

NHPF Background Paper  
August 14, 2003



# WIC Reauthorization: Opportunities for Improving the Nutritional Status of Women, Infants, and Children

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**OVERVIEW** — *This paper examines the main reform issues affecting the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), which is coming up for reauthorization this year. The paper provides background information on the program, including its dramatic growth in participation and funding. It also reviews WIC's link to health care and its impact on health outcomes. A series of considerations for WIC's future are raised, including food package and program eligibility changes, nutrition education strategies to reduce obesity, financial risks and health consequences of relying on infant formula rebates, and new opportunities for research and demonstration.*

# WIC Reauthorization: Opportunities for Improving the Nutritional Status of Women, Infants, and Children

Almost daily it seems that new reports are released documenting the growing problem of obesity among Americans and underscoring its association with a wide range of medical problems. Rates of type 2 diabetes, hypertension, and orthopedic problems all have been shown to be increasing as a result of the dramatic rise in obesity. In addition, recent studies have reported a direct relationship between the amount of excessive weight and the risk of a wide range of cancer deaths<sup>1</sup> and birth defects.<sup>2</sup> While the culprit is not solely poor nutrition—the sedentary lifestyle of Americans is also at fault—greater attention is being placed on the role that our nation’s food and nutrition programs can play in combating the obesity epidemic and, more generally, improving health. Consequently, members of Congress who sit on the traditional health care committees are realizing they need to understand more about the various food and nutrition programs run by the U.S. Department of Agriculture (USDA). One of the most important of these is the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), the nation’s major nutrition program for pregnant, postpartum, and breastfeeding women; infants; and young children.

The WIC program comes up for reauthorization this year. There is some debate about the extent to which this program might be strengthened. The program, which has grown dramatically since its inception, has the strong support of nutrition and child advocates as well as members of Congress. It has long been credited with improving birth outcomes, reducing childhood anemia, and improving breastfeeding rates. However, WIC was launched in response to concern over malnutrition and, while nutritional inadequacies persist to some degree, national attention is now focused on reports of unprecedented obesity, particularly among low-income populations.<sup>3</sup> In addition, the program today serves a more culturally diverse population with a wider range of traditional food preferences. For these and other reasons, many are interested in better understanding the program and considering ways to enhance its role in achieving national health objectives, including obesity reduction.

WIC’s various stakeholders regard it as a highly beneficial program for participating women, infants, and children, although each of their perceptions of these benefits may be somewhat different. For the child

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advocacy community, WIC represents an effective vehicle for feeding a low-income population that otherwise would not have access to an adequate diet. For WIC agency staff, the program is seen as a vital factor in promoting and maintaining the health of an at-risk population during pregnancy and the first few years of life. For health care providers serving Medicaid and the uninsured, it serves as an excellent referral service for the receipt of supplemental food and nutrition education by pregnant women and young mothers. And for WIC's federal and congressional supporters, the program constitutes the most cost-effective health care intervention for improved birth outcomes, bringing an estimated savings of three dollars in health care costs for every one dollar invested in WIC benefits for pregnant women.

Even though it enjoys such a stellar reputation and is backed by a large body of supportive research, the WIC program has been the subject of several recent reviews that have raised important questions about the need for program reform.<sup>4</sup> While the U.S. General Accounting Office (GAO) has issued several reports on WIC in the past five years, two recent studies—one by the GAO and one by the American Enterprise Institute (AEI)—have focused attention on the program's operation and outcomes. Examining a variety of issues, including coordination with health care, changing demographics of participants, and assessments of nutritional services, the GAO offered 16 approaches for program improvement in its report, entitled *Food Assistance: WIC Faces Challenges in Providing Nutrition Services*.<sup>5</sup> These approaches range from including more types of service providers to establishing more stringent professional staffing requirements and programs for continued education to developing a strategic plan for evaluating WIC's nutritional service outcomes. The authors of the AEI report, entitled *Rethinking WIC: An Evaluation of the Women, Infants, and Children Program*, reviewed the available research literature on WIC, concluding that studies suffer from selection bias and have limited applicability to the current WIC population, given that the studies used data collected in the late 1980s, when average family incomes of WIC participants as a percent of poverty were likely to be considerably lower.<sup>6</sup> The authors believe that WIC probably achieves small dietary improvements for certain pregnant women and infants, especially the most disadvantaged, but that the program does not have the cost-saving results some of its proponents claim. Their major recommendation is that the program be better targeted at those in greatest need.<sup>7</sup>

The National WIC Association (NWA) and the National Advisory Council on Maternal, Infant, and Fetal Nutrition are also calling for some WIC program changes. They, like others, are addressing the growing problem of obesity. Along with other items on its legislative agenda, NWA is recommending program changes that include collaborative education campaigns to address obesity and more culturally appropriate food packages. The advisory council is recommending the creation of a \$20 million annual challenge fund, which would require a dollar-for-dollar match

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from each state, to support obesity prevention and nutrition education programs.<sup>8</sup> In addition, the USDA has requested recommendations on the food package content from the Institute of Medicine (IOM).

Although there is no clear consensus about how far program reforms should go, there does seem to be agreement among researchers, dietitians, and the maternal and child health care community that certain aspects of the program would benefit from reconsideration. The main reform issues under consideration involve the following:

- Improving the food package content.
- Introducing more creative educational strategies for reducing obesity and improving infant feeding practices.
- Strengthening incentives and other supports for breastfeeding.
- Collaborating more effectively with health care providers.

The purpose of this issue brief is to examine opportunities for improving and enhancing the WIC program's public health functions. It presents background material and a summary of issues that are intended to provide the basis for thoughtful dialogue on ways for WIC to serve its population most effectively and efficiently. Addressing these concerns undoubtedly will underscore financial and other programmatic tradeoffs associated with change. It will also reveal what is sometimes a tension between the WIC and public health communities, which nonetheless share a common mission to improve the health and nutritional status of eligible women, infants, and children. Information in the brief is based on the authors' review of the research literature, program evaluations, and USDA program data; site visits to WIC clinics in Maryland, Mississippi, Virginia, and Washington, D.C.; and interviews with WIC and public health officials, WIC researchers, and representatives from WIC advocacy groups, nutrition and breastfeeding organizations, medical associations, and infant formula manufacturers.

## BACKGROUND

### Program Origins

The WIC program was established—first as a small pilot program in 1972 and then as a permanent national program in 1975—in response to growing evidence linking nutritional inadequacies to mental and physical health defects. Its purpose was to improve the diets and, ultimately, the health status of low-income infants, children up to age five, and pregnant, lactating, and postpartum women determined to be at special nutritional risk. Congress intended that WIC, unlike other food programs, would serve as “an adjunct to good health care, during critical times of growth and development, to prevent the occurrence of health problems.”<sup>9</sup>

**Congress intended that WIC would serve as “an adjunct to good health care, during critical times of growth and development.”**

## Eligibility

Eligibility for WIC benefits, which is generally determined every six months, is based on financial need, nutritional risk, and residency.<sup>10</sup> To qualify for WIC, an applicant must meet the income eligibility criteria of the National School Lunch Program (at or below 185 percent of the federal poverty level, or \$28,731 in 2003 for a family of three). The income eligibility requirement may be satisfied automatically, however, if the applicant is participating in TANF (Temporary Assistance for Needy Families), the Food Stamp Program, or Medicaid or if a pregnant woman, infant, or child in the family is participating in one of these programs.<sup>11</sup> The nutritional risk determination must be made by a competent health care professional,<sup>12</sup> who can be someone other than a member of the local agency staff, and must be based on one of the five following criteria, which are set out in the statute and regulations:

- Detrimental or abnormal nutritional conditions detectable by biomedical or anthropometrical measurements (such as nutritional anemia, overweight, or underweight).
- Other documented nutritionally related medical conditions (such as metabolic disorders, failure to thrive, and chronic infections).
- Dietary deficiencies that impair or endanger health (such as inadequate dietary patterns that can be assessed by a 24-hour dietary recall).
- Conditions that directly affect nutritional health (such as alcoholism and drug abuse).
- Conditions that predispose persons to inadequate nutritional patterns or nutritionally related medical conditions (such as homelessness or migrancy).<sup>13</sup>

## Benefits

WIC provides participants with supplemental foods and nutrition education and informs applicants of available health and social services. As the program is currently constructed, food is clearly the primary benefit. The statute establishes that supplemental foods are those that contain “nutrients determined by nutritional research to be lacking in the diets of” each of the categorically eligible groups of participants, as prescribed by the secretary of agriculture. Foods are selected based on target nutrients, which are those nutrients that have been found to be lacking in the diets of WIC participants: calcium, Vitamin A, Vitamin C, iron, and protein.<sup>14</sup> States are given some flexibility, on a case-by-case basis, to substitute more culturally appropriate foods that are nutritionally equivalent and cost-neutral.<sup>15</sup> Food packages specified by the secretary are typically made available through vouchers that can be redeemed at authorized grocery stores and pharmacies. With respect to nutrition education, the statute requires that the state WIC agency ensure that nutrition education is provided to all participating women and all parents or caretakers of

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participating infants and children. The regulations clarify, however, that while nutrition education must be made available to all participants, supplemental food “can not be denied for failure” to attend nutrition education sessions.<sup>16</sup>

## Administration

WIC is federally administered by the USDA through its Food and Nutrition Service (FNS), but, consistent with WIC’s mandate to serve as an adjunct to health care, Congress placed state and local administrative responsibility for the program with health agencies. State and territorial health agencies, along with 33 Indian tribal organizations, are charged with state-level operations, including the submission of state plans. Locally, the program may be operated by any public or private, nonprofit health agency or welfare agency that provides health care services either directly or through contractual arrangements, although highest priority in agency selection is given to health agencies that furnish routine pediatric and obstetrical care. The functions of these agencies include determining financial eligibility, conducting nutritional risk assessments and hematological tests, providing vouchers or other means of food distribution, offering relevant nutrition education, providing breastfeeding support, and providing information regarding social services, immunizations, and other health services. According to the most recent available data, there are 2,200 local WIC agencies, mainly regional and local health departments, and, since many agencies are regional entities with multiple sites, some 9,000 local WIC clinics.<sup>17</sup>

Over the last 30 years, WIC’s statutory requirements concerning linkages to health care have remained unchanged, although the insurance status of low-income women and their sources of care have shifted dramatically. Now, the vast majority of WIC recipients are insured, primarily through Medicaid,<sup>18</sup> and receive their care through private providers rather than local health departments. At the same time, local health department functions in the area of maternal and child health have been drastically scaled back. In most local communities, WIC is the primary remaining public health intervention for women, infants, and young children; as a result, public officials, as well as private providers, place great reliance on WIC’s ability to effect positive outcomes for this population.

