36.0	2.2	6.5	26.6	27.8	1.2	4.5
	6 mos.	8.9	11.0	2.0	22.5	4.5	6.4	2.0	44.7
	All								
	In-hosp.	54.3	58.0	**3.7**	6.8	46.5	48.9	2.5	5.3
	1 mo.	47.5	49.5	2.0	4.2	39.3	39.9	0.7	1.7
	6 mos.	17.0	19.1	2.0	12.0	9.5	11.0	1.5	15.6
Wyo.	**WIC**								
	In-hosp.	*	68.1	*	*	*	54.0	*	*
	1 mo.	*	51.1	*	*	*	41.8	*	*
	6 mos.	*	16.3	*	*	*	11.7	*	*
	All								
	In-hosp.	65.7	72.0	6.2	9.5	58.5	61.6	3.1	5.2

(continued)

Appendix II
Breastfeeding Rates for WIC Participants and All Women, Calendar Year 1989 and Fiscal Year 1992

State		Some breastfeeding				Exclusively breastfeeding			
		1989 percent	1992 percent	Percentage point difference,[a] 1989-92	Percent change,[b] 1989-92	1989 percent	1992 percent	Percentage point difference, 1989-92	Percent change, 1989-92
	1 mo.	57.6	60.6	3.0	5.1	50.9	50.1	-0.8	-1.6
	6 mos.	26.8	27.8	-1.0	-3.8	17.3	18.3	1.0	5.8
U.S.	**WIC**								
	In-hosp.	34.8	38.9	**4.1**	11.8	27.5	29.4	**1.9**	6.8
	1 mo.	27.3	30.8	**3.5**	12.7	21.0	22.5	**1.6**	7.5
	6 mos.	8.9	10.3	**1.3**	14.9	4.9	5.5	**0.6**	11.7
	All								
	In-hosp.	52.2	54.0	**1.8**	3.5	44.3	44.3	0	0
	1 mo.	44.2	45.7	**1.5**	3.3	36.1	36.1	0.1	0
	6 mos.	18.1	18.6	**0.5**	2.9	11.0	11.0	0	0.2

Notes: Bolded percentage point differences are statistically significant at the 0.05 level.

Due to rounding, percentage point differences may not exactly equal the percent breastfeeding in 1992 minus the percent breastfeeding in 1989.

Items marked with an asterisk (*) indicate that weighted sample size of WIC participants is too small to accurately estimate breastfeeding rate or changes in breastfeeding rate.

[a]The percentage point difference is calculated by subtracting the percent breastfeeding in 1992 from the percent breastfeeding in 1989.

[b]The percent change is calculated by dividing the percentage point difference by the percent breastfeeding in 1989.

Program Summaries for States Visited

We reviewed state programs in Massachusetts, Tennessee, Virginia, and Washington. We chose these states in order to compare different regions, since breastfeeding rates vary by region. We also wanted to visit some states and sites that served different ethnic WIC populations, since breastfeeding rates also differ by ethnic group. We met with the state WIC director and other state officials, and visited, on the basis of state WIC staff recommendations, three sites in each state. We visited at least one rural and one urban site in each state. We used the provisions concerning breastfeeding in the Child Nutrition and WIC Reauthorization Act of 1989, proposed regulations implementing this act, and the National Association of WIC Directors' Guidelines for Breastfeeding Promotion in the WIC Program to help us assess program activities.

All states we visited shared common features in their breastfeeding promotion programs. They provided direction, guidance, and training to local programs. However, none of the states we visited provided comprehensive written guidance defining when women should not breastfeed.

All the sites we visited also shared common features. These sites

- displayed breastfeeding promotional materials, such as posters;
- had a designated breastfeeding coordinator at the site;
- had local staff trained in breastfeeding education and promotion;
- used educational materials that incorporated positive breastfeeding messages; and
- provided breastfeeding promotion and education during certification, nutrition education, and/or peer counselor sessions.

In this appendix, we outline more detailed information on the breastfeeding promotion activities in the state WIC programs and the local sites in the states that we visited. This information can be found in specific state sections that include the local sites visited in each state: Massachusetts (tables III.1 and III.2), Tennessee (tables III.3 and III.4), Virginia (tables III.5 and III.6), and Washington (tables III.7 and III.8).

Table III.1: Massachusetts Program Profile

Responsible state agency	Massachusetts Department of Public Health, Bureau of Family and Community Health, WIC Program Division	
Total federal program funds, fiscal year 1992	$43,765,211	
Breastfeeding set-aside funds, fiscal year 1992	$120,232	
Ethnic composition of WIC participants		
	Percentage of total participants	
White	47.0	
Hispanic	27.0	
African-American	20.0	
Asian/Pacific Islander	6.0	
American Indian	0.2	
WIC participants, May 1992		
	Number	
Pregnant women	10,824	
Breastfeeding women	4,008	
Postpartum nonbreastfeeding women	1,638	
Infants	25,985	
Children	50,659	
Total	**93,114**	
1992 breastfeeding rate for WIC women and percentage change from 1989[a]		
	Rate[b] (percent)	Percentage change
In-hospital	42	+25
1 month	32	+37
Breastfeeding promotion and education activities		
WIC program administration		
	Program administered through 37 agencies (10 hospitals, 9 community health centers, 8 community action programs, 6 other health service agencies, and 4 family planning clinics). State provided direction, technical assistance, consultation, training, and resources to local programs.	
Staff's major activities before October 1989		
	Established Breastfeeding Promotion Task Force in 1984 following the U.S. Surgeon General's Workshop on Breastfeeding and Human Lactation. Task force sponsored 1985 conference, "Promoting Breastfeeding in Massachusetts," and provided leadership for efforts to pass Massachusetts Hospital Licensure Regulations, which include practices that support breastfeeding.	

(continued)

	Massachusetts Department of Public Health promulgated revised Hospital Licensure Regulations on July 3, 1989, which mandated hospitals offering maternal-newborn services to —provide breastfeeding instruction and support during hospitalization and information on resources to assist the mother after discharge, —develop and implement written patient care policies and procedures that include provisions for the support of lactation initiation and maintenance, and —offer a program of breastfeeding support for families and staff.
Staff's major activities since October 1989	
	Reconvened statewide Breastfeeding Promotion Task Force. Oversaw planning, implementation, and evaluation of 1991 Northeast region breastfeeding conference series supported through $20,000 grant from the Food and Nutrition Service (FNS). Revised and distributed guidelines for breastfeeding support in local programs. Distributed various breastfeeding resources, such as posters, calendars, flipcharts, and pamphlets, to all local programs. Provided breastfeeding promotion training to all new staff members.
Use of set-aside funds, fiscal years 1990-92	
	Used set-aside funds to purchase educational and promotional materials and provide staff salaries directly related to breastfeeding promotion.
Contraindicated guidance	No written guidance defining when breastfeeding would be contraindicated.

[a]GAO compared data for women who participated in the WIC program at any time within 6 months postpartum from 1989 to the most recent full year of data available at the time of analysis—October 1991 through September 1992—referred to as "1992" throughout this report.

[b]Differences in 1989 and 1992 rates are significant at the 0.05 confidence level. (See app. II.)

Table III.2: Sites GAO Visited in Massachusetts

Site profiles and groups served	Percentage of total participants[a]
Cape Cod WIC	
White	84
African-American	11
Hispanic	3
American Indian	2
Asian/Pacific Islander	1
Dorchester/Roxbury WIC	
African-American	94
Hispanic	5
White	1
Jamaica Plain WIC	
Hispanic	79
African-American	14
White	7
Breastfeeding promotion and education activities	
Common features	
	All staff received basic breastfeeding training; professionals and paraprofessionals received additional training.
	Staff coordinated with other clinic staff or hospital staff or both; each site represented on statewide Breastfeeding Promotion Task Force.
	Staff provided supplemental formula only on request.
	Sites provided extended evening hours at least once a week.
	Breastfeeding promotion and education occurred during certification sessions and nutrition education contacts.
	Sites offered prenatal group sessions that discussed breastfeeding.
	Sites provided participants with breastfeeding resource or support listing, such as a telephone contact list or nutritionist's business card.

(continued)

	Sites provided telephone support to mothers in hospital.
Unique features	
Cape Cod	
	Sponsored postpartum infant feeding group.
	Conducted monthly baby carrier raffle for breastfeeding moms.
	Provided postpartum package containing small incentive gifts.
	Designated breastfeeding room with rocker.
Dorchester/Roxbury	
	Provided certificate to mothers who breastfed for 6 months.
Jamaica Plain	
	Sponsored postpartum infant care group.
	Provided manual breast pumps and milk cups on a limited basis.
	Developed two educational pamphlets in English and Spanish ("Questions and Answers on Common Concerns That Mothers Have About Breastfeeding" and "Foods That You Should Eat While Breastfeeding Your Baby").
Use of set-aside funds, fiscal years 1990-92	
Cape Cod	
	Hired part-time lactation consultant.
	Purchased educational materials.
	Provided outside training courses.
Dorchester/Roxbury	
	Hired additional nutritionist.
	Purchased educational materials.
	Funded training.
Jamaica Plain	
	Hired nutrition assistant.
Foreign language materials needed	
None currently available for	Urdu
	Creole
Additional materials needed	Spanish

[a]Total percentage by site may not equal 100 because of rounding.

Table III.3: Tennessee Program Profile

Responsible state agency	Tennessee Department of Health, Bureau of Health Services, Maternal and Child Health Section, Division of Nutrition and Supplemental Food Programs	
Total federal program funds, fiscal year 1992	$58,019,929	
Breastfeeding set-aside funds, fiscal year 1992	$208,190	
Ethnic composition of WIC participants		
	Percentage of total participants[a]	
White	69.0	
African-American	30.0	
Asian	0.5	
Hispanic	0.2	
American Indian	0.2	
WIC participants, May 1992	Number	
Pregnant women	21,343	
Breastfeeding women	2,563	
Postpartum nonbreastfeeding women	6,271	
Infants	51,044	
Children	37,566	
Total	**118,787**	
1992 breastfeeding rate for WIC women and percent change from 1989[b]		
	Rate[c] (percent)	Percentage change
In-hospital	30	+16
1 month	24	+21
Breastfeeding promotion and education activities		
WIC program administration		
	Program administered through the state's 95 county health departments.	
	State provided breastfeeding educational materials, nursing aids, guidance, and training to the local counties either directly or through its four regional and six metropolitan offices.	
	Preferred approach to breastfeeding education and promotion through peer counselor programs.	
Staff's major activities before October 1989		
	State established a statewide Breastfeeding Promotion Task Force, which developed minimum standards of care; a breastfeeding handbook; a media campaign; a questionnaire to determine training needs; detailed lesson plans on breastfeeding misconceptions, benefits, and techniques; guidelines for a breast pump loan program; guidelines for monitoring breastfeeding rates; and an infant feeding survey.	

(continued)

	State obtained a Special Project of Regional and National Significance grant in 1986 and piloted a peer counselor program.
Staff's major activities since October 1989	
	Peer counselor programs are currently operating in 13 of the state's 95 counties. All locations designate a local breastfeeding coordinator, who is responsible for breastfeeding education and coordination.
Use of set-aside funds, fiscal years 1990-92	
	State used set-aside funds for breastfeeding aids, educational materials, and salaries for peer counselors and breastfeeding coordinators at five project sites across the state.
Contraindicated guidance	No comprehensive written guidance defining when breastfeeding is contraindicated.

[a]Total percentage may not equal 100 because of rounding.

[b]GAO compared data for women who participated in the WIC program at any time within 6 months postpartum from 1989 to the most recent full year of data available at the time of analysis—October 1991 through September 1992—referred to as "1992" throughout this report.

[c]Differences between the 1989 and 1992 breastfeeding rates were not significant at the 0.05 confidence level.

Table III.4: Sites GAO Visited in Tennessee

Site profiles and groups served	
	Percentage of total participants
Davidson County	
White	46
African-American	50
Asian	4
Fayette County	
White	32
African-American	68
Rutherford County	
White	78
African-American	20
Native American	2
Breastfeeding promotion and education activities	
Common features	
	Staff coordinated with local organizations such as hospital staff, lactation consultants, and/or La Leche League.
	Staff provided supplemental formula only on request.
	Breastfeeding promotion and education occurred during nutrition education contacts with nutritionists, and sessions with peer counselors.
	Sites operated a program using peer counselors who provided breastfeeding education to all prenatal women through individual counseling and support to breastfeeding women in the hospital, at home, and/or at the site.
	Sites provided breastfeeding aids such as manual breast pumps and nursing pads.
	Sites had electric breast pump loan program.
	Sites collected data on breastfeeding incidence and duration.
Unique features	
Fayette County	
	Fayette County provided breastfeeding classes for participants.
Rutherford County	

(continued)

	Rutherford County provided breastfeeding classes for participants. Rutherford County had in-hospital certification of mothers and infants and sponsored a program for pregnant teens at the local high school.
Use of set-aside funds, fiscal years 1990-92	
Davidson County	
	Davidson County purchased educational reference materials, breast pumps, and nursing pads.
Fayette County	
	Fayette County funded peer counselor salary.
Rutherford County	
	Rutherford County funded salaries for a regional breastfeeding coordinator and two peer counselors, and purchased equipment and educational materials.
Foreign language materials needed	
None currently available for	Kurdish or Laotian

Table III.5: Virginia Program Profile

Responsible state agency	Virginia Department of Health, Division of Public Health Nutrition	
Total federal program funds, fiscal year 1992	$52,491,386	
Breastfeeding set-aside funds, fiscal year 1992	$150,813	
Ethnic composition of WIC participants		
	Percentage of total participants	
White	44.0	
African-American	48.0	
Asian	2.0	
Hispanic	6.0	
American Indian	0.2	
WIC participants, May 1992	Number	
Pregnant women	15,557	
Breastfeeding women	1,740	
Postpartum nonbreastfeeding women	3	
Infants	30,115	
Children	57,755	
Total	**105,170**	
1992 breastfeeding rate for WIC women and percentage change from 1989[a]		
	Rate[b] (percent)	Percentage change
In-hospital	30	+56.0
1 month	23	+65.5
Breastfeeding promotion and education activities		
WIC program administration		
	Program administered through county health departments and a few noncounty clinics.	
	State provides direction, training, equipment, and resource materials.	
Staff's major activities before October 1989	activities before	
	Statewide Breastfeeding Task Force, which undertook projects.	
	Regional task force organized breastfeeding promotion activities with the media.	
Staff's major activities since October 1989		
	State hired regional breastfeeding coordinators to work with all WIC clinics within their region.	
	All health districts had a peer counselor program in place.	
	State sponsored 2-day training session on lactation management and breastfeeding promotion.	

(continued)

	Statewide Breastfeeding Task Force continued.
Use of set-aside funds, fiscal years 1990-92	Used set-aside funds to purchase educational and promotional materials, provide training, and provide staff salaries directly related to breastfeeding promotion.
Contraindicated guidance	Incomplete written guidance defining when breastfeeding is contraindicated.

[a]GAO compared data for women who participated in the WIC program at any time within 6 months postpartum from 1989 with the most recent full year of data available at the time of analysis—October 1991 through September 1992—referred to as "1992" throughout this report.

[b]Differences in breastfeeding rates between 1989 and 1992 were significant at the 0.05 confidence level.

Table III.6: Sites GAO Visited in Virginia

Site profiles and groups served	
	Percentage of total participants[a]
Buckingham County	
White	36
African-American	62
Hispanic	1
Prince William County	
White	65
African-American	14
Asian	1
Hispanic	19
Richmond City	
White	10
African-American	89
Asian	1
Hispanic	1
Breastfeeding promotion and education activities	
Common features	
	Sites had designated breastfeeding coordinator.
	Staff received breastfeeding training.
	Staff worked with hospital staff directly or through task force.
	Staff provided breastfeeding education and support to all prenatal women.
	Sites operated a peer counselor program.
	Sites loaned breast pumps.
Unique features	
Buckingham County	
	Recently implemented a program of peer counselors who are to have regular contact with postpartum mothers.
Prince William County	
	Peer counselors contacted all breastfeeding women to provide support.
Richmond City	
	Contacted all breastfeeding women to provide support.