## WIC’S GROWTH

### Participation Trends

Since WIC’s inception as a national nutrition program, it has grown dramatically and today serves almost all of those who apply and meet program criteria. In 1975, the average number of monthly WIC participants was 344,000; in 2001, that number was 7.3 million, more than 20 times larger.<sup>19</sup> Growth was strongest in the mid-1970s, when WIC clinics were

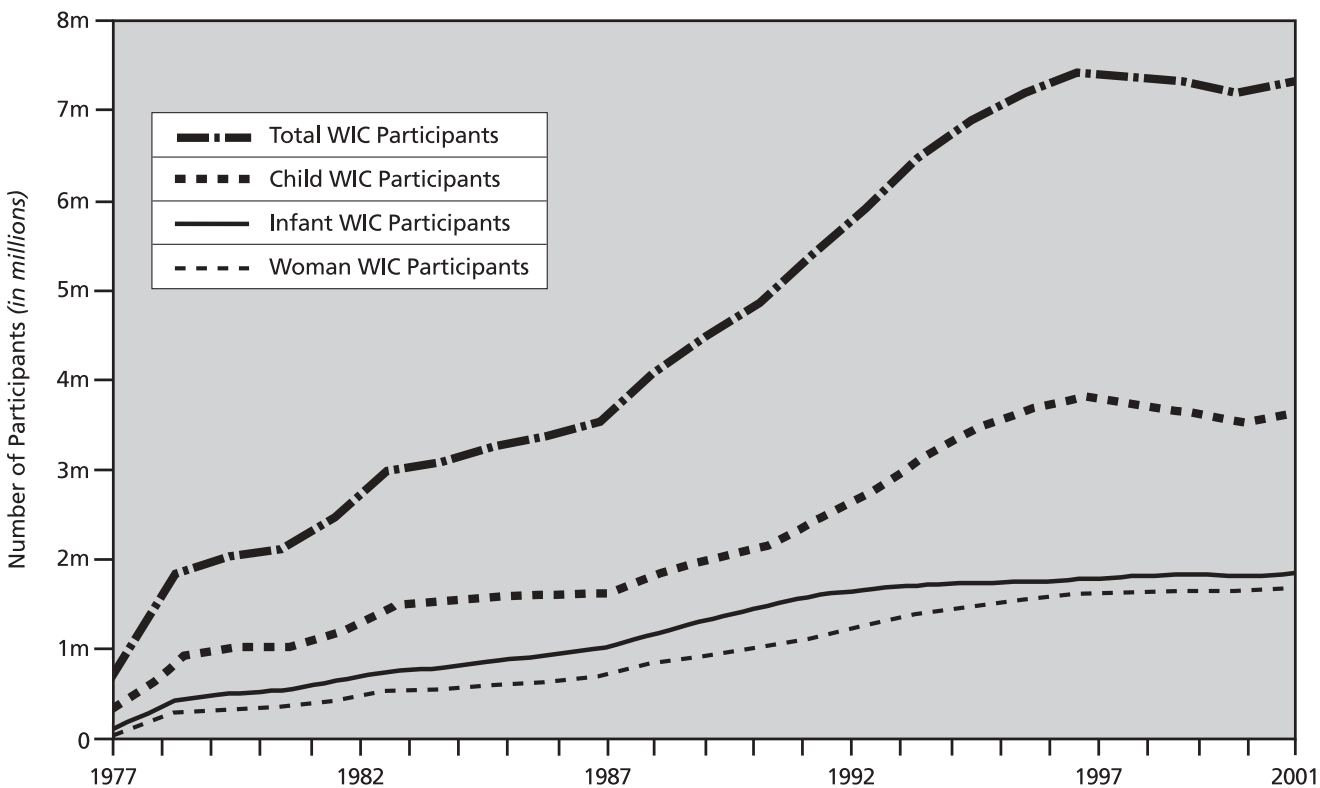
**There are 2,200 local WIC agencies and some 9,000 local WIC clinics.**

being implemented nationwide, but it has continued to grow up to the present. Only during the three years between 1998 and 2000 did the number of WIC clients decline, and this was due essentially to the decrease in participation by young children. The economy was then vibrant, more women with young children were working, and the number of young children living in poverty had been reduced. During this three-year period, participation by infants and pregnant and postpartum women showed no comparable drop.<sup>20</sup> (See Figure 1 for 1977 to 2001 WIC participation trends.)

### Trends in Appropriations and Rebates

The growth in WIC participation is a reflection of the steady increases in available funding. Pleased with the program's reported success, Congress has increased WIC's appropriation 40-fold since its inception, from \$100 million in 1975 to \$4.1 billion in 2001.<sup>21</sup> Except for two years early in

**FIGURE 1**  
Trends in WIC Program Participation,  
1977-2001

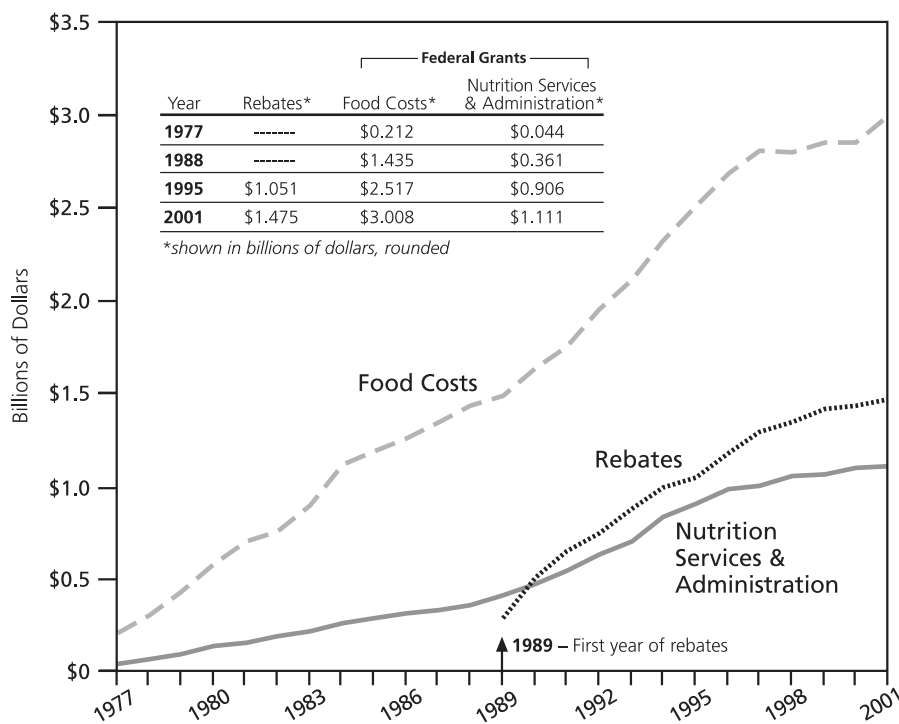


Source: Maternal and Child Health Policy Research Center, based on information from the USDA Web site.

the program’s development and more recently in 1999, WIC has seen increases in appropriations every year (in terms of nominal dollars).<sup>22</sup>

However, it is not only increases in federal appropriations that have allowed for the growth in WIC participation; the infant formula rebate program has played a significant part as well.<sup>23</sup> Beginning in 1989, state WIC programs began receiving rebates from manufacturers of infant formula for each can of infant formula purchased through WIC.<sup>24</sup> As required by law, each state selects a single contractor<sup>25</sup> on the basis of competitive bids.<sup>26</sup> In 1989, infant formula manufacturers were providing \$293 million in rebates to the WIC program. In 2000, the rebate per 13 ounce can of milk concentrate infant formula was between \$2.06 and \$2.84 .<sup>27</sup> In 2001, although the exact proportion of infants exclusively breastfed for a full year can not be determined from the available data, it appears that the vast majority of the 1.9 million infants in WIC received formula during at least some part of the year.<sup>28</sup> As a result, manufacturers were providing \$1.5 billion in rebates, more than a five-fold increase since the rebate program began (Figure 2).<sup>29</sup>

**FIGURE 2**  
Trends in WIC Federal Grants and Rebate Savings, 1977–2001



Source: Maternal and Child Health Policy Research Center, based on information from the USDA Web site and telephone conversations with USDA’s Budget Division staff.

Taking the savings from the rebate program into account, the overall funds for food costs in WIC are considerably greater than they otherwise would be. By law, rebate funds reduce federal food costs and enable more persons to be served. Consequently, they are meant to be used for the food component of WIC.<sup>30</sup> Based on projected rebate amounts and associated food cost savings, states provide estimates to FNS of the number of WIC eligibles they are able to serve and then receive allotments for food and for nutrition services and administration accordingly.<sup>31</sup> In 2001, rebates amounted to approximately 33 percent of the funds available for purchasing food at the retail cost and, according to USDA officials, financed food for an estimated 2.1 million WIC participants, or 29 percent of WIC's average monthly caseload.

The substantial growth in rebates has also resulted in an increase in the proportion of federal funds available for nutrition services and administration. Before rebates were required, the proportion of federal funds to support these activities was set at 20 percent. Since then, grants to states for nutrition services and administration have been based on an established per-participant amount. Currently, about 28 percent of federal grant funds are used for this purpose. However, as pointed out by the GAO, when rebates are taken into account, nutrition services and administration costs as a proportion of total program costs have remained fairly constant at about 20 percent.<sup>32</sup>

## THE POPULATION WIC SERVES

Among the women, infants, and young children served by WIC, the largest group is young children. In 2001, children ages one through five made up half of all WIC participants, while women and infants each made up about a quarter. This is not surprising, given that there are more young children in the eligible population. What may be surprising to some is that the infants receiving WIC benefits comprise 50 percent of all infants in the United States.<sup>33</sup> (A similar proportion of infants in the United States—47.5 percent in 2000—are covered by the Medicaid program.<sup>34</sup>) The women receiving WIC benefits comprise an estimated 35 percent of all pregnant and postpartum women,<sup>35</sup> and the children comprise 24 percent of children ages one through five.

## Poverty, Food Insecurity, and Food Stamp Participation

Most participants in the WIC program are poor. According to the USDA's participant characteristic data, 56 percent of WIC participants were in families with incomes at or below the federal poverty level in 2000 and another 21 percent were in families with incomes between 100 and 150 percent of poverty; only 9 percent were in families with higher incomes, including 1 percent with incomes above 185 percent of poverty.<sup>36</sup> These data, however, are not fully reliable, since another 14 percent of participants have missing income information, and when applicants are

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adjunctively eligible as participants in TANF, the Food Stamp Program, or Medicaid, the information that is reported is not based on written documentation.<sup>37</sup>

It seems likely, however, that, because of adjunctive eligibility for Medicaid, a sizable number of WIC participants, particularly infants and postpartum women, are in families with incomes exceeding 185 percent of poverty.<sup>38</sup> Eligibility for WIC benefits is set at 185 percent of poverty and is based on gross income, with no allowances or disregards.<sup>39</sup> However, while financial eligibility for Medicaid is mandated at 133 percent of poverty for pregnant women, infants, and children to age six, states have wide leeway in permitting income disregards in determining Medicaid eligibility. They also have the option of providing Medicaid coverage to pregnant women and infants up to 185 percent of poverty; to children with family incomes at or, in some cases, above 200 percent of poverty who are eligible for the State Children's Health Insurance Program (SCHIP); and, through either secretarial waivers or Medicaid's 1902(r)(2) provision,<sup>40</sup> to pregnant women, infants, and children in families with incomes higher than the income levels that are otherwise federally allowed. As a result, taking into account standard income disregards and eligibility expansions, there are now 35 states that extend Medicaid coverage to infants living in families with incomes above 185 percent of poverty, 35 that extend Medicaid coverage to pregnant women at this income level, and 19 that extend Medicaid coverage to young children at this income level.<sup>41</sup> (See Appendix, Table 1.)

Still, most WIC recipients are in income groups that include a large proportion of households with children reported to have food insecurity, defined as "being uncertain of having or unable to acquire enough food to meet basic needs for all household members because of insufficient resources for food at some time during the year." Among households with incomes below 185 percent of poverty, more than one-third of families report that their children are food insecure without hunger; 1.5 percent report that their children are hungry.<sup>42</sup> Those with incomes at or below 130 percent of poverty are eligible for food stamps, provided that they meet the Food Stamp Program's asset and citizenship requirements, which are stricter than WIC's.<sup>43</sup> USDA participant data for 1998 indicate that about one-third of persons receiving WIC benefits also receive food stamps.<sup>44</sup> The amount of the food stamp benefits is generally low, however, and can range from \$15 for an individual in a family of three with income at 130 percent of poverty to \$119 for an individual in the same size family with income at 10 percent of poverty, assuming reasonable deductions.<sup>45</sup>

## Nutritional Risk

With respect to nutritional risk, virtually all applicants meet the eligibility criteria.<sup>46</sup> Most WIC participants have deficiencies in their diets that

qualify them for benefits. USDA participant data show that when WIC participants' food intake was compared with the recommendations of the USDA food guide pyramid (through either a 24-hour food recall or a questionnaire on the amount of fruits, vegetables, dairy, grain, protein, fats, oils, and sweets consumed over a one-week period), 56 percent of the WIC population in 2000 was found at the time of certification to have dietary deficiencies. Recorded nutritional risks, however, varied among subgroups of WIC participants and included multiple responses that may overlap for given individuals. Among pregnant women, 55 percent had dietary deficiencies, but 64 percent had anthropometric (body measurement-related) risks (primarily high weight or inappropriate weight gain pattern) and 48 percent had clinical risks (primarily general obstetrical risks, such as young age and multiple births). Among young children, 79 percent had dietary deficiencies and, while 37 percent had anthropometric risks (primarily high weight), no other category was notably large. In contrast to young children, only 17 percent of infants were reported to have dietary deficiencies, while 72 percent became eligible on the basis of their mothers' WIC eligibility or high-risk pregnancy, with no evidence of their own nutritional risk, and 29 percent had anthropometric risks (most often high weight or short stature).<sup>47</sup> When funding levels for WIC were substantially lower and states used waiting lists, enrollment was based on a prioritization of need, and only a small proportion of participants qualified on the basis of dietary deficiencies; the vast majority had medically related nutritional problems (anthropometric risks, biochemical risks, or clinical risks).

### Health Insurance

Today, a large majority of WIC participants have health insurance coverage, a significant increase over the early years of the program, when Medicaid eligibility levels were linked to welfare. According to the USDA's National Survey of WIC Participants, as many as 83 percent of WIC participants had health insurance protection in 1998. Of these participants, 70 percent were covered by Medicaid<sup>48</sup> and 30 percent were covered through an employer or another source of private insurance.<sup>49</sup> Given the prominence of managed care arrangements in both the public and private sectors of insurance, the high rate of coverage among WIC participants suggests that they are highly likely to have primary care providers and, among pregnant women, obstetricians. Rates of insurance are highest for infants (86 percent) and lowest for pregnant women (71 percent), who may include undocumented immigrants ineligible for Medicaid.

### Race and Ethnicity

The WIC population is extremely diverse. In 2000, USDA participant data show, 35 percent of WIC recipients were Hispanic, 22 percent were non-Hispanic black, and 5 percent were American Indian, Alaskan Native,

**The WIC population is extremely diverse.**

Asian, or Pacific Islander, while 37 percent were classified as white. This distribution among ethnic groups is consistent for infants, children, and pregnant and postpartum women. For breastfeeding women, however, Hispanic women comprised 45 percent of participants and black women, 15 percent. During the 1990s, Hispanic enrollment more than doubled, growing from 23 percent of the total WIC population to 35 percent.<sup>50</sup>

## THE FOOD WIC PROVIDES

State agencies over the last 10 years have received grants for food costs that amounted to between 72 percent and 76 percent of their federal allocations for WIC. For each of seven target groups—infants through 3 months, infants 4 through 12 months, children ages one through four years, pregnant and breastfeeding women, women breastfeeding exclusively, nonbreastfeeding postpartum women, and women and children with special dietary needs—there is a separate federally established maximum food package. In addition to formula for infants and tuna fish and carrots for women exclusively breastfeeding, the packages include varying amounts of cereal, fruit or vegetable juice, milk or cheese, eggs, and legumes (dried beans, peas, and peanut butter). (See Table 1.) State and local WIC agencies have the option of tailoring these food packages, however, to achieve cost savings (for example, by eliminating certain types of food within a category or requiring store brands) or to meet the nutritional needs of individual WIC clients (for example, by specifying skim milk, substituting beans for peanut butter, or reducing the amounts of milk or juice). In 2001, the average monthly after rebate food package cost for WIC participants was \$34.31, with the highest cost (\$41.57) being for breastfeeding women and the lowest (\$30.78) being for infants—although the prerebate food package cost for infants was actually more than three times greater (\$94.75).<sup>51</sup>

## The WIC Farmers' Market Program

The WIC Farmers' Market Nutrition Program (FMNP), is a very small program (a budget of \$20 million in 2001) that is separate from WIC but is administered by WIC agencies at the federal and state levels. It is the only vehicle for making fruits and vegetables (other than carrots for breastfeeding women) available to WIC participants. It was established to achieve two objectives: to provide fresh, unprepared fruits and vegetables to WIC participants and to expand the awareness of and sales at farmers' markets. In 2000, the program was operating in 35 states, with some 1,600 farmers' markets authorized to redeem FMNP coupons during the summer months. Approximately 1.9 million individuals participated in the program. Studies conducted in 1991 and in 1998 both showed that WIC participants were far more likely to patronize farmers' markets as a result of participating in the program.<sup>52</sup>

**The WIC Farmers' Market Nutrition Program is the only vehicle for making fruits and vegetables available to WIC participants.**

**TABLE 1**  
**Content of Maximum WIC Food Packages**

	<b>Package I</b> (infants 0–3 mo.)	<b>Package II</b> (infants 4–11 mo.)	<b>Package IV</b> (children 1–5 yrs.)	<b>Package V</b> (pregnant women and breastfeeding women with infants receiving formula)	<b>Package VI</b> (nonbreastfeeding postpartum women)
<b>Infant formula</b> (concentrated liquid)	403 fl. oz.	403 fl. oz.			
<b>Juice</b> (reconstituted frozen)		96 fl. oz. <sup>a</sup>	288 fl. oz.	288 fl. oz.	192 fl. oz.
<b>Infant cereal</b> <b>Cereal</b> (hot or cold)		24 fl. oz.	36 oz.	36 oz.	36 oz.
<b>Milk</b> <sup>b</sup>			24 qt.	28 qt.	24 qt.
<b>Eggs</b> <sup>c</sup>			2–2.5 doz.	2–2.5 doz.	2–2.5 doz.
<b>Dried beans/peas and/or peanut butter</b>			1 lb. beans/peas or 18 oz. peanut butter	1 lb. beans/peas or 18 oz. peanut butter	

Source: C. Kremer-LeBlanc, A. Mardis, S. Gerrior, N. Gaston, *Review of the Nutritional Status of WIC Participants*, U.S. Department of Agriculture, Washington, D.C., 1999.

**Note:** Package III (not shown) is for children and women with special dietary needs.

Package VII (not shown) adds tuna and carrots to Package V for women who are exclusively breastfeeding and whose infants are not receiving formula from WIC.

<sup>a</sup> Infant juice may be substituted for adult juice at the rate of 63 fl. oz. per 92 fl. oz. of single-strength adult juice.

<sup>b</sup> A choice of various forms of milks and cheeses may be available. Cheese may be substituted for fluid whole milk at the rate of 1 lb. per 3 qts., with a 4-lb maximum. Additional cheese may be issued in cases of lactose intolerance.

<sup>c</sup> Dried egg mix may be substituted at the rate of 1.5 lbs. per 2 doz. fresh eggs or 2 lbs. per 2 doz. fresh eggs.

## Food Package Concerns

It is not surprising that, given the recent research on the extent of obesity in America, much concern has been raised about the appropriateness of the WIC food package—specifically, the omission of fruits and vegetables and the over reliance on high-calorie and high-fat foods such as peanut butter, cheese, and whole milk. Some have also expressed concern about the low fiber content of most allowable WIC cereals and what they see as the excessive quantity of juice in the food packages for infants and young children.<sup>53</sup> (See Table 2.)

Despite some efforts within the USDA, the base components of the WIC food packages have not been revised since the program's inception; only carrots and tuna fish for exclusively breastfeeding women have been

added. Congress requested a reconsideration of the WIC food packages and the department's FNS prepared a proposed rule in 2000. However, due to delays often experienced during a change in administrations, the secretary has not yet published it,<sup>54</sup> creating some concern in the health community. As previously mentioned, however, the USDA has recently requested that the IOM conduct a scientific review of the WIC population's nutritional needs and make recommendations for food package changes, if warranted, within 18 months.

Other concerns about the food WIC provides have been raised as well. One, which is generally acknowledged as valid, is that the established food packages are not flexible enough to address the cultural food

**TABLE 2**  
**GAO Analysis of Maximum WIC Food Packages for Selected Recipient Subgroups:**  
**Number of Servings and**  
**Servings as a Percentage of Daily Minimum Recommended Servings (MRS)**

Pyramid Food Group (WIC-allowed food)	Children 2-3 yrs.	Children 4 Yrs.of Age	Pregnant Women and Breastfeeding Women with Infants Receiving Formula	Nonbreastfeeding Postpartum Women	Breastfeeding Women with Infants Not Receiving Formula
<b>Grain</b> (cereal)	1.8 servings 30% MRS	1.2 servings 20% MRS	1.2 servings 13% MRS	1.2 servings 20% MRS	1.2 servings 13% MRS
<b>Vegetable</b> (carrots)	0 servings 0% MRS	0 servings 0% MRS	0 servings 0% MRS	0 servings 0% MRS	0.28 servings 9% MRS
<b>Fruit</b> (juice)	2.3 servings 115% MRS	1.5 servings 75% MRS	1.5 servings 50% MRS	1.0 servings 50% MRS	1.8 servings 60% MRS
<b>Dairy</b> (milk, cheese)	3.2 servings 160% MRS	3.2 servings 160% MRS	3.7 servings 123% MRS	3.2 servings 160% MRS	4.1 servings 137% MRS
<b>Protein</b> (eggs, tuna, beans, peanut butter)	0.64 servings ] <sup>a</sup> 46% MRS ] 0.68 servings ] <sup>b</sup> 49% MRS ]	0.64 servings ] <sup>a</sup> 32% MRS ] 0.68 servings ] <sup>b</sup> 34% MRS ]	0.64 servings ] <sup>a</sup> 27% MRS ] 0.68 servings ] <sup>b</sup> 28% MRS ]	0.48 servings ] <sup>c</sup> 24% MRS ]	1.2 servings ] <sup>d</sup> 50% MRS ]

Source: U.S. General Accounting Office, Fruits and Vegetables: Enhanced Federal Efforts to Increase Consumption Could Yield Health Benefits for Americans, Washington, D.C., July 2002.