(continued)

	Provided manual breast pumps.
Use of set-aside funds, fiscal years 1990-92	
Buckingham County	
	Purchased education materials and pumps.
	Funded training and salaries to develop peer counselor program.
Prince William County	
	Maintained peer counselor program.
	Funded training.
Richmond City	
	Purchased electric pumps, hand-held pumps, and breastfeeding educational materials.
	Funded peer counselor salaries.
Foreign language materials needed	
None currently available for	Vietnamese
Additional materials needed	Spanish

[a]Percentage by site may not total 100 because of rounding.

Table III.7: Washington State Program Profile

Responsible state agency	Department of Health, Parent/Child Health Services, Office of WIC Services	
Total federal program funds, fiscal year 1992	$38,866,691	
Breastfeeding set-aside funds, fiscal year 1992	$190,247	
Ethnic composition of WIC participants		
	Percentage of total participants	
White	65	
Hispanic	18	
African-American	7	
Asian	5	
Native American	5	
WIC participants, May 1992	Number	
Pregnant women	18,174	
Breastfeeding women	4,597	
Postpartum nonbreastfeeding women	37	
Infants	31,648	
Children	19,828	
Total	**74,284**	
1992 breastfeeding rate for WIC women and percentage change from 1989[a]		
	Rate[b] (percent)	Percentage change
In-hospital	68	+0.3
1 month	54	-2.2
Breastfeeding promotion and education activities		
WIC program administration		
	Program administered through 62 local WIC agencies that collectively operate 220 WIC sites.	
	State provided guidance and training to the local WIC sites.	
Staff's major activities before October 1989		
	State and Seattle-King County Department of Public Health jointly conducted a project funded by HHS Bureau of Material and Child Health from 1985 to 1988 to improve breastfeeding incidence and duration among low-income and minority women. Project provided education and training and developed educational materials.	
	Sponsored four conferences that directly addressed breastfeeding.	
Staff's major activities since October 1989		
	Sponsored two statewide WIC conferences each year. Conferences included speakers/sessions on breastfeeding promotion and lactation management.	

(continued)

	Sponsored regional workshops that dealt solely with breastfeeding promotion and lactation management.
	Required each local agency to prepare a nutrition education plan that had breastfeeding promotion as its focus for 1991-93.
	Drafted guidance for WIC nutritionists on counseling prenatal and postpartum women regarding breastfeeding and lactation management.
	Peer counselor programs currently operating in two agencies; 10 additional programs funded in 1992.
Use of set-aside funds, fiscal years 1990-92	Used set-aside funds to purchase educational and promotional materials, provide training, and provide staff salaries directly related to breastfeeding promotion.
Contraindicated guidance	No written guidance defining when breastfeeding is contraindicated.

[a]GAO compared data for women who participated in the WIC program at any time within 6 months postpartum from 1989 to the most recent full year of data available at the time of analysis—October 1991 through September 1992—referred to as "1992" throughout this report.

[b]Differences in breastfeeding rates between 1989 and 1992 were not significant at the 0.05 confidence level.

Table III.8: Sites GAO Visited in Washington State

Site profiles and groups served	
	Percentage of total[a]
Columbia Health Center	
African-American	42
Asian	40
White	7
Hispanic	5
Native American	5
Other	1
Tacoma Pierce County Health Department	
White	65
African-American	16
Asian	10
Hispanic	4
Native American	4
Other	1
Yakima Indian Nation	
Native American	98
White	1
Other	1
Breastfeeding promotion and education activities	
Common features	
	Staff received breastfeeding training.
	Staff coordinated with local organizations such as hospital staff, lactation consultants, and/or La Leche League.
	Staff offered breastfeeding education and support to all prenatal women. —One site provided counseling sessions with nutritionists and also offered peer counselor support to English-speaking participants. —One site required prenatal women to attend one of eight classes (six covered breastfeeding). —One site had a lactation aide who provided breastfeeding education and support by telephone.
	Sites had electric breast pump loan programs.
Unique features	

(continued)

Columbia Health Center	
	Operated a peer counselor program.
	Provided breast shields and minipumps.
Tacoma Pierce County Health Department	
	WIC site has been a member of the Pierce County Breastfeeding Alliance since its inception in 1986.
	County health department provided breast shields, pumps, and nursing bras.
Yakima Indian Nation	
	Had a lactation aide who provided prenatal and postpartum support.
	Is currently developing a peer counselor program.
Use of set-aside funds, fiscal years 1990-92	
Columbia Health Center	
	Purchased educational reference materials and aids, such as breast pumps and nursing shields.
	Purchased items for a breastfeeding area—screen, rocking chair, and pillows.
	Funded training and salaries of peer counselors.
Tacoma Pierce County Health Department	
	Purchased educational materials such as videos, demonstration dolls, and breast models.
	Purchased aids such as electric breast pumps.
	Funded training for some staff costs.
Yakima Indian Nation	
	Purchased educational materials such as audio and video tapes and a demonstration doll.
	Purchased breastfeeding pumps.
	Funded staff training and the salary of a lactation aide.
Foreign language materials needed	None currently available for Southeast Asian languages and Spanish.

[a]Total percentage by site may not equal 100 because of rounding.

Questionnaire for WIC Directors on Breastfeeding Education and Promotions

Questionnaire for WIC Directors
Breastfeeding Education and Promotion

INTRODUCTION

The U.S. Congress has asked the U.S. General Accounting Office (GAO) to conduct a study on the breastfeeding education and promotion efforts of the Special Supplemental Food Program for Women, Infants, and Children (WIC).

As part of our study, we are sending this questionnaire to all state WIC directors to collect information on state WIC breastfeeding education and promotion activities as well as funding. You will find most of these questions can be answered quickly and easily by checking boxes. A few questions may require a little additional time to answer because you may need to consult your records.

If you have any questions about this questionnaire, please call Ms. Sheila Avruch collect at (202) 512-7277.
Please return the completed questionnaire in the enclosed self-addressed envelope within 10 days of receipt. In the event that the envelope is misplaced, please send your questionnaire to

Ms. Sheila Avruch
U.S. General Accounting Office
NGB-HSPM
441 G Street, N.W.
Washington, DC 20548

Thank you for your help.

BACKGROUND

Please provide the following information about the person we should call if additional information or clarification is needed.

Name of person to call: _____

Official title: _____

Telephone number: ( ) _____

GENERAL WIC INFORMATION

1. Does your state WIC program contract with agencies at the local level to provide services to WIC participants in your state? (***Check one***)
(***N=53***)

   1. ***46*** Yes

   2. ***7*** No

Note: This questionnaire was sent to 54 WIC directors in the 50 states, District of Columbia, Guam, Puerto Rico, and the Virgin Islands. All but one (53) returned the questionnaire. However, some did not respond to all the questions. The "N" for each question is the number of respondents who answered that question.

2. In your opinion, how important, if at all, is each of the following objectives in carrying out the mission of your WIC program?

(Check one for each objective)

Objective	Extremely important	Very important	Moderately important	Somewhat important	Not important at all
1. Enrolling as many eligible pregnant women as possible in WIC as early as possible (*N=53*)	*52*	*1*	*0*	*0*	*0*
2. Improving nutritional education provided to WIC participants (*N=52*)	*35*	*14*	*3*	*0*	*0*
3. Having as many WIC women as possible breastfeed (*N=52*)	*43*	*8*	*1*	*0*	*0*
4. Helping as many eligible WIC children as possible get their immunizations (*N=52*)	*22*	*18*	*9*	*3*	*0*
5. Coordinating with Medicaid and other agencies so as many WIC participants as possible can access services (*N=52*)	*21*	*20*	*11*	*0*	*0*
6. Providing outreach activities to hard-to-reach WIC participants (for example, non-English speaking WIC participants, isolated rural WIC participants) (*N=52*)	*21*	*21*	*9*	*1*	*0*
7. Continuing to obtain infant formula rebates at the current rate or at a higher rate (*N=51*)	*24*	*20*	*6*	*1*	*0*
8. Obtaining rebates on <u>other</u> food items, such as infant cereal and juice (*N=51*)	*3*	*10*	*10*	*20*	*8*
9. Obtaining enough funding to be able to serve all eligibles (*N=53*)	*36*	*13*	*3*	*1*	*0*
10. Expanding the number of WIC providers or upgrading existing WIC sites (*N=53*)	*15*	*17*	*12*	*8*	*1*
11. Extending computerization in your WIC program (*N=52*)	*27*	*15*	*7*	*2*	*1*
12. Other (*Please specify*) (*N=10*) _____	*9*	*1*	*0*	*0*	*0*

3. Consider all the objectives listed in question 2. Overall, which of these is the most, second most, and third most important objective of your program? (*Enter objective number for each*)

   1. Most important _____
   2. Second most important _____
   3. Third most important _____

   (*See Attachment A at the end of this appendix for summary of responses.*)

BREASTFEEDING ACTIVITIES

4. Does your state have a state task force or committee to promote breastfeeding among women in the state? (*Check one*) (*N=53*)

   1. *40* Yes
   2. *13* No --> (*Go to question 7*)

5. Do any state or local level WIC program staff serve on this state task force or committee? (*Check one*) (*N=40*)

   1. *40* Yes
   2. *0* No --> (*Go to question 7*)

6. Is this state task force or committee comprised of only WIC program staff or WIC staff and other members, such as state and local public health professionals, La Leche League representatives, private physicians, nurses, or hospital representatives? (*Check one*) (*N=40*)

   1. *6* WIC staff only
   2. *34* WIC staff and other members

7. Are there any task forces or committees at the local level that promote breastfeeding? (*Check one*) (*N=52*)

   1. *42* Yes
   2. *6* No --> (*Go to question 9*)
   3. *4* Don't know --> (*Go to question 9*)

8. Do any WIC program staff at the local level serve on a local task force or committee to promote breastfeeding? (*Check one*) (*N=41*)

   1. *40* Yes
   2. *1* No
   3. *0* Don't know

9. Does your state WIC program have a state WIC breastfeeding coordinator or another WIC official at the state level responsible for WIC breastfeeding education and promotion activities throughout your state? (*Check one*) (*N=52*)

   1. *25* Yes, a state WIC breastfeeding coordinator only
   2. *8* Yes, another state WIC official only
   3. *19* Yes, both a state WIC breastfeeding coordinator and another state WIC official
   4. *0* No

10. Listed below are various activities to promote breastfeeding and provide education to WIC women about breastfeeding.
PART A: Indicate whether or not your state WIC program does any of the following activities.

PART B: For each activity that occurs in your state WIC program, indicate whether the state WIC director, breastfeeding coordinator, another state WIC official, or some combination of these officials participates in that activity.

Activity	PART A (*Check one*) Does your state program do this? Yes	PART A (*Check one*) Does your state program do this? No		PART B (*Check all that apply*) State WIC director	PART B (*Check all that apply*) State WIC breast-feeding coordinator	PART B (*Check all that apply*) Another state WIC official
1. Prepare an education and promotion plan for breastfeeding (*N=53*)	*51*	*2*	*If yes-->*	*7*	*43*	*24*
2. Develop promotion materials for breastfeeding (*N=53*)	*47*	*6*	*If yes-->*	*2*	*40*	*26*
3. Prepare reports on WIC breastfeeding and promotion activities (*N=53*)	*51*	*2*	*If yes-->*	*9*	*40*	*24*
4. Assess the need for breastfeeding education and promotion (*N=53*)	*52*	*1*	*If yes-->*	*6*	*47*	*26*
5. Analyze data on breastfeeding rate among WIC women (*N=52*)	*50*	*2*	*If yes-->*	*12*	*39*	*24*
6. Allocate WIC resources to agencies at the local level for breastfeeding education and promotion activities (*N=51*)	*48*	*3*	*If yes-->*	*34*	*28*	*22*
7. Evaluate WIC's effectiveness in promoting breastfeeding at the local level (*N=52*)	*47*	*5*	*If yes-->*	*7*	*41*	*23*
8. Coordinate with organizations unaffiliated with WIC that can promote breastfeeding (for example, La Leche League or local hospitals) (*N=53*)	*47*	*6*	*If yes-->*	*6*	*40*	*21*
9. Provide WIC women direct counseling on breastfeeding (*N=51*)	*24*	*27*	*If yes-->*	*0*	*15*	*13*
10. Arrange for local level WIC staff to receive training in breastfeeding education and promotion (*N=53*)	*53*	*0*	*If yes-->*	*13*	*43*	*27*
11. Teach the local level WIC program staff how to promote breastfeeding or how to teach their clients breastfeeding techniques (*N=52*)	*49*	*3*	*If yes-->*	*0*	*41*	*22*
12. Participate in a public relations campaign to promote breastfeeding (*N=50*)	*31*	*19*	*If yes-->*	*12*	*28*	*22*
13. Other (*Please specify*) (*N=5*) _____	*5*	*0*	*If yes-->*	*1*	*5*	*1*

11. Does WIC or any other organization in your state provide a telephone hotline/helpline to assist women with breastfeeding? (*Check one*) (*N=53*)

    1. *31* Yes
    2. *18* No
    3. *4* Don't know

BREASTFEEDING GUIDANCE

12. Consider written guidance on breastfeeding that your state WIC program might have provided to staff at the local level during the past 2 years.

    PART A: Indicate whether or not during the past 2 years your state WIC program has provided written guidance on breastfeeding promotion, education, or contra-indications to breastfeeding to the WIC staff at the local level.

    PART B: If "yes" in **Part A**, indicate whether the written guidance was provided in a WIC procedure manual available to local staff or in some other type of written communication provided to local staff.

	PART A			PART B	
	Provided to WIC staff at local level? (*Check one*)			Type of written guidance (*Check all that apply*)	
Written guidance on...	Yes	No		WIC procedure manual available to local staff	Other type(s) of written communication provided to local staff
1. breastfeeding promotion (*N=53*)	*52*	*1*	*If yes* -->	*23*	*45*
2. breastfeeding education (*N=53*)	*52*	*1*	*If yes* -->	*28*	*44*
3. contra-indications to breastfeeding (*N=53*)	*38*	*15*	*If yes* -->	*11*	*32*

BREASTFEEDING INFORMATION

13. When a prenatal woman enters the WIC program in your state, do staff at the WIC clinics and sites ask if she intends to breastfeed her infant? (*Check one*) (*N=53*)

1. *49* Yes
2. *2* No
3. *2* Don't know

14. Does your state have a standard form (for example, screening or intake form) used by local clinics and sites to record if she intends to breastfeed her infant? (*Check one*) (*N=53*)

1. *37* Yes
2. *16* No

15. Does your state WIC program collect information on the length of time WIC infants are breastfed--that is, from the time an infant begins breastfeeding until the time that infant is switched to formula or weaned? (*Check one*) (*N=53*)

1. *42* Yes
2. *11* No

16. Now we would like you to think about the information on average monthly participation of infants your state WIC program provides to USDA. In determining participation in a given month, would you count a breastfed infant who was too young to receive a WIC food package of infant cereal or juice, but whose mother did receive a WIC food package? (*Check one*) (*N=52*)

1. *48* Would count a breastfed infant who was too young to receive a WIC food package of infant cereal or juice
2. *4* Would not count a breastfed infant who was too young to receive a WIC food package of infant cereal or juice

17. Does your state WIC program calculate the rate of breastfeeding among WIC infants? (*Check one*) (*N=50*)

1. *42* Yes--> (Please describe how your program calculates the rate.)

(*41 respondents provided descriptions*)

2. *8* No

18. Listed below are actions a state WIC program might take to evaluate the effectiveness of agencies in conducting breastfeeding promotion and education activities at the local level. Indicate whether or not your state WIC program takes each of the following actions to evaluate the effectiveness of these agencies in conducting breastfeeding promotion and education activities.