**Note:** The U.S. Department of Agriculture's Food Guide Pyramid is the source for minimum recommended servings. Packages I and II (not shown) are for infants only.

<sup>a</sup> Eggs and beans.

<sup>b</sup> Eggs and peanut butter.

<sup>c</sup> Eggs.

<sup>d</sup> Eggs, peanut butter, beans, and tuna.

practices and preferences of WIC participants. (Cheese and beans, for example are not typically part of the Asian diet.) Another, often voiced by breastfeeding advocates, as well as the Academy of Breastfeeding Medicine and the American Academy of Pediatrics, is that the easy availability of free infant formula is a deterrent to breastfeeding, no different from infant formula gift packages in hospitals. Breastfeeding, according to the American Academy of Pediatrics, should be promoted among WIC participants as the preferred feeding method for infants because of its health and psychological value.<sup>55</sup>

## THE NUTRITION EDUCATION AND BREASTFEEDING ACTIVITIES WIC SUPPORTS

State WIC agencies over the last 10 years have received grants to cover the cost of nutrition services and administration that amounted to between 24 percent and 28 percent of their federal WIC allocations and, from their nutrition services and administration grant, they are required to spend at least one-sixth on nutrition education activities. They must also meet a breastfeeding promotion and support spending target. To assure adequate attention to breastfeeding activities, Congress has required that states spend a specific amount annually (\$24.80 in 2001) for each pregnant and breastfeeding participant, for this purpose.<sup>56</sup>

### Nutrition Education

Local WIC agencies are required to make nutrition education available to participants at least twice in each six-month certification period. The initial nutritional session is usually conducted during the intake appointment with the individual, and subsequent sessions are typically offered in a group format lasting about 10 to 15 minutes.<sup>57</sup> Most local WIC agencies schedule nutrition education sessions to coincide with participants' voucher pick-ups (usually every three months). Nutrition education varies considerably among local WIC agencies but generally consists of large group classes and videos, often with children present; individual counseling sessions and interactive computer programs are less common. Nutritional counseling topics covered in classes usually change every few months and address one or more subjects, such as the food guide pyramid, WIC food preparation, breastfeeding, and infant feeding practices. Other topics, some of which are mandated, include the use of WIC vouchers, sources of health insurance, and the importance of immunizations. Nutritionists, nurses, and, increasingly, paraprofessionals<sup>58</sup> provide nutrition education.

### Breastfeeding Promotion and Support

To fulfill their responsibilities for breastfeeding promotion and support, local WIC agencies must have a designated breastfeeding coordinator

**WIC agencies must meet a breastfeeding promotion and support spending target.**

in addition to providing breastfeeding education for all new employees in contact with WIC clients. Typically, pregnant or postpartum women are referred at their initial certification to the breastfeeding coordinator, usually a lactation consultant, for individualized counseling on breastfeeding and prenatal nutrition. Some WIC agencies offer special breastfeeding classes—which typically address recommended foods and vitamins, weight gain, breastfeeding benefits, and effects of smoking. In addition, a number have introduced enhanced services, often in partnership with other community agencies. These services include the provision of free breast pumps, home visiting follow-up with peer counselors, family education sessions with fathers and grandmothers, and parenting and early childhood development programs.

The need for providing an effective nutrition education component in the WIC program is compelling. USDA data show that the proportion of WIC participants who are overweight is substantial; in 2000, almost a quarter (23 percent) of children in WIC were overweight and more than half of both breastfeeding women and postpartum women were overweight (55 percent and 56 percent, respectively).<sup>59</sup> Also, the USDA's WIC Infant Feeding Practices Study found that, despite medical recommendations calling for the introduction of solid foods and fruit juices only after four months of age,<sup>60</sup> half of all WIC infants received cereal, two-fifths received fruits and fruit juices, and almost one-third received vegetables before four months of age.<sup>61</sup>

### Challenges in Providing Effective Nutrition Education

Despite the need for effective nutrition education, there are numerous challenges to providing it under the current WIC program structure. The GAO identified several of these, including the infrequency with which working women come to WIC sites, the increasing use of paraprofessionals and the limited resources for training them, the absence of outcome measures to assess program effects, and the extra demands placed on programs to screen for immunizations, educate about substance abuse, and register voters.<sup>62</sup> Other challenges identified by local and state WIC agencies include pressures to increase, or even maintain, caseload and participation levels, leaving little time and resources for nutrition education; a reliance on general nutrition information rather than on specific information linked to participants' dietary habits or nutritional problems; the insufficient diversity of staff and the particular difficulty of recruiting those with bilingual skills; the variability of methods and state expertise in breastfeeding promotion; and the inability to make nutrition education available during night and weekend hours and through telephone contacts.<sup>63</sup> Further, although individual participants are often satisfied with the educational information they receive, there is also a general perception that many participants are not receptive to WIC's nutrition education.<sup>64</sup> According to Stefan Harvey, a nationally recognized WIC expert who conducted site visits to more

**In 2000, almost a quarter of children in WIC were overweight.**

than 40 California WIC clinics in 1999 and 2000, "Most dieticians and nutritionists believe passionately that WIC is first and foremost a nutrition education program. They also believe they are forced to give nutrition education short shrift."<sup>65</sup>

Knowing how to furnish nutrition education that not only teaches participants about healthy eating but also results in dietary changes is challenging for WIC clinic staff, as it is for any health professional. With respect to obesity reduction in particular, effective education needs to address both the cultural differences in attitudes toward appropriate weight for infants, children, and pregnant women and the emotional components of food consumption.

### Model Programs

To address several of these challenges, the USDA is collaborating with other public and private agencies to bring about improved dietary habits and breastfeeding rates among WIC participants. One example of collaborative initiatives is Fit WIC, a USDA multistate project to examine how policies, practices, and operations might be changed to make the program more responsive to the problem of childhood obesity. Another, 5 A Day for Better Health, is a National Cancer Institute initiative, implemented at several WIC sites across the nation, that is aimed at increasing participants' consumption of fruits and vegetables. A third, Loving Support Makes Breastfeeding Work, is a USDA social marketing campaign, undertaken in conjunction with the nonprofit firm Best Start, to increase participants' rates of initiation and duration of breastfeeding. In addition, the USDA has launched a new initiative, Revitalizing Quality Nutrition Services, to improve nutrition standards, training, and effective nutrition education strategies.

### WIC'S LINK TO HEALTH CARE

Functions related to health care access are also funded through the states' grant funds for nutrition services and administration. According to federal regulations, local WIC agencies are expected to provide WIC participants access to ongoing, routine obstetric and pediatric services and referral for treatment by assuring the availability of these services either directly or through agreements with health care providers. This requirement is typically met by directing clients to the Medicaid or SCHIP programs and by maintaining a list of providers to which WIC participants can be referred. Only about one-third of local WIC clinics are co-located with health care services, and rarely are the two integrated at a common site.<sup>66</sup> Yet, the implicit goal of coordination between WIC staff and health care providers appears to be most effectively met when the two services are integrated and centralized files are used. As others have reported, arranging for appointments, sharing information, and consulting on individual cases is facilitated by co-location, but not assured.<sup>67</sup>

**Only about one-third of local WIC clinics are co-located with health care services.**

Coordinating the nutritional and health care needs of WIC participants is made difficult by several aspects of the WIC and health care systems. On the WIC side, there is the issue of confidentiality: states are obligated to restrict participant information to persons connected with the administration or enforcement of the program (although a number of states, such as Massachusetts, request participants to authorize the release of their nutritional information). In addition, local WIC agency personnel lack the resources to establish relationships with the many health care providers involved in the public and private managed care networks that may be enrolling WIC participants and, in general, they are unfamiliar with how managed care systems work.<sup>68</sup> On the health care side, there is most likely a similar lack of understanding about WIC. In addition, only about one-third of state Medicaid agencies even include a WIC referral requirement in their managed care contracts.<sup>69</sup>

## WIC'S IMPACT ON HEALTH OUTCOMES

WIC has been considered one of the most cost-effective federal programs in the United States. According to the USDA, WIC has demonstrated positive effects on improved birth outcomes, preconceptional nutrition status, children's diets, infant feeding practices, immunization rates, anemia, children's cognitive development, and access to regular sources of medical care.<sup>70</sup> These findings have been based on numerous research and evaluation studies funded primarily by the USDA, but also by the Centers for Disease Control and Prevention (CDC) and the GAO, to assess the effects of the WIC program. Other federal agencies and private foundations have invested little over the years in WIC-related research.

Two studies, in particular, played an important role in building support for the WIC program. The first study, which was conducted by Barbara Devaney and colleagues in five states in 1987 and 1988, found that, after controlling for prenatal care use and demographic factors, prenatal WIC participation among Medicaid-enrolled women was associated with low birthweight rates that were 59 percent lower than those for non-WIC participants and very low birthweight rates that were also 59 percent lower. Based on these estimates, the authors predicted a Medicaid savings of \$1.77 to \$3.30 for each \$1.00 spent on prenatal WIC services.<sup>71</sup> The second study, by the GAO, based on a statistical combination of 17 WIC studies conducted from 1971 through 1988, estimated a 44 percent reduction in very low birthweight infants and calculated public and private cost savings amounting to \$3.50 over an 18-year period for every \$1.00 invested in WIC prenatal benefits.<sup>72</sup>

Most claims of WIC's effectiveness are based on analyses of program data collected in the 1980s. As a result of subsequent changes in Medicaid eligibility, health care utilization, and client characteristics, findings from these studies are becoming dated. Currently, Abt Associates, under contract to the USDA, is completing a comprehensive review of

**WIC has been considered one of the most cost-effective federal programs in the United States.**

more than 70 WIC studies on nutrition and health outcomes. Although this review has not yet been published,<sup>73</sup> the USDA has released preliminary findings showing that WIC has had a positive impact on birthweight and other health outcomes and has significantly reduced Medicaid costs.<sup>74</sup> National and multistate studies conducted since 1990 have examined WIC's impact on pregnancy, infant, and child health outcomes and are summarized below, along with a discussion of WIC research challenges.

### Pregnancy Outcome

The preponderance of evidence supports WIC's success in improving pregnancy outcomes. A recent study of WIC's impact suggests positive effects on pregnancy outcome. Lori Kowaleski-Jones and Greg Duncan, using 1996 National Longitudinal Survey of Youth (NLSY) data from the U.S. Department of Labor's Bureau of Health Statistics and modeling techniques that minimized unmeasured characteristics that may have biased older studies, found that prenatal WIC participation had a positive effect on infant birthweight.<sup>75</sup> WIC's impact on the health of postpartum and breastfeeding women mothers has not been studied.<sup>76</sup>

### Infant Health Outcomes

Little is known about WIC's effects on infants during the first year of life. Research on infant development, conducted by Kowaleski-Jones and Duncan and using NLSY data on a sample of infants born between 1990 and 1996, found decreases in negative infant temperament but no significant effects of prenatal participation on infant motor and social skills.<sup>77</sup> Research results on WIC's effect on breastfeeding suggest a negative impact. One large-scale study, based on 1996 data from the Bureau of Health Statistics' National Longitudinal Survey of Women (NLSW) and conducted by Pinka Chatterji and colleagues, found that WIC participation was associated with lower breastfeeding initiation rates; the study concluded that, while the WIC program's breastfeeding counseling and support may be effective for some mothers, many mothers may be more influenced by the offer of free infant formula.<sup>78</sup>

### Child Health Outcomes

Research suggests that WIC participation by children ages 1 to 4 is positively associated with increased nutrient intake, but much less is known about other child health outcomes, including long-term growth and development.<sup>79</sup> With respect to nutritional intake, Donald Rose and colleagues, using 1989 through 1991 data from the USDA's Continuing Survey of Food Intakes by Individuals (CSFII), found that children with family incomes less than 130 percent of poverty who were participating in WIC had a significantly higher intake of 10 of the 15 nutrients studied,

**WIC has had a positive impact on birthweight and other health outcomes and has significantly reduced Medicaid costs.**

including iron and zinc, than nonparticipants with the same level of family income but showed no differences with respect to the intake of fat, saturated fat, or cholesterol.<sup>80</sup> In addition, Victor Oliveira and Craig Gundersen, using later data from the 1994–1996 CSFII, found that children in WIC showed significantly higher rates of nutrient intake, specifically iron, vitamin B6, and folate.<sup>81</sup> An analysis of data from the 1991 National Longitudinal Follow-Up to the 1988 National Maternal and Infant Health Survey, which is conducted by the CDC's National Center for Health Statistics, found little evidence that WIC had a statistically significant effect on either height- and weight-based measures or overall level of health.<sup>82</sup> Possible confounding factors limiting the validity of these findings include not only selection bias but also the reliability of dietary recall, differences in the demographic characteristics of participants and nonparticipants (in the Rose study), and failure to control for food stamp participation (in the Oliveira and Gundersen study).

### Challenges in Conducting Research

Recently, some of WIC's claims of effectiveness have been called into question. In *Rethinking WIC*, authors Douglas Besharov and Peter Germanis criticize WIC's evaluation studies for a variety of methodological reasons. They argue that nearly all findings of WIC's positive pregnancy outcomes lack generalizability because they have been based on research conducted in the 1980s and even earlier, when the WIC population was substantially more disadvantaged than it is today. They argue also that WIC's pregnancy outcome research is flawed by simultaneity bias since it fails to control for the length of time that women are in the program; for a variety of reasons, women enrolling later in the program are more likely to have a full-term, healthy baby. Their most important criticism, however, is selection bias, because WIC research compares participants to income-eligible nonparticipants; participants, by virtue of their having sought out food and nutritional assistance, are likely to be more highly motivated and desirous of better birth outcomes.<sup>83</sup>

The criticisms made by Besharov and Germanis have sparked a great deal of controversy among researchers and advocates regarding the strengths and weaknesses of past research designs and whether or not program effects may have been overstated. On the one hand, Nancy Burstein, an Abt Associates economist and WIC researcher, writes:

Many researchers have attempted to estimate the impact of WIC participation on outcomes such as birthweight, breastfeeding, and nutrient intake. In my opinion those studies, with a single exception,<sup>84</sup> constitute inadmissible evidence because they use comparison group designs, in which the outcomes of WIC participants are compared with the outcomes of income-eligible nonparticipants....Practically speaking, we know no more about the effects of WIC now than before the program was introduced.<sup>85</sup>

**Recently, some of WIC's claims of effectiveness have been called into question.**

On the other hand, Barbara Devaney, a Mathematica Policy Research economist and WIC researcher, acknowledges selection bias problems that are inherent with “many, if not most, evaluations of government programs.” However, these problems can understate the effectiveness of a program as well as overstate it. Consequently, says Devaney:

Rather than dismiss the findings of all WIC program evaluations, a more productive approach would be to consider the sum of the evidence on WIC in light of the potential for selection bias....First, WIC improves birth outcomes, although it is possible that the estimated program effects may overstate the true program effects because of both selection bias and gestational age bias....Second, WIC participation is associated with increased intake of the nutrients the program targets.<sup>86</sup>

WIC researchers recognize the methodological challenges associated with using quasi-experimental studies to assess program impact. While they agree that randomized designs represent the “gold standard,” they cite ethical and feasibility obstacles associated with withholding WIC services and the high cost of randomized control studies. Despite these methodological concerns, which are not unique to WIC, William Hamilton of Abt Associates and Peter Rossi of the University of Massachusetts note that an argument can be made that the benefits associated with randomized experimentation may outweigh the risks, particularly because “taxpayers and program participants have a strong interest in knowing whether these programs are working as intended.”<sup>87</sup>

## CONSIDERATIONS FOR WIC’S FUTURE

Suggestions for how to improve the WIC program vary, reflecting the differing perspectives of the program’s stakeholders. In the course of interviewing experts for this paper, the unique perspectives of four different groups—the WIC community, the public health community, breastfeeding advocates, and infant formula manufacturers—became apparent. (Clearly, these views may not be shared by every person in each group, but the perceptions are widely held and instructive.)

Many in the WIC community would like to see the program expand to serve women and children who are eligible but not participating; some advocates propose extending WIC to children in non-Medicaid SCHIP programs who are not currently eligible. Because of concerns regarding added per-participant costs and the potential for associated reductions in the number of people served, they are cautious about making substantial modifications or enhancements in WIC, particularly during a period of economic stress. State and local WIC officials are proud of the success of the infant formula cost-containment program, which has allowed more than two million participants to be served at no additional cost to the federal government, and fear that moving from a sole source competitive bidding process would likely result in a dramatic decrease in rebate savings that would necessitate a reduction in participation or an increase in federal funding. They are also proud of WIC’s ability to

**Suggestions for how to improve WIC reflect the differing perspectives of the program’s stakeholders.**

improve health and nutrition outcomes. Moreover, although they promote breastfeeding, they believe that it is important for women to have the option to use formula. They would like to see the nutrition education component of WIC expanded to address obesity, physical activity, and child development, but only in terms of prevention. They do not perceive that the intensive medical counseling needed for persons with conditions such as obesity, lead poisoning, anemia, and diabetes can be furnished with WIC funding.

Most public health professionals value the WIC program but would like to see it undertake a greater commitment to health objectives. They generally voice support for food package changes to address obesity, while assuring that nutrients missing from participants' diets are provided. Yet they want WIC to move away from being primarily a free-food program and to focus more strongly on nutritional education. They endorse expansions in counseling sessions and a new focus on community-based interventions—particularly since many believe that other health department nutrition activities have been abandoned as WIC has grown and managed care has expanded. In general, the public health community wants greater collaboration in achieving obesity reduction and other important health status outcomes, and it advocates new approaches to serving the WIC population.

Breastfeeding advocates generally want to see the program do more in breastfeeding promotion. Many feel that there are mixed messages given by the WIC program, which actively supports breastfeeding while at the same time making available free infant formula. Free infant formula, they believe, is a deterrent to breastfeeding, and large manufacturer rebates can create inappropriate economic incentives for WIC program staff. Some would go as far as requiring formula by prescription only and having all but the neediest families pay for most of their formula. Concerned with the low breastfeeding initiation and duration rates among WIC participants, breastfeeding advocates would like to see more peer and family support in WIC education and outreach. They would also like to see breastfeeding coordinators exclusively devoted to providing breastfeeding services, breastfeeding training become more standardized, and local WIC agencies work more closely with local hospitals and lactation consultants.

Infant formula manufacturers are concerned about the dramatic growth of the rebate program and perceive an inequity in the way that they are treated compared to the dairy, peanut, and cereal industries. Mead Johnson and Ross, the two manufacturers whose products account for more than 90 percent of the WIC infant formula rebates, believe that the current high level of rebate is not sustainable, considering the large number of participating infants and the substantial discounts on the wholesale cost of formula. Given their involvement, the manufacturers would like to be viewed more as partners in WIC and to have rebate funds be used to support more intensive health education and breastfeeding interventions. They question whether all of the infants in

**The public health community wants greater collaboration in achieving obesity reduction.**

the program are financially and nutritionally at risk and whether the program is doing enough to avoid fraud. They believe also that multi-source contracting could be preferable for manufacturers, at the same time allowing more choice for participating mothers.

Now, at the time of reauthorization, and in future years, there are a number of health-related WIC policy issues that federal policymakers could consider to strengthen the program.

### **Food Package Changes: Stakeholders May Disagree**

How much political will exists to revise the content of WIC food packages is not known. Whether policymakers view the WIC program as a nutrition program, a commodity program, or a hunger program will likely have a great impact on their receptivity to food package changes. Key questions regarding the revision of food package content include the following:

- Based on their past opposition, how effective would the dairy and cereal industries be in thwarting food package changes that substitute fruits and vegetables?
- Given that the substitution of fruits and vegetables would likely cost the program more per participant, would the hunger coalition view the inevitable tradeoff of either serving fewer people or providing less food as acceptable?
- Given the growing science base regarding nutrition, what would constitute an adequate, if not ideal, food package—one that is still reasonable to provide in terms of cost and accessibility?
- How might the reliance on IOM or another body of experts facilitate the more rapid adoption of new science into the WIC food package?
- Should WIC participants who are obese have more stringent requirements specifying the types of food in their package?

### **Nutrition Education: Addressing Obesity**

Assuming that WIC's nutrition education can be expected to achieve changes in eating behavior and reductions in obesity, there is still no clear vision about how it should be structured. Nor is there agreement about how much WIC can be expected to achieve on its own or in concert with other initiatives. Yet there is some consensus that current methods can be made more effective.

- Is there sufficient scientific and programmatic knowledge to require that WIC achieve target objectives in obesity reduction? How much should be expected of this or any other nutrition program?
- What are the appropriate complementary roles of WIC nutrition educators and pediatric and obstetrical providers? How have changes

in the delivery of maternal and child health services and current funding cutbacks affected opportunities for greater collaboration?