Action	(*Check one for each*) Yes	No
1. Reviews reports on breastfeeding promotion activities at the local level (*N=53*)	*46*	*7*
2. Reviews local WIC program plans (*N=53*)	*50*	*3*
3. Reviews data on local level breastfeeding rates (*N=53*)	*49*	*4*
4. Conducts site visits to agencies at the local level for technical assistance or monitoring purposes (*N=53*)	*50*	*3*
5. Surveys WIC participants about their views on the breastfeeding education they received at the local level (*N=53*)	*38*	*15*
6. Other actions taken to evaluate (*Please specify*) (*N=9*) _____	*8*	*1*

19. Has your state WIC program ever taken any specific actions or made any program changes as a direct result of your evaluation of local programs' effectiveness at breastfeeding promotion and education? (*Check one*) (*N=51*)

1. *43* Yes --> Please describe the action(s)

(*42 respondents provided descriptions*)

2. *8* No

WIC WOMEN BREASTFEEDING

20. Currently, how many WIC women in your state are breastfeeding? (*Enter number*) (*N=50*)

_____ WIC women are breastfeeding

Range	*Mean*	*Median*[1]
$38-13,319	*2504*	*1748*

21. Does your state WIC program currently provide formula to any WIC women for infants they are breastfeeding? (*Check one*) (*N=51*)

1. *51* Yes

2. *0* No --> (*Go to question 24*)

22. What percentage of WIC breastfeeding women currently receive any formula from your state WIC program for infants they are breastfeeding? (*Enter percentage; If information is not available, check box "a"*) (*N=52*)

_____ % WIC breastfeeding women (*N=14*)

Range	*Mean*	*Median*
7-89%	*63%*	*68%*

38 Information not available

23. Does your state currently collect information on the amount of formula distributed to these women? (*Check one*) (*N=53*)

1. *13* Yes

2. *40* No

PEER COUNSELOR

24. Now we would like to ask you a few questions on peer counseling programs, that is, programs whereby women--such as current or former WIC participants who have successfully breastfed--educate and counsel their peers within WIC on breastfeeding.

Are there any peer counselor programs for breastfeeding available to WIC women in your state? (*Check one*) (*N=53*)

1. *35* Yes

2. *18* No --> (*Go to question 27*)

25. When did the first peer counselor program for breastfeeding begin in your state? (*Enter month and year*) (*N=33*)

/_____/_____/
month year

1980-84 2
1985-89 10
1990-93 21

26. Currently, about how many local WIC clinics or sites in your state have peer counselors available to help WIC women with breastfeeding education and counseling? (*Check one*) (*N=35*)

1. *2* All or almost all

2. *1* Most

3. *7* About half

4. *16* Some

5. *7* Few, if any

[1]Median is the value at which 50 percent of the responses fall above and 50 percent fall below.

TRAINING

27. Now we would like you to think about all WIC staff at the local level who provide breastfeeding education services in your state.

First, as of October 1, 1992, about how many full-time and part-time WIC staff who certify WIC participants were providing breastfeeding education to WIC women? (*Enter number*) (*N=41*)

_____ WIC staff who certify WIC participants and provide breastfeeding education

Range	Mean	Median
4-500	*121*	*82*

28. What percentage of these WIC staff who certify WIC participants and provide breastfeeding education received training in either breastfeeding education or promotion within the last 3 years? (*Enter percentage*) (*N=49*)

_____ % of WIC staff who certify WIC participants and provide breastfeeding education

Range	Mean	Median
30-100%	*91%*	*98%*

29. Do any WIC staff at the local level in your state other than those WIC staff who certify WIC participants provide breastfeeding education to WIC women? (*Check one*) (*N=53*)

1. *43* Yes

2. *10* No --> (*Go to question 32*)

30. As of October 1, 1992, how many of these other WIC staff were providing breastfeeding education to WIC women? (*Enter number*) (*N=28*)

_____ Other WIC staff who were providing breastfeeding education

Range	Mean	Median
0-1300	*108*	*27*

31. What percentage of these other WIC staff who provided breastfeeding education received training in either breastfeeding education or promotion within the last 3 years? (*Enter percentage*) (*N=34*)

_____ % of other WIC staff

Range	Mean	Median
0-100%	*89%*	*100%*

REGULATIONS AND LAWS

32. Are you aware of any changes that could be made in WIC program regulations or laws that might increase breastfeeding among WIC women without requiring additional federal funds? *(Check one)* *(N=52)*

1. *28* Yes --> Please describe these changes.

(28 respondents provided descriptions)

2. *24* No

33. Now, are you aware of any changes that could be made in other federal programs' regulations or laws that might increase breastfeeding among WIC women without requiring additional federal funds? *(Check one)* *(N=50)*

1. *22* Yes --> Please describe these changes.

(22 respondents provided descriptions)

2. *28* No

BREASTFEEDING EDUCATION AND PROMOTION FUNDING

34. For federal fiscal years 1990, 1991, and 1992, enter the amount of discretionary funds, if any, your state program received from USDA to promote breastfeeding or educate WIC women about breastfeeding. (***Enter amount; If no funds were received, check box "a"***)

Total discretionary funding received for breastfeeding

Federal fiscal year (FFY)	Range	Mean	Median	
1. FFY 1990 (*N=8*)	*$11,494-$181,714*	*$64,356*	*$24,975*	44 Did not receive any funds
2. FFY 1991 (*N=12*)	*$4,034-$500,000*	*$104,357*	*$33,879*	40 Did not receive any funds
3. FFY 1992 (*N=16*)	*$4,135-$278,200*	*$79,784*	*$67,001*	35 Did not receive any funds

35. Now, we would like you to think about the amount of administrative funding your state WIC program received from USDA for federal fiscal years 1990 through 1992. For each federal fiscal year listed below, enter the total amount of administrative funding received. When entering administrative funds, do not include any USDA discretionary funds. (***Enter amount; If no funds were received, check box "a"***)

Total administrative funding received

Federal fiscal year (FFY)	Range	Mean	Median	
1. FFY 1990 (*N=47*)	*$28,508-$41,865,241*	*$7,646,632*	*$5,216,686*	0 Did not receive any funds
2. FFY 1991 (*N=49*)	*$22,150-$53,700,473*	*$8,462,929*	*$5,232,111*	0 Did not receive any funds
3. FFY 1992 (*N=48*)	*$108,132-$63,643,178*	*$10,271,846*	*$6,630,470*	0 Did not receive any funds

36. Now, consider only WIC administrative funds received from USDA--both the amount set aside for breastfeeding and any other WIC administrative funds--that were spent on WIC breastfeeding education and promotion activities within your state during federal fiscal years 1990 through 1992.

For federal fiscal years 1990, 1991, and 1992, enter the amount of (1) WIC administrative funding set aside for breastfeeding, (2) other WIC administrative funding spent on breastfeeding and promotion activities, and (3) the total administrative funds spent on breastfeeding education and promotion activities. *If the total amount of federal fiscal year 1992 funds spent has not yet been fully accounted for at this time, please provide the amount you anticipate will be spent.* ***(Enter number; If no funds spent, enter "0")***

WIC administrative funds	Federal fiscal year 1990	Federal fiscal year 1991	Federal fiscal year 1992
1. Funds set aside for breastfeeding	*(N=45)* ***Range*** *$11,494-$885,237* ***Mean*** *$153.742* ***Median*** *$92,748*	*(N=48)* ***Range*** *$4,034-$995,165* ***Mean*** *$151,325* ***Median*** *$101,640*	*(N=47)* ***Range*** *$4,135-$1,098,554* ***Mean*** *$154,096* ***Median*** *$101,963*
2. Other WIC administrative funds spent on breastfeeding	*(N=38)* ***Range*** *$0-$544,215* ***Mean*** *$50,487* ***Median*** *$5,016*	*(N=46)* ***Range*** *$0-$423,560* ***Mean*** *$78,802* ***Median*** *$35,255*	*(N=42)* ***Range*** *$0-$494,182* ***Mean*** *$104,373* ***Median*** *$39,742*
Total WIC administrative funds spent on breastfeeding	*(N=41)* ***Range*** *$0-$524,079* ***Mean*** *$156,016* ***Median*** *$120,589*	*(N=46)* ***Range*** *$4651-$1,011,966* ***Mean*** *$215,973* ***Median*** *$156,445*	*(N=43)* ***Range*** *$4135-$1,098,554* ***Mean*** *$244,115* ***Median*** *$157,122*

37. Again, consider all the WIC administrative funds that were spent during federal fiscal years 1990 through 1992 on breastfeeding education and promotion activities in your state. Of the total amount of administrative funds spent during each of these years, indicate approximately what percentage, if any, was spent on each of the following activities. (***Please give your best estimate; If none, enter "0"***)

Activities	Federal fiscal year 1990	Federal fiscal year 1991	Federal fiscal year 1992
1. Benefits and salaries for all WIC staff working on breastfeeding education and promotion activities (for example, breastfeeding coordinator, peer counselor, lactation consultant, nutritionist, administrative staff)	*(N=41)* ***Range*** *0-100%* ***Mean*** *68%* ***Median*** *80%*	*(N=45)* ***Range*** *0-100%* ***Mean*** *71%* ***Median*** *75%*	*(N=45)* ***Range*** *0-100%* ***Mean*** *70%* ***Median*** *75%*
2. Training of local WIC staff	*(N=35)* ***Range*** *0-53%* ***Mean*** *11%* ***Median*** *5%*	*(N=33)* ***Range*** *0-54%* ***Mean*** *11%* ***Median*** *6%*	*(N=34)* ***Range*** *1-54%* ***Mean*** *11%* ***Median*** *9%*
3. Breastfeeding educational materials	*(N=36)* ***Range*** *0-67%* ***Mean*** *14%* ***Median*** *7%*	*(N=41)* ***Range*** *0-40%* ***Mean*** *10%* ***Median*** *10%*	*(N=42)* ***Range*** *1-79%* ***Mean*** *12%* ***Median*** *10%*
4. Breastfeeding aids (for example, breast pumps, breast shells/breast shields, nursing supplementers, and nursing bras)	*(N=32)* ***Range*** *0-45%* ***Mean*** *6%* ***Median*** *0%*	*(N=37)* ***Range*** *0-70%* ***Mean*** *11%* ***Median*** *5%*	*(N=40)* ***Range*** *0-40%* ***Mean*** *10%* ***Median*** *8%*
5. Other activities (***Please specify***) _____	*(N=18)* ***Range*** *0-20%* ***Mean*** *4%* ***Median*** *0%*	*(N=19)* ***Range*** *0-32%* ***Mean*** *5%* ***Median*** *1%*	*(N=20)* ***Range*** *0-21%* ***Mean*** *5%* ***Median*** *3%*
Total amount spent on breastfeeding activities	100 %	100 %	100 %

38. Consider any funding your WIC program might have received from other than USDA (for example, federal/state Maternal Child Health (MCH) funds, local agency funds, donations or in-kind contributions) for breastfeeding education and promotion activities during federal fiscal years 1990 through 1992.

PART A: Indicate whether or not your WIC program received funding for each federal fiscal year from other than USDA.

PART B: For each federal fiscal year for which you received this funding, enter the total amount received.

PART C: For each year for which you received funding from other than USDA, enter the total amount of this funding that was spent during that year.

	PART A			PART B	PART C
	Was funding received from other sources for breastfeeding? (*Check one*)			Total amount of funding received	Total amount of funding spent
Federal fiscal year (FFY)	Yes	No		(*Enter amount*)	(*Enter amount*)
1. FFY 1990 (N=51)	*4*	*47*	*If yes ->*	(*N=4*) ***Range*** *$50,000-$200,000* ***Mean*** *$105,717* ***Median*** *$86,433*	(*N=4*) ***Range*** *$50,000-$200,000* ***Mean*** *$105,717* ***Median*** *$86,433*
2. FFY 1991 (N=51)	*9*	*42*	*If yes ->*	(*N=9*) ***Range*** *$3,000-$121,734* ***Mean*** *$53,354* ***Median*** *$50,000*	(*N=9*) ***Range*** *$3,000-$121,734* ***Mean*** *$52,243* ***Median*** *$50,000*
3. FFY 1992 (N=51)	*11*	*40*	*If yes ->*	(*N=9*) ***Range*** *$20,000-$51,948* ***Mean*** *$46,876* ***Median*** *$50,000*	(*N=8*) ***Range*** *$27,314-$50,000* ***Mean*** *$46,065* ***Median*** *$50,000*

WIC DIRECTOR'S OPINIONS

39. In the remaining questions we would like the WIC director's views on various issues related to funding for breastfeeding education and promotion.

In your opinion, if administrative funding were increased, and funding set aside for breastfeeding education and promotion were increased, how much of an increase, if any, would this have on the rate of breastfeeding among WIC women in your state? (*Check one*) (*N=51*)

1. *3* Significant increase
2. *15* Great increase
3. *19* Moderate increase
4. *8* Some increase
5. *6* Little or no increase

40. In your opinion, if administrative funding were to remain the same but funding set aside for breastfeeding education and promotion were to be increased, what effect, if any, would this have on the rate of breastfeeding among WIC women in your state? (*Check one*) (*N=52*)

1. *0* Significant increase
2. *2* Great increase
3. *18* Moderate increase
4. *12* Some increase
5. *20* Little or no increase

41. In your opinion, how adequate or inadequate is the amount of funding currently set aside for breastfeeding education and promotion in your state? (*Check one*) (*N=49*)

1. *0* Much more that adequate
2. *5* More than adequate
3. *20* Adequate
4. *18* Less than adequate
5. *6* Much less than adequate

42. Do you favor or oppose setting aside WIC administrative funding for breastfeeding education and promotion? (*Check one*) (*N=50*)

1. *11* Strongly favor
2. *11* Somewhat favor
3. *3* Neither favor nor oppose
4. *9* Somewhat oppose
5. *16* Strongly oppose

43. Now we would like your opinion on several methods that have been suggested as ways to fund breastfeeding education and promotion.

First, as WIC director, would you favor or oppose an increase in the amount of your state WIC administrative funding set aside for breastfeeding education and promotion? (*Check one*) (*N=52*)

1. *4* Strongly favor
2. *11* Somewhat favor
3. *8* Neither favor nor oppose
4. *12* Somewhat oppose
5. *13* Strongly oppose

(*Go to question 45*)

6. *4* Depends on the amount of increase

44. Up to what percent increase of your state's current funding set aside for breastfeeding education and promotion would you favor? (*Enter percentage*) (*N=3*)

Range	*Mean*	*Median*
2-100%	*36%*	*5%*

45. Would you favor or oppose having a percent of administrative funding rather than a dollar amount of administrative funding designated for breastfeeding education and promotion? (*Check one*) (*N=51*)

1. *2* Strongly favor
2. *10* Somewhat favor
3. *15* Neither favor nor oppose
4. *9* Somewhat oppose
5. *15* Strongly oppose

46. Would you favor or oppose having the option to use a portion of savings from infant formula rebates for breastfeeding education and promotion? (*Check one*) (*N=52*)

1. *22* Strongly favor
2. *14* Somewhat favor
3. *5* Neither favor nor oppose
4. *5* Somewhat oppose
5. *6* Strongly oppose

47. Would you favor or oppose having the option to use a portion of WIC food funding for breastfeeding education and promotion? (*Check one*) (*N=52*)

1. *16* Strongly favor
2. *16* Somewhat favor
3. *8* Neither favor nor oppose
4. *6* Somewhat oppose
5. *6* Strongly oppose

48. If you have any additional opinions on breastfeeding education or promotion for the WIC program or comments related to this questionnaire, please write them in the space provided below. (*N=21*)

(*21 respondents provided comments.*)

HRD/SLS/11-92
(113914)

Attachment A

3. Consider all the objectives listed in question 2. Overall, which of these is the most, second most, and third most important objective of your program?

Objective	Most important (*N=52*)	Second most important (*N=52*)	Third most important (*N=52*)
1. Enrolling as many eligible pregnant women as possible in WIC as early as possible	*34*	*13*	*3*
2. Improving nutritional education provided to WIC participants	*1*	*10*	*13*
3. Having as many WIC women as possible breastfeed	*2*	*9*	*11*
4. Helping as many eligible WIC children as possible get their immunizations	*0*	*1*	*2*
5. Coordinating with Medicaid and other agencies so as many WIC participants as possible can access services	*0*	*3*	*5*
6. Providing outreach activities to hard-to-reach WIC participants (for example, non-English speaking WIC participants, isolated rural WIC participants)	*1*	*3*	*2*
7. Continuing to obtain infant formula rebates at the current rate or at a higher rate	*0*	*1*	*2*
8. Obtaining rebates on <u>other</u> food items, such as infant cereal and juice	*0*	*0*	*1*
9. Obtaining enough funding to be able to serve all eligibles	*12*	*7*	*3*
10. Expanding the number of WIC providers or upgrading existing WIC sites	*0*	*1*	*3*
11. Extending computerization in your WIC program	*2*	*1*	*6*
12. Other (***Please specify***) _____	*0*	*3*	*1*

Analysis of Food Package Costs

In order to determine if increasing the rate of breastfeeding would decrease total food costs to serve breastfeeding and postpartum nonbreastfeeding women and infants, we estimated total food costs using 16 paired scenarios. Under varied assumptions that we discuss in this appendix, we compared total food costs at the fiscal year 1992 rate of breastfeeding with food costs at an assumed 10-percent higher rate of breastfeeding for WIC infants' first 12 months.[1] Total food costs include all food costs to serve mothers and infants but do not include the food costs to serve pregnant women or children over the age of 1.

Background

At present, WIC is not funded so that all eligible people can be served. Funding the program so all those eligible could be served—full funding—is supported by some Members of Congress. WIC funding has increased in recent years. If the program were fully funded, more people would be served. Exactly how many more is subject to some debate.

USDA has five participant groups—pregnant women, infants, breastfeeding women, postpartum nonbreastfeeding women, and children. WIC has established priority groups for enrollment, so that the participants deemed most in need of program services will be enrolled first when program funding is limited. Pregnant women, infants, and breastfeeding women are generally considered higher priorities than postpartum nonbreastfeeding women and children. Therefore, most estimates of the percentage of WIC-eligible persons currently being served show higher percentages of infants served than postpartum nonbreastfeeding women. An infant may receive WIC services, even if the infant's postpartum nonbreastfeeding mother does not. If the program were fully funded so that all those eligible could be served, many more postpartum nonbreastfeeding women would be in the program.

Each type of participant is eligible to receive a food package. The contents of packages differ for different types of participants and therefore have different average costs. Within a participant group, the individual packages may change depending on circumstances. For example, infants are only allowed juice or cereal starting after they are 4 months old, so the package for a nonbreastfeeding infant will contain only formula for the first 4 months postpartum, and formula plus juice and cereal thereafter. The WIC program collects information on yearly food costs, and USDA estimates the average costs of food packages for different types of participants.

[1]We used fiscal year 1992 rates because we did not have fiscal year 1991 rates for all WIC participants. We assumed a 10-percent increase in breastfeeding because that seemed reasonable, given that breastfeeding rates had increased more than that amount between 1989 and 1992.

USDA has developed an enhanced breastfeeding package for women with breastfed infants who receive no formula from WIC. The enhanced package will better meet the additional nutritional needs of a woman who is breastfeeding exclusively. This enhanced package will be somewhat more extensive and costly than the current breastfeeding food package. Breastfeeding women who also receive WIC formula will continue to be eligible for the standard breastfeeding package but will not be eligible for the enhanced package. This change was not fully implemented in fiscal year 1992. The final regulation was effective December 28, 1992, and must be implemented by December 28, 1993.

Estimated Scenarios

We estimated food costs in several ways. First, we were asked to examine the effect of breastfeeding, both at the present funding level and if the program were fully funded so that all those eligible could be served. Therefore, we estimated

- the effect of having 10-percent more infants breastfed on fiscal year 1991 costs, given fiscal year 1991 participation rates of infants and postpartum nonbreastfeeding women,[2] and
- the effect of having 10-percent more infants breastfed if the program were fully funded.

Second, under these two broad categories, we estimated costs in two other ways. We estimated costs

- assuming all breastfeeding women received the current breastfeeding package and
- assuming that breastfeeding women would receive the current package if they accepted formula from WIC, but could get the enhanced package if they chose to accept no formula from WIC for their infants.

Third, since we did not know how much supplemental formula is used on average by breastfed infants who do use formula (see p. 9), we estimated costs assuming four different average amounts of supplemental formula given to supplemented breastfed infants.

Methodology

For all the calculations we assumed the following:

[2]We used fiscal year 1991 participation and costs because those figures were available at the time of our analysis.

- All pregnant women on WIC continued to be served by WIC for the first month.
- Seventy-five percent of all infants served had mothers on WIC prenatally.[3]
- All infants whose mothers were enrolled prenatally were enrolled in WIC after birth.
- Infants whose mothers had not been on WIC prenatally all had been enrolled in WIC by their sixth month.
- Infants are enrolled in WIC over 6 months in a pattern similar to infants' first visit to a WIC clinic in the Ross Laboratories' database for the first 6 months.
- No infant who was enrolled in the program dropped out of the program during the first 12 months.[4]
- Costs for infants included juice and cereal, starting in their fifth month (after they reached age 4 months), which is when they first become eligible under WIC regulations to receive juice and cereal.

Breastfeeding Data

We used Ross Laboratories' breastfeeding rates to estimate the number of breastfeeding WIC participants and breastfed infants in each month for the first 6 months following delivery. Data from Ross matched data for breastfeeding rates developed from previous federal surveys of infant feeding practices and were the most recent data available. For months 7 through 12, we used breastfeeding rates for WIC participants compiled from the 1988 National Maternal and Infant Health Survey and provided to us by USDA to estimate the number of breastfeeding participants and infants in months 7 through 12. We assumed breastfeeding rates to have increased by 13 percent since 1988, since WIC rates increased between 12 percent and 14 percent between 1989 and 1992 in each month measured by Ross. For each month's rate for the first 6 months, we took an average of the beginning and end of the month—for example, the rate for month 1 was the average of the in-hospital and first-month rate—to more accurately reflect the average number of women breastfeeding during that month.

To compare the impact of changes in breastfeeding rates on costs, we compared costs if 10-percent more WIC infants were breastfed than we

[3]According to Mary Burich and James Murray's Study of WIC Participant and Program Characteristics, 1990, USDA (Alexandria, VA: 1992), 75 percent of infants' mothers received WIC prenatally (backing out the missing and not recorded cases). In Rick Williams and others' Study of WIC Participant and Program Characteristics, 1988, USDA (Alexandria, VA: 1990), 75 percent of breastfeeding women received WIC benefits prenatally, 76 percent of postpartum nonbreastfeeding women received WIC benefits prenatally, and 69 percent of infants had mothers who received WIC benefits prenatally.

[4]This assumption was made for simplicity's sake and because we lacked data on the number of infants who dropped out of the program before age 1.

estimated were breastfed in fiscal year 1992. We assumed for these estimates a 10-percent overall increase in breastfeeding, with the proportion of exclusively to partially breastfed infants remaining similar.[5]

Numbers of Participants

We developed a model that estimated costs for every month from 0 through 12—that is, as if the entire group of infants served all year in WIC were born in the same month, and we followed them month by month. (See table V.1 for an example of the basic cost matrix.) We used the number of infants served times breastfeeding rates in any month to estimate the number of breastfed infants and an equivalent number of breastfeeding mothers served. We had rates for exclusive breastfeeding (no formula given) and partial breastfeeding. We used these rates to develop numbers of exclusively and partially breastfed infants. As infants were completely weaned from breast milk, we assumed they would receive WIC formula, and they entered the category of formula-fed infants.

Using Ross Laboratories' breastfeeding data gave us higher estimates for the number of women breastfeeding and receiving WIC benefits than the average monthly participation of breastfeeding women for either of fiscal years 1991 or 1992, which we calculated from USDA monthly participation data. There are several explanations for this anomaly. In the Ross data set, we coded women as WIC recipients if they received WIC at any time during a 6-month postpartum period, which would indicate a higher breastfeeding rate in WIC than the average monthly participation rate for breastfeeding women. Average monthly participation is the average number of enrolled breastfeeding women who picked up vouchers for food packages in a month.

Several assumptions could have increased our totals. Some women could have breastfed but might not have enrolled in WIC until they had stopped breastfeeding. In our data set, they would show up as breastfeeding WIC participants, but they would not be enrolled as breastfeeding participants. Also, although we added infants incrementally into our totals (following the growth in program enrollment over 6 months for infants whose mothers were not on WIC prenatally), we might have overestimated enrollment in the first 6 months, when a higher proportion of infants are breastfed. We used the question, "After the birth of your baby, how old was your baby when you first visited the WIC center?" from the Ross Laboratories' survey as a measure for month of enrollment, whereas actual

[5]The proportions of exclusively to partially breastfed infants might change in the future. The percentage of women who begin breastfeeding and continue breastfeeding may increase or decrease. We did not factor any of these possibilities into our analysis.

receipt of benefits and program participation may have occurred later. Finally, breastfeeding women who had participated prenatally may not have been enrolled as breastfeeding until their infants were 6 to 8 weeks old. In that case, there would be no difference in costs because we used the same cost for the prenatal and the basic breastfeeding package. But it would make our number of breastfeeding women higher than the total monthly participation for the year. In any case, we used these numbers consistently throughout our analysis, so that the comparison between the effect of a lower level compared with a higher level of breastfeeding should still be valid, even if the actual level of breastfeeding and WIC participation in any month is lower than our initial estimate.

Package Costs

We estimated participant package costs on the basis of fiscal year 1991 WIC food costs. For the basic breastfeeding participant cost, we used the fiscal year 1991 package cost of $36.34 given to us by USDA. This amount is based on total food costs allocated to type of participant and divided by the number of participants. For the postpartum nonbreastfeeding participants' cost, we used the fiscal year 1991 USDA package cost of $28.90.

We assumed that pregnant women who had been on WIC continued to receive WIC for 1 month. After 1 month, we assumed many women who were not breastfeeding would be dropped from the WIC program even if their infants were not dropped. This assumption seems reasonable after examining participation numbers for infants and comparing those with the participation numbers for postpartum nonbreastfeeding women. Our total number of postpartum nonbreastfeeding women served for fiscal year 1991 is therefore slightly larger than the real number served, because some women were assumed to still have received services as pregnant women before they were recertified.

We used the total cost of infant formula after rebates in fiscal year 1991, $404 million, to estimate the cost of the formula-feeding infant package. We divided this total cost by the number of infants estimated to be receiving full or partial formula packages to get the cost of the formula package. The cost of the package varied in our different scenarios, depending on how much formula we assumed supplemented breastfed infants used. In other words,

Cost of formula package = (Total cost of infant formula less rebate, fiscal year 1991)/(The number of exclusively formula-fed infants + (fraction of formula package used times the number of supplemented breastfed infants))

These assumptions about food package costs are based on a year when rebates for infant formula were high relative to previous years. In future years, infant formula may represent either a smaller or greater share of food costs to serve women and infants, depending on food and formula costs and food rebates. Therefore, the relative costs of breastfeeding versus formula feeding could change.

Enhanced Food Package for Mothers Exclusively Breastfeeding

We also compared breastfeeding rates and total costs assuming that all women exclusively breastfeeding received an enhanced food package from WIC. We priced extra items[6] included in the enhanced package using Bureau of Labor Statistics average consumer prices, U.S. city average, averaging prices estimated from October 1990 through September 1991 to estimate fiscal year 1991 prices. For fiscal year 1991, we estimated that the enhanced food package would have cost $11.44 more than the current food package. It actually could cost more or less than $11.44, depending on what foods states included in the enhanced package, what brands were allowed, and what the food costs were in those states.

Full Funding Estimates

We assumed food package and formula costs would be similar to those of fiscal year 1991. We estimated the total cost of formula under full funding by multiplying the package cost if no supplemental formula were given by the estimated number of nonbreastfed infants served under full funding. We then used this total to estimate formula package costs under differing assumptions about the number of infants using formula, as described earlier.

We estimated that a slightly larger number of infants would be served under full funding than were served in 1991. We used 100 percent of

[6]We estimated the increased costs of the enhanced package based on these additional foods: 26 oz. of canned tuna, 2 lbs. of carrots, 9 oz. of peanut butter, 1/2 lb. of dried beans, concentrated orange juice that would reconstitute to 68 oz., 1/2 lb. of cheddar cheese, and 1/2 lb. of American cheese. The enhanced package would actually contain these items, except that women could choose between either 18 oz. of peanut butter or 1 lb. of dried beans as an addition to the basic breastfeeding food package. We assumed that half the women getting the enhanced package would choose peanut butter and half would choose dried beans, which was why we included a half portion of both. All these foods were included in the estimated average prices published by the Bureau of Labor Statistics, except for dried beans. For dried beans, we estimated a cost of approximately $0.90 per pound, based on Washington, D.C.-area supermarket prices in April 1993.

infants in families at or below 185 percent of the federal poverty level from 1990 census figures as our estimate of infants served. According to the Census Bureau, 1,226,060 infants were in families at or below 185 percent of the federal poverty level. However, we were advised by the Census Bureau that families routinely "round up" the age of their infants and that 23 percent of the children aged 1 (1,515,323) were actually younger than age 1. We therefore added 23 percent of the number of age 1 children to the infant group for our final adjusted figure of 1,574,584. Average monthly participation of infants in fiscal year 1990 was 1,434,118. In fiscal year 1991, monthly participation of infants averaged 1,572,521.[7]

We estimated that the number of postpartum women who might enroll in WIC could increase significantly if WIC were fully funded. Currently, very few postpartum nonbreastfeeding women are enrolled, relative to the number who are potentially eligible, because postpartum women are given the lowest priority for enrollment. Under the full-funding scenario, we estimated that all mothers of infants served by WIC would be enrolled as either postpartum or breastfeeding women. We did this estimation because USDA assumed that a higher percentage of income-eligible breastfeeding or postpartum nonbreastfeeding women than infants are likely to be found at nutritional risk. Therefore, if it is more likely that a mother will be served than her infant, then, with sufficient funding available, at least as many mothers as infants would be served.

These estimates of those potentially eligible give us a conservative estimate of the costs under full funding. The Congressional Budget Office, using an analysis of the 1990 Survey of Income and Program Participation, a Census Bureau database, has estimated that 1.7-million infants would be eligible if the program were fully funded in 1994. Since the Congressional Budget Office's estimate of postpartum women is related to its estimate of infants, its estimates for postpartum women are also larger. Using the Congressional Budget Office's larger estimates of the number of WIC-eligible persons who might be served if WIC had full funding increases the estimated total costs.

Supplemental Formula Use

Since we did not know how much supplemental formula is being distributed to breastfed WIC infants, we estimated costs assuming

[7]Using the 1990 Census figure may give a conservative estimate of infants served under full funding, since we did not adjust for any census undercount, and the number of families with family incomes at or below 185 percent of the federal poverty level can increase when economic conditions worsen. The Congressional Budget Office estimated in January 1993 that 1.7 million infants would be eligible if WIC were fully funded in 1994.

- no supplemental formula was used,
- supplemented breastfed infants received 10 percent of the formula given per month to fully formula-fed infants,
- supplemented breastfed infants received 25 percent of the formula given per month to fully formula-fed infants, and
- supplemented breastfed infants received 50 percent of the formula given per month to fully formula-fed infants.

Assuming no use of supplementary formula gave the lowest possible total cost for any increase in breastfeeding rates. However, we know formula is given to breastfed infants, so this is a lower limit rather than a reasonable assumption. It seemed unlikely, given the range of average amounts of formula given in different states, that the national average amount of formula given was as high as 50 percent of the full formula package, so we used this amount as the highest possible cost estimate.

Basic Participant and Cost Matrix

For each of the 16 scenarios, we developed a cost matrix at a base breastfeeding rate and at a 10-percent higher breastfeeding rate. In order to make our methodology clearer, we included two background matrixes as tables V.1 and V.2 to show how we came to the results reported in tables V.3 through V.6. Table V.1 gives the base costs for different participant categories at fiscal year 1992 breastfeeding rates, using 1991 participation and costs, assuming that an average of 10 percent of the amount of formula given to infants fully formula-fed would be given to infants partially breastfed. We assumed that all mothers exclusively breastfeeding received the enhanced breastfeeding package. Table V.2 gives the base costs at an assumed 10-percent higher rate of breastfeeding than the fiscal year 1992 rates. Summary results from tables V.1 and V.2 appear in table V.4.