- Should WIC use additional nutrition education strategies such as exercise classes, Weight Watchers–like meetings, or community-focused campaigns?
- Should it also consider embracing more directly parenting education and support?
- Is there a need to enhance the qualifications and salaries of WIC’s nutrition educators? Should money from states’ food package allocations be available for such activities?

### **Eligibility Determination: Serve More or Serve Better?**

Since WIC is such a popular program, not much attention has been given to issues of eligibility. Recently, however, some have argued that WIC’s allocation of resources should be better aligned with the achievement of health and nutritional objectives for at-risk populations.

- Since recent research suggests that greater numbers of women, infants, and children are eligible to participate in WIC than currently do,<sup>88</sup> should WIC funding be increased so that it is able to reach all financially eligible individuals?
- Should WIC become an entitlement program as some have suggested?
- Since states do not contribute financially to the WIC program, should individuals in states with Medicaid eligibility higher than 185 percent of poverty qualify for WIC while those in other states do not?
- Should nutritional risk criteria be made more stringent so that program resources can be expanded for those in greatest need?
- Should all women, infants, and children at nutritional risk, regardless of income, have the option of accessing WIC’s nutrition education services, given the Institute of Medicine’s determination that nearly all Americans fail to consume foods in accordance with the food guide pyramid?<sup>89</sup> If so, should those who can afford it pay for certain services?

### **WIC and the Infant Formula Industry: A Precarious Relationship?**

The WIC program has become heavily dependent on the infant formula industry as a result of the rebate program. Consequently, the financial risks and health consequences of this reliance are important to consider.

- Will infant formula manufacturers continue to bid competitively for WIC contracts now that the program serves half of all American infants? Might they soon decline to participate, as one company has already done?<sup>90</sup> Or will manufacturers simply elect in given states to

offer smaller discounts than they have been (85 percent to 98 percent of the average wholesale price per can)<sup>91</sup> or to not bid at all, as has already begun to happen in a few states?<sup>92</sup>

■ Would reduced access to free infant formula result in higher breastfeeding among WIC participants? Or would it result in a worsening of the health of some infants whose mothers might resort to inappropriate feeding practices?

### Research and Demonstrations: Avenues for Progress

As policymakers consider the development of a nutrition agenda to achieve better health outcomes, understanding WIC's impact on participants becomes more critical. This suggests it may be beneficial to examine new opportunities for expanding WIC's research and demonstration initiatives.

■ Should the secretary of agriculture be given waiver authority to permit states to establish and evaluate new approaches for improving the health and nutritional status of WIC participants within a cost-neutral framework? Would it be appropriate for states to experiment with targeting greater food and nutrition education resources to those most in need?

■ Should the USDA secretary be given expanded authority and resources to conduct national studies of current and alternative WIC interventions? Would it be possible to rigorously evaluate the program's impact on food insecurity, nutrition intake, and reductions in smoking, drug abuse, and obesity? Would it also be possible to test the effect of offering food vouchers equivalent to the value of infant formula on a woman's decision to breastfeed? Could national studies take advantage of some state's WIC eligibility levels above 185 percent of poverty and match these women, infants, and children to non-WIC control groups?

Congressional support for the WIC program has been longstanding and, despite an extremely tight fiscal environment, few political observers anticipate fundamental restructuring at this time. Yet the importance of addressing obesity and other nutritionally related health problems among low-income women, infants, and children is likely to grow. Consequently, there will be increasing interest in examining WIC, along with other health-related programs, to determine its appropriate role in a new national nutrition agenda.

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## ENDNOTES

1. Eugenia Calle, Carmen Rodriguez, Kimberly Walker-Thurmond, and Michael Thun, "Overweight, Obesity, and Mortality from Cancer in a Prospectively Studied Cohort of U.S. Adults," *New England Journal of Medicine*, 348, no. 17 (April 24, 2003):1625-1638.

2. Margaret Watkins, Sonja Rasmussen, Margaret Honein, Lorenzo Botto, and Cynthia Moore, "Maternal Obesity and Risk for Birth Defects," *Pediatrics*, 111, no 5, supplement (May 2003): 115–1158.
3. According to the surgeon general, women in families with incomes at or below 130 percent of the federal poverty level are approximately 50 percent more likely to be obese than those in families with higher incomes. Office of the Surgeon General, *The Surgeon General's Call to Action to Prevent and Decrease Overweight and Obesity* (Rockville, Md.: U.S. Department of Health and Human Services, 2001).
4. In addition to the AEI and GAO studies, a report by the special investigative staff of the House Committee on Appropriations was prepared but not made public. Tom Slomba, consultant, telephone communication with authors, July 10, 2003.
5. U.S. General Accounting Office (GAO), *Food Assistance: WIC Faces Challenges in Providing Nutrition Services*, GAO-02-142, U.S. General Accounting Office, Washington, D.C., December 2001.
6. For example, since 1994 there has been a steady decrease in the percentage of WIC participants with incomes below 50 percent of poverty. Susan Bartlett, Ramona Olvera, Nicole Gill, and Michele Laramie, *WIC Participant and Program Characteristics 2000*, Special Nutrition Programs Report No. WIC-02-PC, U.S. Department of Agriculture, Alexandria, Va., July 2000.
7. Douglas Besharov and Peter Germanis, *Rethinking WIC: An Evaluation of the Women, Infants, and Children Program* (Washington, D.C.: AEI Press, 2001).
8. National Advisory Council on Maternal, Infant, and Fetal Nutrition, *2002 Biennial Report on the Special Supplemental Nutrition Program for Women, Infants and Children (WIC) and the Commodity Supplemental Food Program (CSFP)*, U.S. Department of Agriculture, Alexandria, Va., November 2002.
9. Special Supplemental Nutrition Program for Women, Infants, and Children (7 CFR 246), January 1, 2002; accessed March 3, 2003, at [http://www.access.gpo.gov/nara/cfr/waisidx\\_02/7cfr246\\_02.html](http://www.access.gpo.gov/nara/cfr/waisidx_02/7cfr246_02.html).
10. Pregnant women are certified for the duration of their pregnancy and up to six weeks postpartum, and infants under six months of age may be certified up to their first birthday.
11. Special Supplemental Nutrition Program for Women, Infants and Children, 42 USC Sec. 1786, 2002.
12. A competent health care professional, referred to officially as a competent professional authority, is defined as a physician, nutritionist, dietician, registered nurse, physician's assistant, or state or local medically trained health official. 7 CFR 246.
13. 7 CFR 246.
14. Geri Henchy, Food Research and Action Center, written communication with authors, July 3, 2003.
15. 42 USC Sec. 1786.
16. 7 CFR 246.
17. Bartlett et al., *WIC Participant*.
18. According to the California WIC Association's executive director, California is a notable exception. This would appear to be explained by its large immigrant population.
19. Food and Nutrition Service (FNS), "WIC Program Participation and Costs," U.S. Department of Agriculture, February 25, 2003; accessed March 3, 2003, at <http://www.fns.usda.gov/pd/wisummary.htm>.
20. The Center for Budget and Policy Priorities (CBPP) argues that the decline in participation in the three-year period will not be followed by a resumption of the historical growth in participation. The last two years' participation fell short of projections, and CBPP believes that WIC has essentially reached a steady state in terms of penetration of the eligible population and

that future participation levels will fluctuate with the economy. Robert Greenstein, CBPP, written communication with authors, June 2003.

21. FNS, "WIC Program Participation."

22. There may, however, be specific years in which congressional appropriations did not keep pace with inflation. Fiscal year 2004 may see an actual decrease in funding. While the WIC budget has yet to be passed by Congress, the House Appropriations Committee did reduce the WIC FY 2004 appropriations by \$108 million below the FY 2003 appropriation. Committee on Appropriations, "House Rpt.108-193—Agriculture, Rural Development, Food and Drug Administration, and Related Agencies Appropriations Bill, 2004," U.S. House of Representatives; accessed August 19, 2003, at [http://thomas.loc.gov/cgi-bin/cpquery/?&dbname=cp108&maxdocs=100&report=hr193.108&sel=TOC\\_208030&](http://thomas.loc.gov/cgi-bin/cpquery/?&dbname=cp108&maxdocs=100&report=hr193.108&sel=TOC_208030&).

23. Although not required to do so by Congress, a number of states also operate rebate programs for commodities other than infant formula, but the amount of money these programs bring into WIC constitutes a very small percentage of the money brought in through infant formula rebates. As of May 2002, ten states received rebates for infant cereal and four received rebates for infant juice. U.S. Congress, "Food, Nutrition, and Consumer Services Hearing," Agriculture, Rural Development, Food and Drug Administration and Related Agency Appropriations for 2003, March 7, 2002. According to the USDA's Economic Research Service, states without rebates for infant cereals or other foods "did not believe that the yield from the rebates would justify the effort to establish them and obtain reimbursement." In three states with infant cereal rebates, per-participant rebates amounts ranged from \$3.22 to \$4.88 in 2000. John Kirilin, Nancy Cole, and Christopher Logan, *Assessment of WIC Cost-Containment Practices: Final Report* (Washington, D.C.: U.S. Department of Agriculture, 2003).

24. Congress established the rebate program in 1989, requiring all states to enter into cost-containment contracts for the purchase of infant formula in WIC. In 1987, Tennessee was already operating its own rebate program, which became the model adopted by Congress.

25. Some states have formed groups to solicit bids and entered into multistate contracts with manufacturers.

26. Under P.L. 105-86 (enacted in 1997), the WIC sole-source contract, typically in effect for three years, is awarded to the manufacturer offering the lowest net price or, if the weighted average retail prices for different brands in the state vary by 5 percent or less, to the manufacturer offering the highest monthly rebate. The state WIC agency reimburses vendors for the full retail price of the infant formula purchased by WIC participants and then bills the manufacturer, usually on a monthly or quarterly basis, for the rebate amount agreed upon in the contract.

27. Victor Oliveira, USDA Economic Research Service, telephone conversation with authors, May 2003, update of 2000 per can prices in Victor Oliveira, Mark Prell, David Smallwood, and Elizabeth Frazão, *Infant Formula Prices and Availability: Final Report to Congress*, U.S. Department of Agriculture, Washington, D.C., October 2001.

28. Among participating infants, the only available data show that just 13 percent of infants in the WIC program were most often breastfed at 12 months of age. (Fifty-seven percent were breastfed in the hospital, but only 20 percent were most often breastfed at six months of age.) Ross Products Division, "Breastfeeding Trends through 2000," Abbott Laboratories, Columbus, Ohio, 2001.

29. Based on information on infant formula rebate trends provided by FNS staff of the USDA in August 2001 and updates in the fall of 2002.