Table V.1: WIC Costs Assuming Fiscal Year 1992 Breastfeeding Rates, Fiscal Year 1991 Costs, and Fiscal Year 1991 Participation of Infants and Postpartum Nonbreastfeeding Women (Women Exclusively Breastfeeding Received Enhanced Food Packages)

Dollars in Millions
Numbers in Thousands

	Exclusively breastfeeding infants and women		Partially breastfeeding infants and women			Postpartum formula-using women		Formula-fed infants		Total	
Mo.	No. of infants	Cost (women and infants)	No. of infants	Cost (women)	Cost (infants)	No.	Cost	No.	Cost	No. of infants	Cost (women and infants)
1	355	$17.0	122	$4.4	$0.3	767	$22.1	891	$21.6	1,368	$65.5
2	288	13.8	120	4.3	0.3	528	15.3	1,070	26.0	1,478	59.6
3	216	10.3	116	4.2	0.3	528	15.3	1,202	29.2	1,534	59.3
4	158	7.5	106	3.9	0.3	528	15.3	1,312	31.8	1,576	58.8
5	118	6.0	95	3.5	0.5	528	15.3	1,388	38.0	1,601	63.2
6	103	5.3	77	2.8	0.4	528	15.3	1,436	39.3	1,616	63.0
7	59	3.0	48	1.8	0.3	0	0	1,508	41.3	1,616	46.3
8	52	2.7	43	1.6	0.2	0	0	1,521	41.6	1,616	46.1
9	43	2.2	35	1.3	0.2	0	0	1,538	42.0	1,616	45.7
10	33	1.7	27	1.0	0.1	0	0	1,556	42.6	1,616	45.4
11	25	1.3	21	0.7	0.1	0	0	1,571	43.0	1,616	45.1
12	23	1.2	19	0.7	0.1	0	0	1,574	43.1	1,616	45.0
Total		**$71.8**		**$30.1**	**$3.1**		**$ 98.5**		**$439.3**		**$643.0**

Notes: Totals may not add because of rounding.

Table assumes a 1:1 ratio of breastfeeding mothers to infants.

All postpartum nonbreastfeeding women were assumed to have received a package costing $28.90. All women partially breastfeeding were assumed to have received a package costing $36.34. All women exclusively breastfeeding were assumed to have received a package costing $47.78. The cost of the formula package for this table was assumed to be $24.26 after rebates were subtracted. All infants are assumed to receive juice and cereal at 5 months through 12 months at an additional cost of $3.09 per month.

All partially breastfed infants included in this table were assumed to have received, on average, 10 percent of the formula given to an infant feeding entirely on formula.

Table V.2: Costs Assuming Fiscal Year 1992 Breastfeeding Rates Increased by 10 Percent, Fiscal Year 1991 Costs, and Fiscal Year 1991 Participation of Infants and Postpartum Nonbreastfeeding Women (Women Exclusively Breastfeeding Received Enhanced Food Packages)

Dollars in Millions
Numbers in Thousands

	Exclusively breastfeeding infants and women		Partially breastfeeding infants and women			Postpartum formula-using women		Formula-fed infants		Total	
Mo.	No. of infants	Cost (women and infants)	No. of infants	Cost (women)	Cost (infants)	No.	Cost	No.	Cost	No. of infants	Cost (women and infants)
1	390	$18.6	134	$4.9	$0.3	734	$21.2	843	$20.5	1,368	$65.5
2	317	15.1	132	4.8	0.3	508	14.7	1,029	25.0	1,478	60.0
3	238	11.4	127	4.6	0.3	512	14.8	1,169	28.4	1,534	59.5
4	173	8.3	117	4.3	0.3	515	14.9	1,286	31.2	1,576	58.9
5	129	6.6	105	3.8	0.6	518	15.0	1,367	37.4	1,601	63.3
6	114	5.8	84	3.1	0.5	519	15.0	1,418	38.8	1,616	63.1
7	65	3.3	53	1.9	0.3	0	0	1,498	41.0	1,616	46.5
8	57	3.0	47	1.7	0.3	0	0	1,512	41.3	1,616	46.2
9	48	2.4	39	1.4	0.2	0	0	1,530	41.8	1,616	45.9
10	36	1.9	30	1.1	0.2	0	0	1,550	42.4	1,616	45.5
11	28	1.4	23	0.8	0.1	0	0	1,566	42.8	1,616	45.2
12	25	1.3	21	0.8	0.1	0	0	1,570	42.9	1,616	45.1
Total		**$79.0**		**$33.1**	**$3.4**		**$ 95.5**		**$433.5**		**$644.7**

Notes: Totals may not add because of rounding.

Table assumes a 1:1 ratio of breastfeeding mothers to infants.

All postpartum nonbreastfeeding mothers were assumed to have received a package costing $28.90. All women partially breastfeeding were assumed to have received a package costing $36.34. All women exclusively breastfeeding were assumed to have received a package costing $47.78. The cost of the formula package for this matrix was assumed to be $24.26 after rebates were subtracted. All infants were assumed to have received juice and cereal at 5 months through 12 months at an additional cost of $3.09 per month.

All infants partially breastfed included in this table were assumed to have received, on average, 10 percent of the formula given to an infant feeding fully on formula.

We assumed that the number of postpartum nonbreastfeeding women declined as the number of breastfeeding women rose, but the decline was not equal to the increase in breastfeeding mothers. We assumed a decline of about one postpartum nonbreastfeeding mother for every two breastfeeding mothers added to the program. Since postpartum nonbreastfeeding women are less likely to be served, encouraging some

mothers to breastfeed may add mothers who otherwise might not receive a food package.

Results at Current Participation and Funding

The following table shows the decrease or increase in total food costs necessary to serve breastfeeding and postpartum women and infants, assuming a 10-percent increase in first-year breastfeeding rates among WIC participants, using 1991 costs and participation, and not factoring in the cost of an enhanced food package for mothers exclusively breastfeeding.

Table V.3: Total 1992 Costs Assuming 1991 Participation Rates and Estimated Costs and Assuming No Use of Enhanced Food Package

Total costs at 1992 breastfeeding rates	Assumed size of formula package given to supplemented breastfed infants	Total costs at 10-percent increase in 1992 breastfeeding rates	Change in total costs
$626,104,897	No supplemental formula used	$625,874,860	–$230,037
	10-percent formula package	626,103,920	–978
	25-percent formula package	626,443,265	+338,368
	50-percent formula package	626,997,799	+892,901

Total food costs decreased as long as supplemented breastfed infants received on average 10 percent or less of the full amount of formula allowed to formula-fed infants. Total food costs increased when we assumed supplementing breastfed infants received on average 25 percent or more of the full amount of formula allowed to formula-fed infants.

It is important to realize that even though total costs increased with increased breastfeeding, average costs to serve all participants decreased slightly as more women breastfed. We estimated increases in breastfeeding assuming some women would not have been served as postpartum nonbreastfeeding women, but would be served as breastfeeding women. We increased the combined average monthly participation of breastfeeding and postpartum nonbreastfeeding women when we assumed a 10-percent increase in breastfeeding. Therefore, even though total costs increased, the average cost for each participant declined by a few cents in this and each of our scenarios that follow.

The next table shows the estimates when mothers exclusively breastfeeding received an enhanced food package.

Table V.4: Total 1992 Costs Assuming 1991 Participation Rates and Estimated Costs and That Participants Exclusively Breastfeeding Received Enhanced Food Packages

Total costs at 1992 breastfeeding rates	Assumed size of formula package given to supplemented breastfed infants	Total costs at 10-percent increase in 1992 breastfeeding rates	Change in total costs
$642,969,661	No supplemental formula used	$644,426,100	+$1,456,439
	10-percent formula package	644,655,159	+1,685,499
	25-percent formula package	644,994,505	+2,024,844
	50-percent formula package	645,549,039	+2,579,378

Introducing an enhanced—and therefore more expensive—food package for mothers exclusively breastfeeding changed the relative savings from increased breastfeeding rates. Even assuming no supplementary formula was given to WIC breastfeeding mothers, increasing the rate of breastfeeding led to additional total food costs. Once again, the average cost per participant declined slightly.

Results at Full Funding With Increased Participation

Table V.5 shows total costs and changes in total costs assuming full funding, comparing 1992 rates of breastfeeding with a 10-percent increase in breastfeeding. Because of the increase in postpartum nonbreastfeeding women likely to be enrolled, the costs of serving the formula-feeding woman and child increased relative to the costs of serving the breastfeeding woman and child.

Table V.5: Total 1992 Costs Assuming Full Funding Participation and Estimated Costs and No Assumed Use of Enhanced Breastfeeding Packages

Total costs at 1992 breastfeeding rates	Assumed size of formula package given to supplemented breastfed infants	Total costs at 10-percent increase in 1992 breastfeeding rates	Change in total costs
$739,513,365	No supplemental formula used	$736,847,650	-$2,665,714
	10-percent formula package	737,077,011	-2,436,354
	25-percent formula package	737,416,801	-2,096,564
	50-percent formula package	737,972,062	-1,541,302

Under the full funding assumptions, increasing the rate of breastfeeding decreased total food costs, when compared with total food costs at a lower rate of breastfeeding. This result was true even when supplemented breastfed infants received, on average, 50 percent of the formula allowed to formula-fed infants.

Table V.6 shows estimated costs assuming full funding and assuming that all WIC participants exclusively breastfeeding received an enhanced food package costing $11.44 more on average than the 1991 breastfeeding participants' food package.

Table V.6: Total 1992 Costs Assuming Full Funding Participation and Estimated Costs and That Participants Exclusively Breastfeeding Received Enhanced Packages

Total costs at 1992 breastfeeding rates	Assumed size of formula package given to supplemented breastfed infants	Total costs at 10-percent increase in 1992 breastfeeding rates	Change in total costs
$756,400,253	No supplemental formula used	$755,423,288	-$977,025
	10-percent formula package	755,652,588	-747,665
	25-percent formula package	755,992,378	-407,875
	50-percent formula package	756,547,640	+147,387

Under full funding, even when all participants exclusively breastfeeding received enhanced food packages, total food costs decreased as long as formula-supplemented breastfed infants received no more than 25 percent of the formula package allowed to formula-fed infants. Once again, average cost for all participants was slightly less when more women breastfed.

The results of this analysis are based on the assumptions stated earlier. We assumed that breastfeeding rates would increase 10 percent over 1992 rates in each month of an infant's first year of life. If WIC participants began to breastfeed longer, causing breastfeeding rates to increase more than 10 percent in the later months of infants' lives, these increases in breastfeeding would have a less favorable effect on total WIC food costs to serve women and infants.

The analysis was based on 1991 WIC food costs. Infant formula rebates represented a greater discount in infant formula costs in 1991 than they had in any previous year. This situation may change in the future. If infant

formula rebates increase or decrease, the relative costs of breastfeeding and formula feeding would shift. If infant formula decreases in cost relative to other WIC foods, increases in breastfeeding would have a less favorable effect on total costs. If, on the other hand, infant formula increases in cost, increases in breastfeeding would have a more favorable effect on total costs.

WIC Directors' Suggestions for Changes in Federal Laws and Regulations to Increase Breastfeeding Rates

In our survey, we asked state WIC directors if they were aware of any changes that could be made in WIC or other federal program regulations or laws that might increase breastfeeding among WIC participants without additional federal funds. Twenty-eight directors replied to the question about WIC regulations and laws, and 22 replied to the question about other federal regulations and laws. Some of their suggestions would require additional federal funds, while others could be accomplished by reallocating existing program resources. Some would increase program emphasis on breastfeeding by decreasing service to other participants.

WIC Program Law and Regulatory Changes Suggested

Proposed changes to the WIC program fell into some broad categories: providing breastfeeding aids and breastfeeding education, changing program certification, changing program funding, changing infant formula policy, and other changes.

Breast Pumps and Breastfeeding Education

1. Allow purchase of breastfeeding incentives, such as T-shirts or diapers, with WIC funds.

GAO's Assessment: T-shirts, diapers, or other small items have been used as incentives to encourage women to attend extra educational sessions on breastfeeding. Other items, such as nursing bras, have been used to recognize women who have successfully breastfed for a period of time. Use of funds for incentives was the most common suggestion for change in the WIC program made by WIC directors—8 out of 28 respondents made this suggestion. Incentives were helpful in getting women to consider breastfeeding in Tennessee, where the peer counselor program showed a measurable increase in breastfeeding rates. If USDA succeeds in getting private donations to its national breastfeeding promotion campaign, some private funds could be used to purchase incentives.

2. Allow manual and electric breast pumps and accessories to be purchased with food funds. Provide pumps and other breastfeeding aids to all breastfeeding women.

GAO's Assessment: Using food funds to purchase breast pumps and other breastfeeding aids was the second most common proposal for change in the WIC program. This suggestion was proposed by 7 out of 28 WIC directors. At present, states can use their nutrition services and administration funds to purchase pumps and breastfeeding aids for their breastfeeding participants, but not their food funds. However, the National Advisory Council on Maternal, Infant, and Fetal Nutrition pointed out that

there are many demands on the use of WIC administrative funds, which can leave few resources for the purchase of breast pumps. Therefore the National Advisory Council recommended that food funds be made available to purchase breast pumps. In their opinion, this usage would better enable WIC state and local agencies to support breastfeeding. To the extent that food funds might be used to purchase breast pumps, less food funds would be available to purchase food.

Certification

3. Allow 1-year (or longer) certification for breastfeeding women.

GAO's Assessment: Breastfeeding women are currently enrolled in the WIC program for 6 months and have to be recertified as eligible at 6 months to continue for a full year. To certify breastfeeding women for longer than 1 year would require legislative change. It would not increase program costs much, since few women breastfeed more than 1 year. The 1988 National Maternal and Infant Health Survey showed less than 1 percent of WIC participants breastfeeding at 12 months.

4. Expedite certification of breastfeeding mothers by allowing them to be enrolled without immediate clinical data.

GAO's Assessment: This enrollment would be presumptive and contingent upon whether clinical data, such as the results of blood tests for anemia, indicated that the breastfeeding woman was at nutritional risk. If states found that most breastfeeding women assessed clinically are nutritionally at risk, presumptive enrollment might allow the program to better serve breastfeeding women by enrolling them more quickly.

Funding

5. Allow expenditures for breastfeeding to be taken from rebates on formula or other foods.

GAO's Assessment: In our survey, we asked WIC directors if they favored or opposed having the option to use a portion of savings from infant formula rebates for breastfeeding education and promotion. Twenty-two strongly favored such a proposal, 14 somewhat favored it, 5 neither favored nor opposed, 5 somewhat opposed it, and 6 strongly opposed the proposal. At present, rebates on formula and other foods are predominantly used to extend funding for food so as to provide services to additional participants. Diverting some of these funds to breastfeeding promotion

could mean that a slightly smaller number of participants could be served in the program.

Formula

6. Set national guidelines on the amount of supplementary formula that could be given to partially breastfed infants or allow states to set their own level of allowed formula supplementation.

GAO's Assessment: Limiting the amount of supplemental formula given to breastfeeding mothers would reduce program costs. However, if limiting formula discouraged breastfeeding among mothers who wished to combine formula-feeding and breastfeeding, it would not serve current WIC goals. Some states have set up guidance for nutritionists on the sizes of reduced formula packages, to allow nutritionists to prescribe smaller amounts of formula to mothers partially breastfeeding. WIC directors and USDA could work together to develop a policy on formula supplementation that provides more guidance to states, encourages breastfeeding, but discourages distribution of the full formula package to breastfeeding mothers.

Other

7. Make all breastfeeding women the first priority.

GAO's Assessment: This proposed change would make breastfeeding women, whether at medical risk or at dietary risk, a higher priority than infants whose mothers were enrolled prenatally but are not at medically based nutritional risk or than children at medically based nutritional risk. It might encourage breastfeeding, but those advantages need to be weighed against overall program goals.

8. Make WIC breastfeeding experts available to all U.S. citizens.

GAO's Assessment: This suggestion might increase the rate of breastfeeding among all U.S. women. However, it would increase the responsibilities of WIC beyond its initial mission to be an adjunct to health care for low-income women, infants, and children, and it would decrease staff time available to serve WIC's current population. It could also increase program costs.