30. There are, however, two ways in which some amount of the rebate funds can be used by states for nutrition services and administration. One is if a state has unused funds, which could include rebate funds, it returns these funds to the USDA and they are redistributed to all states that request and are eligible to receive additional funds, with roughly 26 to 27 percent required to be spent on nutrition services and administration and at least one-sixth of that amount required to be spent on nutrition education. In 2002, the total amount of funds that were redistributed was \$53 million. The other is if a state serves more participants than originally expected, it can petition to have food funds converted to nutrition services and administration funds and at least one-sixth of the converted amount would have to be used

for nutrition education. In 2002, the total amount of food funds converted was \$911,000. Information on the use of infant formula rebate funds was obtained from FNS staff of the USDA in May 2003.

31. This describes the general approach used. In practice, the process is more complex and iterative.

32. GAO, *Food Assistance: WIC Faces Challenges*.

33. The number for all infants was obtained by taking the number of infants less than one year of age from U.S. Census Bureau data. The Current Population Survey is known to undercount infants. The estimates and projections made by the Census Bureau do not, however. The Census Bureau arrives at its estimates using data from births reported in the National Vital Statistics Report and ages the population over the course of a year, taking into account infant mortality. Both the National Population Estimate Division of the Census Bureau and the Vital Statistics Branch of the National Center for Health Statistics recommended using Census Bureau data for this purpose.

34. This calculation was based on Centers for Medicare and Medicaid Services (CMS) data for the number of infants enrolled in the Medicaid program at some time during 2000 and on Census Bureau data for the total number of infants in the United States in 2000. CMS data for 2001 are not yet available. Suk-Fong S. Tang and Beth K. Yudkowsky, "Medicaid State Reports: FY 2000," American Academy of Pediatrics, 2002; accessed July 29, 2003, at <http://www.aap.org/research/pdf00/FY2000FullReport.pdf>.

35. Based on recommendation from staff of the National Center for Health Statistics, the number for all pregnant and postpartum women was calculated by totaling the number of live births nine months prior to and six months after July 1 of the calendar year.

36. Bartlett et al., *WIC Participant*.

37. The USDA's National Survey of WIC Participants found that in 1998, 64 percent of WIC participants were in families with incomes at or below the poverty level, and another 23 percent were in families with incomes between 100 and 150 percent of poverty, while 13 percent had higher incomes. The survey was based on interviews with approximately 3,100 WIC participants in 178 WIC sites and had an 81 percent response rate. It also included household interviews for verification purposes with about 930 of these participants; this component had a 79 percent response rate. However, incomes could be verified for only 61 percent of those interviewed at home and were voluntarily changed without documentation for 19 percent, resulting in 74 percent of income responses being revised from those reported in person at WIC sites. Survey findings were based on the sample of participants interviewed at sites. In addition, these data were collected in 1998, prior to the full implementation of the State Children's Health Insurance Program, which gave states the option to extend Medicaid coverage to children in families with incomes up to 200 percent of poverty or even higher.

38. According to the National Academy of Science's National Research Council, the USDA bases its estimates of the number of individuals eligible for WIC on those with incomes at or below 185 percent of the federal poverty level. Using these estimates, the number who have actually enrolled in the program has been shown to exceed the number eligible by 20 percent to 30 percent in recent years. This higher-than-expected enrollment can be explained in some part by methodological factors (undercounting of infants by the Current Population Survey and use of monthly income rather than annual income in determining eligibility). However, the most significant factor in explaining WIC enrollment figures that exceed the estimates based on 185 percent of poverty is the failure to include higher-income eligibles who qualify on the basis of adjunctive eligibility. National Research Council (NRC), *Estimating Eligibility and Participation for the WIC Program: Phase I Report*, ed. Michele Ver Ploeg and David M. Betson (Washington, D.C.: National Academy Press, 2003). See also Marianne Bitler, Janet Currie, and John Karl Scholz, "WIC Eligibility and Participation," *Journal of Human Resources*, forthcoming.

39. These would include, for example, specific amounts of earned income or expenses related to child care as well as certain cash assistance benefits.

40. Section 1902(r)(2) of the Medicaid statute permits states to use less restrictive income and resource methodologies in determining eligibility for certain eligibility groups that do not

qualify for benefits on the basis of cash assistance. States, therefore have the flexibility to provide Medicaid coverage to persons with higher incomes or greater resources than would otherwise be allowed.

41. Calculations were based on the reported income eligibility levels and allowable earned income disregards (but no other disregards) used to determine Medicaid eligibility in each state in 2002. Information was verified by each state Medicaid agency.

42. Mark Nord, Margaret Andrews, and Steven Carlson, *Household Food Security in the United States, 2001*, ERS Food Assistance and Nutrition Research Report No. FANRR29, U.S. Department of Agriculture, Washington, D.C., October 2002.

43. Food stamp participants must meet gross and net income tests, and all countable resources are taken into account. The maximum gross income for a family of three in the Food Stamp Program in 2002 was \$19,976.

44. Survey data from 1998 were used because the methods for reporting similar data in the WIC Participant and Program Characteristics 2000 were acknowledged to have limited the number of programs in which individuals participated and, therefore, resulted in under-reporting of those receiving Medicaid benefits. The program participant data show only 48 percent of participants receiving Medicaid. See Nancy Cole, David Hoaglin, and John Kirlin, *National Survey of WIC Participants*, Special Nutrition Programs Report No. WIC-01-NSWP, U.S. Department of Agriculture, Alexandria, Va., October 2001.

45. This calculation was based on 2001 federal poverty levels for a family of three (\$14,630), allowing full deductions for child care and \$350 for shelter costs. The reader should keep in mind that the food stamp benefit was calculated for a family of one. In reality, food stamps are provided to households and would be triple the amount for a family of three.

46. Based on authors' interviews with FNS staff and local WIC directors. See also NRC, *Estimating Eligibility*.

47. Bartlett et al., *WIC Participant*. The lower rate of dietary deficiencies for infants may be a result of infants entering the program soon after birth and of most states certifying the infants for the entire year. Along with the monitoring of the newborns' diets, the result may be that many dietary deficiencies in infants are prevented from developing. Ron Vogel, FNS, written communication with authors, June 2003.

48. As mentioned above, these data were collected prior to the full implementation of the SCHIP program that allowed states to extend Medicaid coverage to more children.

49. Cole et al., *National Survey*.

50. Bartlett et al., *WIC Participant*.

51. Food and Nutrition Service, "Summary: Fiscal Year 2001 WIC Food Package Costs," U.S. Department of Agriculture, January 13, 2003; accessed January 21, 2003, at <http://www.fns.usda.gov/oane/MENU/WICFoodCosts/FY01Report.pdf>.

52. Victor Oliveira, Elizabeth Racine, Jennifer Olmsted, and Linda M. Ghelfi, *The WIC Program: Background, Trends, and Issues*, ERS Food Assistance and Nutrition Research Report No. FANRR27, U.S. Department of Agriculture, Washington, D.C., September 2002.

53. According to the American Academy of Pediatrics (AAP), fruit juice lacks the fiber of whole fruit and offers no nutritional benefit over whole fruit. For infants and young children, consumption of fruit juice should be limited to 4 to 6 ounces of juice per day, or 120 to 180 ounces per month. Fruit juice has no nutritional value for infants younger than six months and should be offered only after solid foods have been introduced and the infant is able to drink from a cup. Excessive juice consumption may be associated with malnutrition (overnutrition and undernutrition), diarrhea, flatulence, abdominal distention, and tooth decay. AAP Committee on Nutrition, "The Use and Misuse of Fruit Juice in Pediatrics," *Pediatrics*, 107, no. 5 (May 2001): 1210-1213.

54. In addition, the USDA delayed the proposed rule until after the 2000 election "because of concerns over potential opposition by industries that may lose revenue as a result of changes in the packages." U.S. General Accounting Office, *Fruits and Vegetables: Enhanced Federal*

*Efforts to Increase Consumption Could Yield Health Benefits for Americans*, GAO-02-657, Washington, D.C., July 2002.

55. Provisional Section on Breastfeeding, "WIC Program," *Pediatrics*, 108, no. 5 (November 2001): 1216–1217. Research suggests that in, addition to its nutritional and health value, breastfeeding may help prevent childhood obesity. William Dietz, "Breastfeeding May Help Prevent Childhood Obesity," editorial, *JAMA*, 285, no. 19 (May 16, 2001): 2506–2507.

56. FNS determines the national minimum breastfeeding promotion expenditure by multiplying \$21.00 by the number of pregnant and breastfeeding participants in the program. This amount, required to be adjusted for inflation each year since 1995, today stands at \$24.80. 42 USC Sec. 1786.

57. From interviews and site visits conducted for this paper, the authors learned that, while nutrition education classes lasting 10 to 15 minutes are most typical, in some clinics they may be as short as 5 minutes or as long as 30 minutes. The GAO reported that nutrition education classes ranged from 4 minutes to 17 minutes at the sites visited. GAO, *Food Assistance: WIC Faces Challenges*.

58. Paraprofessionals are typically women from the community who have participated in the program. They usually act as peer counselors and provide some nutritional counseling.

59. Bonnie Randall, Susan Bartlett, and Sheela Kennedy, *Study of WIC Participant and Program Characteristics*, 1996, FNS 53-3198-3-026, U.S. Department of Agriculture, Alexandria, Va., August 1998. Susan Bartlett, Melanie Brown-Lyons, Douglas Moore, and Angela Estacion, *WIC Participant and Program Characteristics*, 1998, Special Nutrition Programs Report No. WIC-00-PC, U.S. Department of Agriculture, Alexandria, Va., May 2000. Bartlett et al., *WIC Participant*. (USDA participant data define overweight for children as weight for height above the 90th percentile. For women, body mass index rates are used.)

60. Morris Green and Judith Palfrey, eds., *Bright Futures: Guidelines for Health Supervision of Infants, Children, and Adolescents* (Washington, D.C.: National Center for Education in Maternal and Child Health, 1999). The Section on Breastfeeding of the American Academy of Pediatrics, the American Academy of Breastfeeding Medicine, and the World Health Organization all recommend that solid foods not be introduced before six months of age.

61. Nazli Baydar, Margaret McCann, Rick Williams, and Eric Vesper, *Final Report: WIC Infant Feeding Practices Study*, U.S. Department of Agriculture, Alexandria, Va., November 1997.

62. GAO, *Food Assistance: WIC Faces Challenges*.

63. Information based on interviews with FNS staff, members of the American Academy of Pediatrics, and local WIC directors conducted in the fall of 2002. See also GAO, *Food Assistance: WIC Faces Challenges*.

64. In describing WIC nutrition education sessions, the local WIC clinic directors interviewed by the authors explained that, due to various influences—time, the presence of children, and session format—it is difficult to capture and maintain the interest of WIC participants. Comments included, "it can be hard to motivate people, and that is why we sometimes must stick with key points" and "participants are there just to pick up vouchers." Still, nearly all clinic directors stated that they are constantly looking for ways to improve the education programs, particularly to make them more interactive in hopes of garnering more interest and attention.

65. Stefan Harvey, "California WIC Voices: A Hard Look at Realities on the Front Line," California WIC Association, Sacramento, Calif., June 2000.

66. Karen N. Bell, *Collaboration between WIC and Managed Care: A Resource Guide*, Emory University, Atlanta, 2001.

67. Oliveira et al., *WIC Program*.

68. GAO, *Food Assistance, WIC Faces Challenges*.

69. S. Rosenbaum, C. Sonosky, K. Shaw, and M. Zakheim, *Negotiating the New Health System: A Nationwide Study of Medicaid Managed Care Contracts*, 3rd ed, vol. 2, part 4 (Washington, D.C.: George Washington University, June 1999).

70. U.S. Department of Agriculture, "How WIC Helps"; accessed October 18, 2002, at <http://www.fns.usda.gov/wic/ProgramInfo/howwichelps.htm>.
71. Barbara Devaney, Linda Bilheimer, and Jennifer Schore, *The Savings in Medicaid Costs for Newborns and Their Mothers from Prenatal Participation in the WIC Program*, U.S. Department of Agriculture, Alexandria, Va., 1990.
72. U.S. General Accounting Office, *Early Intervention: Federal Investments Like WIC Can Produce Savings*, GAO/HRD-92-18, Washington, D.C., April 1992.
73. U.S. General Accounting Office, *Food Assistance: Research Provides Limited Information on the Effectiveness of Specific WIC Nutrition Services*, GAO-01-442, Washington, D.C., March 2001.
74. Oliveira et al., *WIC Program*.
75. Lori Kowaleski-Jones and Greg J. Duncan, "Effects of Participation in the WIC Program on Birthweight: Evidence from the National Longitudinal Survey of Youth," *American Journal of Public Health*, 92, no. 5 (May 2002): 799–804.
76. Oliveira et al., *WIC Program*.
77. Lori Kowaleski-Jones and Greg J. Duncan, "Effects of Participation in the WIC Food Assistance Program on Children's Health and Development: Evidence from NLSY," Discussion Paper No. 1207-00, Institute for Research on Poverty, Madison, Wis., April 2000.
78. Pinka Chatterji, Karen Bonuck, Simi Dhawan, and Nandini Deb, "WIC Participation and the Initiation and Duration of Breastfeeding," Discussion Paper No. 1246-02, Institute for Research on Poverty, Madison, Wis., February 2002.
79. Oliveira et al., *WIC Program*.
80. Donald Rose, Jean-Pierre Habicht, and Barbara Devaney, "Household Participation in the Food Stamp and WIC Programs Increases the Nutrient Intakes of Preschool Children," *Community and International Nutrition*, 548–555, 1998.
81. Victor Oliveira and Craig Gundersen, "WIC Increases the Nutrient Intake of Children," *Welfare Reform and Food Assistance*, U.S. Department of Agriculture, Washington, D.C., April 2001.
82. Michael J. Brien and Christopher A. Swann, "Government Intervention and Health: The Impact of WIC Participation on Children," unpublished manuscript, University of Virginia, Charlottesville, Va., March 1999.
83. Besharov and Germanis, *Rethinking WIC*.
84. J. Metcalf, P. Costiloe, W. M. Crosby, S. Dutta, H. H. Sandstead, D. Milne, C. E. Bodwell, and S. H. Majors, "Effect of Food Supplementation (WIC) during Pregnancy on Birthweight," *American Journal of Clinical Nutrition*, 41 (May 1985): 933–947.
85. Besharov and Germanis, *Rethinking WIC*.
86. Besharov and Germanis, *Rethinking WIC*.
87. William Hamilton and Peter Rossi, *Effects of Food Assistance and Nutrition Programs on Nutrition and Health: Volume I, Research Design*, Food Assistance and Nutrition Research Report No. 19-1, Economic Research Service, U.S. Department of Agriculture, Washington, D.C., February 2002.
88. Bitler, Currie, and Scholz, "WIC Eligibility."
89. Institute of Medicine, *Dietary Risk Assessment in the WIC Program* (Washington, D.C.: National Academy Press, 2002).
90. Wyeth, the company that left the WIC program in 1996, also left the domestic infant formula market in 1997, citing as reasons the rapid growth of the WIC program as well as the cost competition in the overall nutrition market. It reentered the market in 1997 as the manufacturer of private-label brands of infant formula for stores such as Wal-mart and Target and no longer participates in WIC. PBM Products, the distributor of the Wyeth-

manufactured formulas, now aggressively competes on prices by selling infant formula at 40 percent less than Mead Johnson and Ross. Oliveira et al., *Infant Formula Prices*.

91. Oliveira et al., *Infant Formula Prices*.

92. In New York and in a multistate cooperative that includes Arkansas, North Carolina, and New Mexico, current rebate contracts with Mead Johnson are expiring in 2003, and the competitive bidding process produced a bid from only one manufacturer (Mead Johnson). This was a substantially lower level of rebate—down from 98 percent to 65 percent in New York and from 95 percent to 83 percent for the cooperative. New York state WIC program staff report that the lower rebate amount could possibly result in caseload reductions of at least 10 percent.

## APPENDIX — TABLE 1

**Maximum Allowable Income for WIC Eligibility,  
Adjusted for Medicaid Adjunctive Eligibility, by State, 2001**  
(income expressed as a percentage of the federal poverty level)

	Pregnant Women <sup>a</sup>	Postpartum Women, Not Breastfeeding (through 6 months postpartum)	Infants	Children (age 1-5)
AL	185%	185%	185%	185%
AK	206%	185%	206%	206%
AZ	185%	185%	185%	185%
AR	207%	185%	200%	200%
CA	207%	185%	207%	185%
CO	185%	185%	185%	185%
CT	192%	185%	192%	192%
DE	207%	185%	207%	185%
DC	200%	200%	200%	200%
FL	192%	185%	207%	185%
GA	242%	185%	242% <sup>b</sup>	185%
HI	191%	185%	207%	207%
ID	185%	185%	185%	185%
IL	207%	185%	207% <sup>c</sup>	185%
IN	185%	185%	185%	185%
IA	250%	185%	250%	185%
KS	185%	185%	185%	185%
KY	192%	185%	192%	185%
LA	209%	185%	309%	309%
ME	207%	185%	207% <sup>d</sup>	207%
MD	257%	185%	207%	207%
MA	200%	185%	200%	185%
MI	192%	185%	192%	185%

continued

APPENDIX — TABLE 1

(continued)

	Pregnant Women <sup>3</sup>	Postpartum Women, Not Breastfeeding (through 6 months postpartum)	Infants	Children (age 1-5)
MN	287%	275%	292%	275%
MS	192%	185%	192%	185%
MO <sup>e</sup>	287%	185%	300%	300%
MT	185%	185%	185%	185%
NE	231%	185%	231%	231%
NV	185%	185%	185%	185%
NH	192%	185%	307%	192%
NJ	207%	185%	207%	185%
NM	192%	185%	242%	242%
NY	207%	185%	207%	185%
NC	192%	185%	192%	185%
ND	185%	185%	185%	185%
OH <sup>f</sup>	235%	185%	309%	309%
OK	195%	185%	195%	195%
OR	185%	185%	185%	185%
PA	192%	185%	192%	185%
RI	257%	192%	257%	257%
SC	193%	185%	193%	185%
SD	185%	185%	185%	185%
TN	185%	185%	185%	185%
TX	195%	185%	195%	185%
UT	185%	185%	185%	185%
VT	207%	192%	307%	307%
VA	185%	185%	185%	185%
WA	192%	185%	207%	207%

continued

APPENDIX — TABLE 1

(continued)

	Pregnant Women <sup>3</sup>	Postpartum Women, Not Breastfeeding (through 6 months postpartum)	Infants	Children (age 1-5)
WV	185%	185%	185%	185%
WI	192%	185%	192%	192%
WY	185%	185%	185%	185%

Source: Maternal and Child Health Policy Research Center.

**Note:** Calculations were based on the reported income eligibility levels and allowable earned income disregards used to determine Medicaid eligibility in each state in 2001 but do not include other disregards, such as those for child care and SSI. Information was verified by each state Medicaid agency. If a state's Medicaid eligibility level was over 185%, that number was used, since Medicaid recipients are adjunctively eligible for WIC. However, if a state's Medicaid eligibility level was under 185%, WIC's limit of 185% was used.

This analysis is based on a family size of three. Thus, for the pregnant woman, the family would be composed of the pregnant woman, her unborn child, and one other individual; the family including the postpartum mother would have her infant and another individual; and the infant and child would also be part of three-member families. In 2001, 185% of the federal poverty level (FPL) was \$27,066 in all states except Alaska (\$33,837) and Hawaii (\$31,136).

<sup>a</sup> The postpartum coverage period is through the end of the month in which the 60th day from the end of pregnancy falls. For example, if a woman delivered on July 10, she would remain eligible for postpartum coverage until September 30.

<sup>b</sup> Georgia's gross income eligibility level for infants is based on an income standard of 235% of FPL, which applies to infants who are born to mothers enrolled in Medicaid. Infants who are born to mothers not enrolled in Medicaid are covered up to 192% of FPL (185% of FPL net, after income disregards are applied).

<sup>c</sup> Illinois' gross income eligibility level for infants is based on an income standard of 200% of FPL, which applies to infants who are born to mothers enrolled in Medicaid. Infants who are born to mothers not enrolled in Medicaid are covered up to 140% of FPL (133% of FPL net, after income disregards are applied).

<sup>d</sup> Maine's gross income eligibility level for infants is based on an income standard of 200% FPL, which applies to infants who are born to mothers enrolled in Medicaid. Infants who are born to mothers not enrolled in Medicaid are covered up to 192% FPL (185% FPL net, after income disregards are applied).

<sup>e</sup> In addition to the standard \$90 monthly disregard (AFDC standard), Missouri disregards \$30 and a third of the remaining earned income for pregnant women. No disregards are applied to infants and children covered by the SCHIP Medicaid expansion (up to 300% of FPL). The "\$30-and-a-third" applies for up to four consecutive months, after which the one-third disregard is dropped; after another eight months, the \$30 is dropped. This higher income threshold would therefore apply only for the first four months of coverage, and the standard \$90 disregard would be applied after the first year. If a family becomes ineligible for Medicaid because of loss of earned income disregards, the family may be eligible for Temporary Medical Assistance (TMA). This program provides Medicaid coverage for the family for six months following ineligibility and, if other requirements are met, the family may be eligible for an additional six months. TMA ends 12 months after Medicaid ineligibility, but eligibility may be extended for an additional 24 months if certain criteria are met.

<sup>f</sup> In addition to the standard \$90 monthly disregard (AFDC standard), Ohio disregards \$30 and one-third of the remaining earned income each month for pregnant women, infants, and children under both Medicaid poverty-related eligibility and SCHIP Medicaid-expansion eligibility. This disregard is applied for one year to families who received TANF in at least one of the preceding four months.