Other Federal Program Law and Regulatory Changes Proposed

Medicaid

1. Provide Medicaid reimbursement for either in-home postpartum visits, problem intervention services, consultant services, or breastfeeding supplies.

GAO's Assessment: This proposal was the most common for other federal program changes, made by 10 out of 22 WIC directors. It would require legislative change to allow lactation support services or supplies to be an allowable Medicaid expense. Following the legislative change, states would have to incorporate this service into their state Medicaid plans. Adding additional Medicaid services would likely increase state and federal Medicaid costs somewhat. These costs might be offset if breastfed infants required less medical care.

2. Require hospitals receiving federal funds (Medicare/Medicaid) to adopt World Health Organization (WHO) and United Nations Children's Fund's (UNICEF) "Baby Friendly" policies.

GAO's Assessment: WHO and UNICEF have issued "Ten Steps to Successful Breastfeeding" and a "Checklist for Evaluating the Adequacy of Support for Breastfeeding in Maternity Hospitals, Wards, and Clinics." Other countries, such as the Philippines, have used these policies in campaigns to have hospitals support and encourage breastfeeding. Healthy Mothers/Healthy Babies, a U.S. coalition of health and nonprofit groups, is studying the feasibility of introducing the Baby Friendly Hospital Initiative in the United States. Requiring hospitals to adopt new policies might increase hospital costs due to the potential need for staff training, policy development, and staff time spent helping nursing mothers.

3. Mandate breastfeeding education for pregnant Medicaid recipients unless medically contraindicated.

GAO's Assessment: WIC provides breastfeeding education to Medicaid recipients, if they are enrolled in WIC. All pregnant Medicaid recipients are income-eligible for WIC services but not all are enrolled. The Congress has

required coordination between state Medicaid agencies and WIC, so that Medicaid recipients will be informed that they may be eligible for WIC benefits. In 1987 and 1988, a study that compared Medicaid deliveries to WIC enrollment in Florida, Minnesota, North Carolina, South Carolina, and Texas found that 48 percent to 73 percent of women with births paid for by Medicaid received WIC services, depending on the state.

Federal regulations do not define what prenatal care services pregnant Medicaid recipients should receive. Even if breastfeeding education were a required service, several evaluations of physician and nurse knowledge about and encouragement of breastfeeding have shown that many physicians and nurses lack training in breastfeeding promotion and education and report that they do not encourage breastfeeding in their practices.[1] The Congress could require breastfeeding and other health education as part of Medicaid-funded prenatal care, but to actually implement effective support by health care providers might require them to receive additional training in breastfeeding support and promotion. This requirement and additional training would increase federal and state Medicaid expenditures somewhat.

Other Federal Health Programs

4. Mandate all federal health-related programs to support breastfeeding as the preferred method of infant feeding, with a consistent message given.

5. Require Maternal and Child Health programs at the county/clinic level to endorse breastfeeding.

6. Require statewide standards for Baby Friendly clinics.

GAO's Assessment: Many pregnant women who receive WIC services also receive health care funded by the federal government—through Medicaid, state Maternal and Child Health program clinics, the Indian Health Service, and so on. If health care providers do not also encourage breastfeeding, WIC efforts to encourage breastfeeding will be less effective.

Reviewing other federal health programs was outside the scope of this report, so we do not know the extent to which breastfeeding is promoted in these programs. However, several state WIC directors indicated they thought more needed to be done by other federal providers. Evaluation of physician and nurse knowledge of and encouragement of breastfeeding

[1]See E. Anderson and E. Geden, "Nurses' Knowledge of Breastfeeding," Journal of GN Nurses, Vol. 20 (1991), and G.L. Freed, T. McIntosh Jones, and J.K. Fraley, "Attitudes and Education of Pediatric House Staff Concerning Breast-Feeding," Southern Medical Journal, Vol. 85 (1992).

suggested that providers might need training to adequately support breastfeeding.

Several steps could encourage federally funded prenatal and infant care programs to support breastfeeding, including having the programs endorse breastfeeding as the preferred infant feeding method, arrange for training for their staff, if needed, and develop plans to promote breastfeeding to each patient. On the basis of WIC's experience, these efforts would require federal programs to use their program resources to promote breastfeeding, although some efforts could be accomplished by reallocating existing program resources and without additional federal funds.

The Congress could require breastfeeding promotion and education efforts in prenatal programs funded through the Maternal and Child Health block grant and other federal health care programs.

Federal Government as an Employer

7. Require all federal employers to provide women time, a place, and a pump to allow them to pump their milk and store it for future use or to breastfeed.

GAO's Assessment: The Food and Nutrition Service (FNS) of USDA has developed a breastfeeding room in its Alexandria, Virginia, headquarters. This room is equipped with an electric breast pump, a refrigerator to store milk, and comfortable chairs to give breastfeeding mothers a place to pump their breasts and store their milk. Several FNS regional offices are in the process of planning such rooms. Other federal agencies could do the same; however, they would undoubtedly incur costs to prepare such a room.

Food Stamps

8. Allow breast pumps to be purchased with food stamps.

GAO's Assessment: This proposal might help breastfeeding women if breast pumps could be purchased at stores that accepted food stamps.

Comments From the Department of Agriculture

United States Department of Agriculture

Food and Nutrition Service

3101 Park Center Drive
Alexandria, VA 22302

SEP 02 1993

Mr. Gregory J. McDonald
Director
Human Services Policy and Management
Human Resources Division
U.S. General Accounting Office
Washington, D.C. 20548

Dear Mr. McDonald:

This letter is in response to the United States General Accounting Office (GAO) report entitled, Breastfeeding: WIC's Efforts to Promote Breastfeeding Have Increased. The report summarizes GAO's investigation into five questions pertaining to breastfeeding in the Special Supplemental Food Program for Women, Infants and Children (WIC), and thus presents GAO's conclusions on a wide range of WIC policy issues.

Overall, the Department of Agriculture (USDA) is pleased with GAO's positive review of WIC breastfeeding promotion efforts at the Federal, State, and local agency levels. The Department concurs with GAO's assessments concerning the dissemination of materials, and the need for more explicit guidance on contraindications to breastfeeding. However, USDA is concerned that adequate data with which to evaluate the effectiveness of breastfeeding promotion efforts continue to be lacking.

USDA has discussed the assumptions used in estimating the cost implications of increased breastfeeding in WIC with GAO. As a result, GAO acknowledges that there was a misunderstanding about the application of data used in estimating these costs and has advised USDA that these estimations will be reexamined.

As addressed below, USDA would like to respond, question by question, to some of the major recommendations and conclusions of the report. More detailed technical comments on questions 3 and 4, and some minor editorial comments, are included in three enclosures to this letter.

I. Questions 1 and 2

How are WIC breastfeeding promotion funds being spent? What is WIC doing to promote breastfeeding?

GAO Conclusion

GAO recognizes that State WIC Programs have substantially increased their breastfeeding promotional efforts since the 1989 reauthorization of the WIC Program, and that most have spent more nutrition services and administrative funds than the $8 million per year that is required as a minimum to be spent to promote breastfeeding. Breastfeeding promotion efforts carried out by State WIC Programs have included: (1) training staff in breastfeeding education techniques and providing educational materials to staff and participants; (2) providing breastfeeding aids, such as breast pumps, to program participants; (3) requiring local WIC Programs to plan their promotional efforts; and (4) coordinating with other health care providers and community groups.

GAO recommends that USDA: 1) improve the dissemination of foreign language breastfeeding education materials in the WIC Program; and 2) in collaboration with the United States Department of Health and Human Services (DHHS), develop written policy defining when breastfeeding is contraindicated, including how and when to communicate this information to all WIC pregnant and breastfeeding participants.

Agency Response

In general, FNS is pleased with the overall positive review of breastfeeding promotion efforts both within the Department and at the State and local WIC agency levels.

The Department agrees with GAO that there is a need to improve mechanisms for sharing and disseminating breastfeeding education materials among WIC agencies, especially those designed for use with non-English-speaking participants. USDA is exploring options on how to encourage the sharing of information.

USDA agrees that consistent policy on situations when breastfeeding is contraindicated and when and how this information should be conveyed to WIC participants should be developed and communicated to WIC local agencies. USDA will undertake efforts with DHHS to

identify contraindications and will make sure that all WIC participants are aware of the contraindications to breastfeeding through nutrition education contacts.

In 1991, the Department prepared and distributed a resource manual for staff in accordance with the Anti-Drug Abuse Act of 1988 which includes general information on the dangers of alcohol, tobacco and other drug use and human immunodeficiency virus (HIV) during breastfeeding. At the time that the manual was being prepared, the data on the transmission of dangerous substances (such as HIV, alcohol, nicotine, some over-the-counter drugs, and other illegal or controlled substances) in breastmilk were not considered conclusive; to date, U.S. and international epidemiologists, health professionals and substance abuse experts have made inconsistent recommendations on whether or not women who could pass on dangerous substances through their breastmilk to their baby should be advised to breastfeed.

Rather than adopt a policy based on inconclusive data, the Department opted to recommend in the manual that WIC mothers be advised to seek the advice of health care providers who are familiar with their individual circumstances. USDA continues to believe that it would be difficult, if not impossible for WIC, in its role as an adjunct to health care, to accurately assess the risks associated with a given level of exposure, and provide appropriate counseling.

The primary responsibility for setting national standards of practice for contraindications to breastfeeding rests with DHHS. USDA will work jointly with DHHS to provide information on national standards to FNS regional offices and WIC State agencies.

II. Question 3

Will encouraging WIC participants to breastfeed reduce food costs a) at current funding; and b) under full funding?

GAO Conclusion

GAO concludes that increasing the rate of breastfeeding among WIC participants may not lower total WIC food costs appreciably, even if the total amount of formula purchased is reduced, because under the current program structure, decreases in formula consumption are offset by the costs of serving additional breastfeeding women,

who receive a larger food package than non-breastfeeding postpartum women, and are eligible to receive program benefits for a longer period of time (12 months instead of 6).

Agency Response

FNS has some technical concerns about GAO's analysis of the relationship between breastfeeding and food costs. FNS is concerned with two aspects of the GAO analysis of food costs for WIC infants and mothers. First, GAO's analysis is limited to the situation where there is an increase in the rate of initiation of breastfeeding but where there is no increase in the duration of breastfeeding among WIC participants. Second, the analysis incorporates certain technical inaccuracies which could significantly affect GAO findings.

A closer examination of the FNS Fiscal Year (FY) 1991 WIC Food Package Cost Analysis revealed that the Food Category labeled "Infant Formula" actually includes all nutritional formulas purchased by WIC, including special formulas for women and children. The post-rebate FY 1991 cost for formulas of $458 million plays a key role in the GAO analysis, and a correction to remove the cost of nutritional formulas for women and children will result in reduced cost estimates for the non-breastfeeding group.

This will reduce the cost estimate of formula for the formula-fed infants by 11.5 percent, and reduce total cost for this group by about $54 million.

Our concerns are detailed in Enclosure 1.

III. Question 4

How effective are current WIC efforts to promote breastfeeding?

GAO Conclusion

Based on a secondary analysis of data provided by Ross Laboratories, GAO finds that between 1989 and 1992, the incidence of breastfeeding increased 12 percent among WIC participants, compared to 5 percent among non-participants. However, GAO acknowledges that these data are not sufficient to conclude that the change was attributable to WIC. Other factors such as the amount

of breastfeeding education received, may also be involved. Health care providers, families, peer groups, and the media may discourage breastfeeding by encouraging the use of formula.

Agency Response

FNS has comments concerning the overall quality and representativeness of the data set that GAO used for estimating breastfeeding rates and trends, assumptions about rebate stability, and the use of the new enhanced food package for breastfeeding women. These concerns are detailed in Enclosure 2.

IV. Question 5

Are there any changes in Federal law or regulations that would encourage breastfeeding?

GAO Conclusion

The report presents the following suggestions made by State WIC directors for changes in Federal law and regulations to encourage breastfeeding:

1. **Allow the purchase of breastfeeding incentives with WIC funds.**

Agency Comments

From October 1, 1991 through May 1993, FNS provided approximately $100,000 in grant funds to WIC local agencies for demonstration projects to explore the effectiveness of using privately-donated incentive gifts to improve breastfeeding rates in the WIC Program. The results of these projects will provide information on whether incentives are an effective breastfeeding promotion strategy. A preliminary review of the final reports suggests that enhanced breastfeeding education and support strategies were more effective than incentives in encouraging women to initiate and maintain breastfeeding. In addition, several of the grantees encountered problems in administering the incentives program. FNS is presently compiling the results of the grants to be shared with the WIC community in 1994.

Now on p. 89.

USDA disagrees with the WIC State director suggestion on page 109 that any private funds which may be donated for the proposed national breastfeeding promotion campaign be used to purchase breastfeeding incentives for WIC participants. USDA is currently exploring options on

how to implement a national "breastfeeding promotion program" as mandated by law. The intent of this program as stated in the authorizing legislation is "to foster wider public acceptance of breastfeeding"; its target audience would therefore include other social groups besides the WIC population.

2. Allow breast pumps and accessories to be purchased with food funds.

Agency Comments

USDA believes that breast pumps should continue to be purchased with WIC administrative and program services funds for the following reasons:

- USDA places a higher priority on using available food funds to extend Program benefits to eligible and needy women, infants and children who are currently not being served.
- Many States are providing breast pumps to WIC participants using administrative and program services funds with great success.

3. Provide pumps and other breastfeeding aids to all breastfeeding women.

Agency Comments

Not all breastfeeding women need breast pumps. In general, the need for pumps or other such equipment is limited to those women who are having difficulty in establishing or maintaining an adequate milk supply due to maternal or infant illness, separation or temporary breastfeeding problems. Providing pumps to all breastfeeding women regardless of actual need may have the unintended effect of discouraging breastfeeding by reinforcing women's lack of confidence and giving them the impression that they need special equipment to breastfeed successfully.

4. Set national guidelines on the amount of supplementary formula that could be given to partially breastfeeding infants or allow States to set their own level of allowed formula supplementation.

Agency Comments

FNS issued a policy memorandum on December 21, 1990 providing guidance on standard food packages and tailoring for breastfeeding dyads which stipulated that:

- A State's standard food package for breastfeeding women should provide the maximum monthly allowance of WIC foods to serve as a program incentive to breastfeeding. The breastfeeding mother's food package should only decrease based on her individual nutritional needs and not to the extent that formula is prescribed to her infant.

- State agencies not develop a standard food package for breastfed infants. A breastfed infant should only receive the regulatory maximum monthly allowance due to some special circumstance or medical condition.

USDA will determine if there is further guidance that can be provided to States on this issue.

These concerns notwithstanding, we are pleased that GAO recognizes WIC's substantial promotion and support of breastfeeding. It includes the higher food package costs, well over $8 million spent annually on breastfeeding education, over a half a million dollars on breastfeeding research and demonstration projects, initiation and management of a Breastfeeding Promotion Consortium, and leadership in developing a national breastfeeding promotion campaign. As GAO has pointed out, breastfeeding is associated with health outcomes, the benefits of which have not been widely studied, and are not fully discussed in this report. Breastfeeding has been shown to have the most benefit for those at higher risk. Therefore, USDA does not advocate justifying breastfeeding by direct short term cost savings for the WIC Program. This diminishes the importance of the multiple benefits of breastfeeding, especially in the high risk population.

Thank you for this opportunity to respond.

Christopher J. Martin
Acting Administrator

Enclosures

Enclosure 1

Question 3

Will encouraging WIC participants to breastfeed reduce food costs a) at current funding; and b) under full funding?

This enclosure outlines FNS' concerns about technical issues which affect the cost analysis and other assumptions GAO used in arriving at the projected food costs presented in the report. Technical corrections discussed in this section may affect the report's conclusions concerning projected program food costs, and may therefore alter the recommendations.

Technical Corrections

A close examination of the FNS FY 1991 WIC Food Package Cost Analysis used by GAO revealed that the Food Category labeled "Infant Formula" actually includes all nutritional formulas purchased by WIC, including special formulas for women and children. The post-rebate FY 1991 cost for formulas of $458 million plays a key role in the GAO analysis, and a correction to remove the cost of nutritional formulas for women and children will result in reduced cost estimates for the non-breastfeeding group. Details on this and two other technical corrections follow:

Cost of infant formula for a non-breastfeeding infant. The table notes to Tables V.1 and V.2 indicate that GAO accepted the FNS-estimated food package costs for pregnant women and postpartum mothers ($36.34 per month and $28.90 per month, respectively) and used $27.49 per month for the average cost of infant formula in the food packages for non-breastfed infants. Page 95 of the draft report indicates that this number was derived from the FNS estimate of **$458 million** for the total cost of "infant formula". GAO's calculations assume that all of this cost is for formula for infants. In fact, a significant portion of this is for formula for other WIC groups (e.g., children receiving special formulas for metabolic disorders). A re-examination of the FNS cost analysis which yielded the cost figures for women shows that in Fiscal Year 1991 **$404 million** was spent on formula for infants. This will reduce the cost estimate of formula for the formula-fed infants by 11.5 percent, and reduce total cost for this group by about $54 million.

Cost of juice and cereal for infants. The table notes to Tables V.1 and V.2 indicate that GAO used **$3.85** per month beginning with month 4 on the tables. FNS has two concerns with this number. First, WIC infants are not eligible to receive juice and cereal until they are four months old, which does not occur until the fifth month of life shown on the GAO tables. Second, the FNS cost analysis shows that the

average cost of juice and cereal for infants is $3.09 for each of the 8 months during which they are eligible to receive these foods. The $3.09 per month should be used for each month labeled 5 through 12 on the GAO tables.

Cost for the first month postpartum. The table notes to Tables V.1 and V.2 indicate that GAO used the cost of food for a pregnant woman for the first postpartum food package for non-breastfeeding postpartum women. WIC regulations require issuance of a postpartum food package for these women, even though they continue participation based upon the prenatal certification. This will reduce the cost estimate for the postpartum moms by about $5.7 million.

Other Assumptions

Breastfeeding initiation and duration. In the first six months postpartum, the average cost to serve a breastfeeding mother and provide her infant with either no formula or a partial food package can be less than or close to the cost of serving a non-breastfeeding mother and providing her infant with a full food package of infant formula. However, because non-breastfeeding women receive no food for themselves after six months postpartum, in the last six months of the infancy there is considerably less cost to WIC to serve a non-breastfeeding mother-infant dyad than to serve a breastfeeding mother-infant dyad. If an increase in the rate of breastfeeding is accompanied by even a small increase in the number of mothers breastfeeding for more than 6 months, the cost analysis is likely to show an increase in WIC costs associated with increased breastfeeding. A recent study found the probability that a WIC participant who has initiated breastfeeding will continue to breastfeed to at least 6 months is only 29 percent, compared to about 41 percent for both income eligible non-participants and higher income mothers. If, as a result of promotional efforts, WIC breastfeeding initiation patterns begin to approximate those of the general population, the average duration of breastfeeding among WIC participants will also likely increase.

Long-term Stability in Infant Formula Rebates. Infant formula is a substantial component of WIC Program food costs. Projections of cost savings are strongly dependent on the assumption that rebates from infant formula manufacturers will stabilize at the current levels. In practice, rebate amounts offered by manufacturers are likely to vary along with market conditions. States must periodically compete new rebate contracts. At present, the WIC Program accounts for a sizable share of the US market for infant formula and pays far less than the retail price of infant formula. However,

relatively small changes in the rebate contracts of a few large States could significantly affect the average national costs for serving infants.

Enhanced Food Package for Breastfeeding Mothers. The WIC Program recently implemented a new, larger food package for breastfeeding women who breastfeed "exclusively", that is, for those who opt not to receive any infant formula from the WIC Program.

GAO's cost projections assume that approximately 75 percent of all breastfeeding women in the Program will opt for the new food package. In practice, the new food package is just now being implemented and USDA does not know what proportion of women will choose this option. Previous studies provide little guidance on this, since most do not distinguish between "full" (or "exclusive") and "partial" breastfeeding. WIC Program regulations allow women to be certified as breastfeeding if they are providing breastmilk to their infants an average of once a day. What little infant feeding data exist for the U.S. suggest that few, if any, infants are breastfed exclusively for any length of time. At present, USDA does not know whether the enhanced food package will provide women with an effective inducement to breastfeed exclusively for longer periods of time.

Enclosure 2

Question 4:

How effective are current WIC efforts to promote breastfeeding?

GAO's assessment of the effectiveness of WIC breastfeeding promotion efforts is based on a secondary analysis of aggregate breastfeeding rates and trends from a large, proprietary, national-level data set provided by Ross Laboratories, one of the largest manufacturers of infant formula in the U.S., and a key supplier of infant formula to the WIC Program.

USDA has long had concerns about the use of such data for estimating breastfeeding rates and trends in subpopulations such as women participating in WIC, and for gauging the impact of the program on changes in those rates. These concerns, several of which are summarized below, were expressed in a letter to the editor of Pediatrics, and published in the October 1991 issue of that journal. Nevertheless, USDA acknowledges that currently no other data are collected on an ongoing basis. The following discussion is intended to articulate the limitations of the Ross Laboratories data and to urge that findings based on these data be interpreted cautiously.

Study Representativeness. While the study may be representative of the U.S. population overall as Ross and GAO analyses assert, it is not clear from information published by Ross whether these data include sufficient numbers of WIC participants or a high enough response rate among WIC participants to support a subpopulation analysis of this group either nationally or by State. It is extremely common in large-scale surveys to find lower response rates among lower socioeconomic groups. Findings about such groups must therefore be interpreted accordingly.

Selection Bias. WIC analysts have long recognized that because the Program does not serve all who are eligible, there may be systematic differences between those who choose to participate and those who, while eligible, choose not to participate. Ignoring such differences may bias the results of an analysis if the differences in question are related to the outcome of interest. In this case, when the outcome of interest is breastfeeding, there is one important reason why WIC participants might be different from their income-eligible nonparticipating counterparts with respect to this outcome:

- Formula feeding mothers have a greater economic incentive to enroll than breastfeeding mothers. WIC may disproportionately attract women who intend to formula-feed their babies and need help meeting the high cost of infant formula.

Other characteristics of WIC participants. Previous studies (including the Ross study) have consistently shown that breastfeeding is positively associated with socioeconomic characteristics such as income, education, marital status, and ethnicity. Since WIC participants come from the most socio-economically disadvantaged segments of the eligible population, this alone suggests that breastfeeding rates will be lower in the WIC target population, regardless of WIC's effect. Therefore, any time WIC participants are compared with other groups that are not identical to them in terms of income, education, or other socioeconomic characteristics, there will likely be differences in breastfeeding rates as well. Definitive data with which to gauge the effectiveness of breastfeeding promotion efforts in countering these broader social trends are not yet available, although preliminary results are encouraging.

Inferring causality from an observational study. The Ross Laboratories Mothers' Survey asks participants a relatively small number of questions concerning their background characteristics, WIC participation, and infant feeding patterns. It does not specifically ask them about breastfeeding promotion advice received from WIC or from other sources such as prenatal care. In order to assess the effectiveness of breastfeeding promotion efforts, we would need to know more about the type of intervention and the length of exposure. We would also need to be able to compare WIC participants who were exposed to such efforts to a comparable group of WIC mothers who were not exposed to breastfeeding promotion. The Ross Laboratories study is not designed to collect such data. Because it does not contain any information that is specific to the experience of WIC participants, the study, as GAO acknowledges, cannot distinguish between effects of WIC and broader population trends.

USDA believes that the first step toward increasing breastfeeding rates is to improve the system used to collect and report data among WIC Program participants. Many States currently collect data on breastfeeding incidence and duration but are not required to report these data nor to use a common format. These data are necessary for monitoring breastfeeding rates within the Program, providing technical assistance and policy guidance to States, and evaluating the success of future national promotional efforts. USDA is exploring options on how to collect these data.

As GAO recognizes, data on factors that may determine the influence of prenatal WIC participation on breastfeeding, such as the amount and type of breastfeeding education and support given, were not available. Several ongoing studies may help to shed further light on infant feeding patterns in the U.S. USDA has already taken steps to meet the need for additional data on infant feeding practices in the WIC population, and expects to award a study contract in FY 93. The results of this study will complement those of a currently ongoing study funded by FDA which is investigating infant feeding practices in a representative sample of the U.S. population. USDA is also sponsoring an assessment of nutrition education which will in part provide information on the type of breastfeeding education received and its effectiveness. This information will help to shed light on this relationship.

Comments From the Department of Health and Human Services

DEPARTMENT OF HEALTH & HUMAN SERVICES — Office of Inspector General

Washington, D.C. 20201

SEP 10 1993

Mr. Gregory J. McDonald
Director, Human Services Policy
and Management Issues
United States General
Accounting Office
Washington, D.C. 20548

Dear Mr. McDonald:

Enclosed are the Department's comments on your draft report, "Breastfeeding: WIC's Efforts to Promote Breastfeeding Have Increased." The comments represent the tentative position of the Department and are subject to reevaluation when the final version of this report is received.

The Department appreciates the opportunity to comment on this draft report before its publication.

Sincerely yours,

Larry Mary
for

Bryan B. Mitchell
Principal Deputy Inspector General

Enclosure

COMMENTS OF THE DEPARTMENT OF HEALTH AND HUMAN SERVICES
ON THE GENERAL ACCOUNTING OFFICE DRAFT REPORT
"BREASTFEEDING: WIC'S EFFORTS TO PROMOTE
BREASTFEEDING HAVE INCREASED,"
JULY 21, 1993

GENERAL COMMENTS

The Healthy People 2000 objectives list improving breastfeeding rates as one of the Nation's priority areas. Since the appearance of the breastfeeding objective in 1987, the Department of Health and Human Services (HHS) has been providing information, supporting research, scientific investigations, demonstrations, and training activities to promote and support breastfeeding on its health merits.

Improving breastfeeding rates is a public health goal which requires many partners. The U.S. Department of Agriculture's (USDA) Special Supplemental Food Program for Women, Infants, and Children (WIC) plays an important part in breastfeeding promotion and support. However, we believe that the GAO report should recognize the central role health care providers should play in creating policies on breastfeeding. If a specific technical bulletin is to be prepared to present the issues involved in helping at-risk women make the choice of infant feeding, we believe opinions should be sought from the private sector (e.g., American Academy of Pediatrics (AAP), University of Rochester, LaLeche League, etc.) as well as from key government units within the Health Resources and Services Administration (HRSA), the Centers for Disease Control and Prevention (CDC), the Food and Drug Administration, the National Institutes of Health, the Environmental Protection Agency, and USDA.

If the promotion and support of breastfeeding is to be mandated in the WIC program, care should be taken not to create duplicative services with other health care initiatives. We note that the quality of education and counseling provided to breastfeeding women in the WIC program is unclear. Therefore, future studies are needed to assess these factors.

Our comments on the draft report's recommendation that is directed jointly to the Secretaries of Agriculture and HHS, and our technical comments follow.

GAO RECOMMENDATION

We also recommend that the Secretaries of Agriculture and Health and Human Services work with State WIC directors and State health directors to develop written policy defining when breastfeeding is contraindicated, including how and when to

communicate this information to all WIC pregnant and breastfeeding participants.

HHS COMMENTS

We concur. A formal written policy is needed since many State WIC programs have either not developed such a policy or have developed a policy that is confusing, incomplete, or contains conflicting information. A formal policy, if developed, must be received and understood by local WIC staff who can then explain the information to participating women. However, any policy detailing contraindications to breastfeeding must not frighten or deter women who are able to breastfeed from choosing to do so. The policy should clearly state that mothers with AIDS or who are HIV positive should not breastfeed.

TECHNICAL COMMENTS

Now on p. 4.

Page 6, paragraph 2: We suggest this paragraph be reworded as follows:

"Breastfeeding provides many nutritional, health and social benefits. Exclusive breastfeeding (no other food or drink) provides passive immunity to disease and protects infants against gastrointestinal and respiratory infection. In the United States this benefit is well documented related to the frequency of respiratory infections, especially the incidence and duration of ear infections (otitis media). Research also shows protection in the timing of food allergies and eczema. Epidemiologic studies offer some evidence for protection against chronic diseases such as childhood diabetes and lymphoma and with several longer periods of lactation, reduced incidence of breast cancer. Others report increased maternal-child bonding with breastfeeding."

Now on p. 4.

Page 7, line 8: The draft report's discussion on the CDC and World Health Organization (WHO) guidelines on HIV-infected women and breastfeeding needs clarification. The CDC guidelines apply in the United States where adequate infant feeding alternatives are readily available. In many developing countries there is no acceptable substitute for breastfeeding. The WHO guidelines are appropriate in those parts of the world where the risk of infant death or illness from malnutrition and dehydration from the lack of alternatives exceeds the risk of HIV transmission by breastfeeding. Since the CDC and WHO guidelines pertain to different populations, developed versus developing countries, the guidelines do not conflict.

Now on p. 5.

Page 8, paragraph 1: We suggest the paragraph be reworded as follows:

"On a national level, USDA has undertaken several actions to promote breastfeeding -- some of them before the 1989 Act. Prior to 1990, USDA funded a demonstration/evaluation program for 12 months of intervention at seven sites. These projects incorporated several features from eight 3-year breastfeeding demonstrations underway with Maternal and Child Health (Title V) funding by HHS. In 1990, USDA disseminated the findings from their demonstration projects and HHS began a 5-year initiative to implement the results of both Federal demonstration efforts, including funding for 16 States. The USDA cooperated with HHS and State health agency WIC programs in supporting national projects and State-initiated efforts."

Now on p. 5.

Page 8, paragraph 2: We suggest adding the following language at the end of the paragraph.

"In response to requests from their national advisory council and the AAP, USDA: 1) established an Ad Hoc Breastfeeding Consortium which meets twice a year to allow information exchange and collaboration on breastfeeding promotion activities; 2) initiated revisions in the WIC food package to allow an enhanced food package for exclusively breastfeeding women; 3) proposed, in July 1990, a WIC program definition of breastfeeding (feeds an average of once a day) and four standards: training for WIC staff; a plan to access women clients; task appropriate clinic policies; and, creation of a state breastfeeding coordinator.

Additionally, USDA funded eight 1-year incentive projects, contributed to national studies of infant feeding and paid for evaluation and other research related to infant feeding. Federal staff continue to contribute to efforts to promote and support breastfeeding including serving as a liaison to the National Association of WIC Directors Breastfeeding Committee and initiating solicitation of private funding for a national breastfeeding promotion campaign."

Now on p. 6.

Page 9, paragraph 2, line 7: We believe that most States would find it difficult to separate WIC's contribution to progress from that of other contributors and general social trends. However, most States probably can assess WIC's promotion of breastfeeding.

Now on p. 7.

Page 12, paragraph 1: We suggest changing "paraprofessional" to "peer counselor." A "paraprofessional" is a trained, employed aide who assists professionals. The WIC program "peer counselors" do not generally fit this definition, as most are not employees. Their scope includes information

sharing, emotional support and encouragement to continue breastfeeding.

Now on p. 7.

Page 12, paragraph 2, first sentence: This sentence should read: "Forty-two (42) State directors reported that their States had task forces...."

Now on p. 8.

Page 13 (bottom) and page 14 (top): Expanding the sharing of nutrition education material in foreign languages would avoid duplication of effort. However, this expansion should include working with other programs, such as HRSA's Maternal and Child Health Bureau and State Maternal and Child Health Programs to identify resource materials they have developed.

Deleted.

Page 15, line 2: As discussed above, the CDC and WHO guidelines do not conflict.

Now on pp. 11-13.

Discussion beginning at the bottom of page 18 and continuing on page 19: The primary stated objective of this report is to determine the extent to which USDA's program for WIC promotes breastfeeding. The report effectively describes promotion efforts in 53 "states" and gives a detailed description of promotion activities in four States. This program evaluation is handled well, but we take issue with the outcome evaluation.

The report concludes that breastfeeding has increased between 1989 and 1992 among WIC participants (page 19) based on a percent increase in the breastfeeding rate of WIC participants of twice that of other women. We believe that a caveat should be added to this discussion which makes it clear that the portion of the WIC participants who breastfeed is smaller than the portion of non-WIC participants who breastfeed. The doubling of the increase in the rate of WIC participants who breastfeed implies a greater effect of the WIC program than may actually have occurred.

Now on p. 11.

Paragraph ending at the top of page 19: Add as follows: "Infant feeding is assessed as part of the 6-year cycle of infant health indicators surveyed by the HHS National Center for Health Statistics. This difference is supported by surveys conducted in 1982 and 1988."

Now on p. 12.

Page 21, paragraph 1: We note that Ross looked at the issue of prenatal education in 1993 and using logistic regression found that all women who had prenatal education experienced a positive breastfeeding effect initially but not at 6 months.

Now on p. 13.

Page 22: We suggest adding the following action to the list presented at the bottom of page 22:

"... immediate postpartum counseling for assistance in initiation of breastfeeding."

Lactation consultants, such as LaLeche League, peer counselors or health care providers, should be available to women who require breastfeeding counseling. All local WIC programs should provide for their clients a list of local supportive resources such as specific names of peers, LaLeche League and lactation consultants or advisors located in areas where their clients reside.

Now on p. 22-23.

Page 30, footnote 2: The 70 to 82 percent coverage, 50 percent response rate, and 68 percent completion rate seen in the Ross data limit the reliability of the estimates. These limitations should be noted.

Now on p. 41.

Appendix III, beginning page 40: We note that the State Public Health agencies discussed in this appendix offer differing levels of maternal and child health care including nutrition services, and also have different external funding histories to support breastfeeding. These factors may influence WIC services.

Now on p. 42-43.

Page 44: We suggest the outline be changed to read as follows:

The Massachusetts Department of Public Health:

- Established the Breastfeeding Promotion task force in 1984 following the U.S. Surgeon General's Workshop on Breastfeeding and Human Lactation.

The Task Force:

- Promulgated a 1989 revised hospital licensure regulation which requires breastfeeding instruction and support as part of the maternal and newborn service.
- Develops and implements written patient care policies for nutrition services, including WIC breastfeeding services.

WIC Program Contracts:

- Define breastfeeding support activities for families and staff.

Now on p. 44.

Page 47, second bullet: As discussed above, change "paraprofessional" to "peer counselor."

Page 58: No information is provided for the State of Virginia regarding contraindications to breastfeeding in its program guidance.

Now on p. 51.

Page 63, third bullet: The reference to "(SPRANS)" should read "(HHS SPRANS)."

Now on p. 54.

Page 88, line 21: The sentence should read "... the package ... will contain only formula for the first 4 months postpartum...."

Now on p. 75.

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Bibliography

American Academy of Pediatrics. "The Use of Whole Cow's Milk in Infancy." Pediatrics, Vol. 89 (1992), pp. 1105-09.

Anderson, E., and E. Geden. "Nurses' Knowledge of Breastfeeding." Journal of GN Nurses, Vol. 20 (1991), pp. 58-64.

Arango, J.O. "Promoting Breast Feeding: A National Perspective." Public Health Reports, Vol. 99 (1984), pp. 559-65.

Armotrading, D.C., C.K. Probart, and R.T. Jackson. "Impact of WIC Utilization Rate on Breast-Feeding Among International Students at a Large University." Journal of the American Dietetic Association, Vol. 92 (1992), pp. 352-53.

Barron, S.P., and others. "Factors Influencing Duration of Breast Feeding Among Low-Income Women." Journal of the American Dietetic Association, Vol. 88 (1988), pp. 1557-61.

Bauchner, H., J.M. Leventhal, and E.D. Shapiro. "Studies of Breast-Feeding and Infections: How Good Is the Evidence?" Journal of the American Medical Association, Vol. 256 (1986), pp. 887-92.

Bee, D.E., and others. "Breast-Feeding Initiation in a Triethnic Population." Journal of the American Medical Association, Vol. 266 (1991), p. 203.

Bevan, M.L., and others. "Factors Influencing Breast-Feeding in an Urban WIC Program." Journal of the American Dietetic Association, Vol. 84 (1984), pp. 563-67.

Black, R.F., and others. "Infant Feeding Decisions Among Pregnant Women From a WIC Population in Georgia." Journal of the American Dietetic Association, Vol. 90 (1990), pp. 255-59.

Cronenwett, L., and others. "Single Daily Bottle Use in the Early Weeks Postpartum and Breast-Feeding Outcomes." Pediatrics, Vol. 90 (1992), pp. 760-66.

Davis, M.K., D.A. Savitz, and B.I. Graubard. "Infant Feeding and Childhood Cancer." Lancet (1988), pp. 365-68.

Dewey, K.G., and others. "Growth of Breast-Fed and Formula-Fed Infants From 0 to 18 Months: The DARLING Study." Pediatrics, Vol. 89 (1992), pp. 1035-41.

Eckhardt, K.W., and G.E. Hendershot. "Analysis of the Reversal in Breast Feeding Trends in the Early 1970s." Public Health Reports, Vol. 99 (1984), pp. 410-15.

Emery, J.L., S. Sholey, and E.M. Taylor. "Decline in Breast Feeding." Archives of Diseases in Childhood, Vol. 65 (1990), pp. 369-72.

Faden, R.R., and A.C. Gielen. "Contemporary Breast-Feeding Patterns: Focus on Disadvantaged Women." Clinical Nutrition, Vol. 5 (1986), pp. 200-09.

Filer, L.J., and G.A. Martinez. "Intake of Selected Nutrients by Infants in the United States: An Evaluation of 4,000 Representative Six-Month-Olds." Clinical Pediatrics, Vol. 3 (1964), pp. 633-45.

Followup Report: The Surgeon General's Workshop on Breastfeeding and Human Lactation. U.S. Department of Health and Human Services. Washington, D.C.: 1985.

Ford, K., and M. Labbok. "Who Is Breast-Feeding? Implications of Associated Social and Biomedical Variables for Research on the Consequences of Method of Infant Feeding." American Journal of Clinical Nutrition, Vol. 52 (1990), pp. 451-56.

Forman, M.R., and others. "Exclusive Breast-Feeding of Newborns Among Married Women in the United States: The National Natality Surveys of 1969 and 1980." American Journal of Clinical Nutrition, Vol. 42 (1985), pp. 864-69.

Frank, D.A., and others. "Duration of Breast-Feeding Among Low-Income Women: A Randomized Trial of the Effects of Commercial Hospital Discharge Packs and Hospital-Based Telephone Counseling." American Journal of Diseases of Children, Vol. 140 (1986), p. 311.

Freed, G.L. "Breast-Feeding: Time to Teach What We Preach." Journal of the American Medical Association, Vol. 269 (1993), pp. 243-46.

Freed, G.L., T. McIntosh Jones, and J.K. Fraley. "Attitudes and Education of Pediatric House Staff Concerning Breast-Feeding." Southern Medical Journal, Vol. 85 (1992), pp. 483-85.

Gielen, A.C., and others. "Maternal Employment During the Early Postpartum Period: Effects of Initiation and Continuation of Breast-Feeding." Pediatrics, Vol. 87 (1991), pp. 298-305.

Gilly, M.C., and J.L. Graham. "A Macroeconomic Study of the Effects of Promotion on the Consumption of Infant Formula in Developing Countries." Journal of Macromarketing, Vol. 8 (1988), pp. 21-31.

Gray-Donald, K., and others. "Effect of Formula Supplementation in the Hospital on the Duration of Breast-Feeding: A Controlled Clinical Trial." Pediatrics, Vol. 75 (1985), pp. 514-18.

Grossman, L.K., and others. "The Infant Feeding Decision in Low and Upper Income Women." Clinical Pediatrics, Vol. 29 (1990), pp. 30-7.

_____."The Effect of Postpartum Lactation Counseling on the Duration of Breast-Feeding in Low-Income Women." American Journal of Diseases of Children, Vol. 144 (1990), pp. 471-74.

Hallman, M., and others. "Inositol Supplementation in Premature Infants With Respiratory Distress Syndrome." New England Journal of Medicine, Vol. 326 (1992), pp. 1233-39.

Hendershot, G.E. "Trends in Breast Feeding." Advancedata, No. 59 (1980), pp. 1-6.

Hill, P.D. "Predictors of Breast-Feeding Duration Among WIC and Non-WIC Mothers." Public Health Nursing, Vol. 8 (1991), pp. 46-52.

_____. "Effects of Education on Breastfeeding Success." Maternal-Child Nursing Journal, Vol. 16 (1987), pp. 145-56.

Hitchcock, N.E., and J.F. Coy. "Infant-Feeding Practices in Western Australia and Tasmania: A Joint Survey, 1984-1985." Medical Journal of Australia, Vol. 148 (1988), pp. 114-17.

Holberg, C.J., and others. "Risk Factors for Respiratory Syncytial Virus-Associated Lower Respiratory Illnesses in the First Year of Life." American Journal of Epidemiology, Vol. 133 (1991), pp. 1135-51.

Holub, B.J. "The Nutritional Importance of Inositol and the Phosphoinositides." New England Journal of Medicine, Vol. 326 (1992), pp. 1285-87.

Howie, P.W., and others. "Protective Effect of Breast Feeding Against Infection." British Medical Journal, Vol. 300 (1990), pp. 11-16.

Institute of Medicine. Nutrition During Lactation. Washington, D.C.: National Academy Press, 1991.

Jacobson, S.W., J.L. Jacobson, and K.F. Frye. "Incidence and Correlates of Breast-Feeding in Socioeconomically Disadvantaged Women." Pediatrics, Vol. 88 (1991), pp. 728-36.

Jason, J. "Breast-Feeding in 1991." New England Journal of Medicine, Vol. 325 (1991), pp. 1036-38.

Kennedy, K.I., C.M. Visness, and W.J. Rogan. "Breastfeeding and AIDS: A Health Policy Analysis." AIDS & Public Policy Journal, Vol. 7 (1992), pp. 18-27.

Kistin, N., and others. "Breast-Feeding Rates Among Black Urban Low-Income Women: Effect of Prenatal Education." Pediatrics, Vol. 86 (1990), pp. 741-46.

Koop, C.E., and M.E. Brannon. "Breast-Feeding—The Community Norm. Report of a Workshop." Public Health Reports, Vol. 99 (1984), pp. 550-58.

Kramer, M.S. "Poverty, WIC, and Promotion of Breast-Feeding." Pediatrics, Vol. 87 (1990), pp. 399-400.

Kurinij, N., P. Shiono, and G.G. Rhoads. "Breast-Feeding Incidence and Duration in Black and White Women." Pediatrics, Vol. 81 (1988), pp. 365-71.

Lawrence, R.A. "Breast-Feeding Trends: A Cause for Action." Pediatrics, Vol. 88 (1991), pp. 867-68.

Lazarov, M. "Nurturing Moms and Babes: Influencing Policy From the Front Lines—The WIC Program Experience." Paper presented at the annual meeting of the American Public Health Association (1991).

Levi, J. "Establishing Breast Feeding in Hospital." Archives of Diseases in Childhood, Vol. 63 (1988), pp. 1281-85.

Little, R.E., and others. "Maternal Alcohol Use During Breast-Feeding and Infant Mental and Motor Development at One Year." New England Journal of Medicine, Vol. 321 (1989), pp. 425-30.

Lucas, A., and others. "Breast Milk and Subsequent Intelligence Quotient in Children Born Preterm." Lancet, Vol. 339 (1992), pp. 261-64.

Martinez, G.A., and D.A. Dodd. "1981 Milk Feeding Patterns in the United States During the First 12 Months of Life." Pediatrics, Vol. 71 (1983), pp. 166-70.

Martinez, G.A., D.A. Dodd, and J.A. Samartgedes. "Milk Feeding Patterns in the United States During the First 12 Months of Life." Pediatrics, Vol. 68 (1981), pp. 863-68.

Martinez, G.A., and F.W. Krieger. "1984 Milk-Feeding Patterns in the United States." Pediatrics, Vol. 76 (1985), pp. 1004-08.

Martinez, G.A., and J.P. Nalezienski. "The Recent Trend in Breast-Feeding." Pediatrics, Vol. 64 (1979), pp. 686-92.

_____. "1980 Update: The Recent Trend in Breast-Feeding." Pediatrics, Vol. 67 (1981), pp. 260-63.

Martinez, G.A., and D. Stahle. "The Recent Trend in Milk Feeding Among WIC Infants." American Journal of Public Health, Vol. 72 (1982), pp. 68-71.

Mennella, J.A., and G.K. Beauchamp. "The Transfer of Alcohol to Human Milk: Effects on Flavor and the Infant's Behavior." New England Journal of Medicine, Vol. 325 (1991), pp. 981-85.

Promoting Breastfeeding: A Guide for Health Professionals Working in the WIC and CSF Programs. U.S. Department of Agriculture. Washington, D.C.: 1984.

Promoting Breastfeeding in WIC : A Compendium of Practical Approaches. U.S. Department of Agriculture. Washington, D.C.: 1988.

Radius, S., and A. Joffe. "Understanding Adolescent Mothers' Feelings About Breast-Feeding: A Study of Perceived Benefits and Barriers." Journal of Adolescent Health Care, Vol. 9 (1988), pp. 156-60.

Rassin, D.K., and others. "Incidence of Breast-Feeding in a Low Socioeconomic Group of Mothers in the United States: Ethnic Patterns." Pediatrics, Vol. 73 (1984), pp. 132-37.

Report of the Surgeon General's Workshop on Breastfeeding and Human Lactation. U.S. Department of Health and Human Services. The National Center for Education in Maternal and Child Health. Washington, D.C.: Government Printing Office, 1984.

Ryan, A.S., and others. "A Comparison of Breast-Feeding Data From the National Surveys of Family Growth and the Ross Laboratories Mothers Surveys." American Journal of Public Health, Vol. 81 (1991), pp. 1049-52.

_____. "Recent Declines in Breast-Feeding in the United States, 1984 through 1989." Pediatrics, Vol. 88 (1991), pp. 719-27.

Saunders, S., and J. Carroll. "Post-Partum Breast Feeding Support: Impact on Duration." Journal of the American Dietetic Association, Vol. 88 (1988), pp. 213-15.

Schwartz, J.B., and others. The WIC Breastfeeding Report: The Relationship of WIC Program Participation to the Initiation and Duration of Breastfeeding. Washington, D.C.: U.S. Department of Agriculture, 1992.

Scrimshaw, S.C.M., and others. "Factors Affecting Breastfeeding Among Women of Mexican Origin or Descent in Los Angeles." American Journal of Public Health, Vol. 77 (1987), pp. 467-70.

Second Followup Report: The Surgeon General's Workshop on Breastfeeding and Human Lactation. U.S. Department of Health and Human Services. The National Center for Education in Maternal and Child Health. Washington, D.C.: Government Printing Office, 1991.

Serdula, M.K., and others. "Correlates of Breast-Feeding in a Low-Income Population of Whites, Blacks, and Southeast Asians." Journal of the American Dietetic Association, Vol. 91 (1991), pp. 41-45.

Stewart, J.F., and others. "Influences on the Extent of Breast-Feeding: A Prospective Study in the Philippines." Demography, Vol. 28 (1991), pp. 181-99.

Tognetti, J., J.D. Hirschman, and J.E. McLaughlin. "Decline in Breast-Feeding?" Pediatrics, Vol. 88 (1991), pp. 873-74.

Weile, B., and others. "Infant Feeding Patterns during the First Year of Life in Denmark: Factors Associated with the Discontinuation of Breast-Feeding." Journal of Clinical Epidemiology, Vol. 43 (1990), pp. 1305-11.

WIC Breastfeeding Promotion Study and Demonstration: Phase IV Report. U.S. Department of Agriculture, Vol. 1. Washington, D.C.: 1990.

Winikoff, B., and others. "Overcoming Obstacles to Breast-Feeding in a Large Municipal Hospital: Applications of Lessons Learned." Pediatrics, Vol. 80 (1987), pp. 423-33.

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