

is cost effective and successful in improving the health and nutritional status of its clients.

For example, WIC has played an important role in improving birth outcomes and containing health care costs.<sup>1,2</sup> A series of reports published by USDA based on linked 1988 WIC and Medicaid data on over 100,000 births found that Medicaid eligible pregnant women in 5 States who participated in WIC during their pregnancies had:

- Longer pregnancies;
- Fewer premature births;
- Lower incidence of moderately low and very low birth weight infants;<sup>3</sup>
- Fewer infant deaths;
- A greater likelihood of receiving prenatal care; and
- Savings in health care costs from \$1.77 to \$3.13 for each dollar spent on WIC.<sup>4,5,6</sup>

Studies have also found WIC to have a positive effect on children's diet and diet-related outcomes such as:

- Higher mean intakes of iron, vitamin C, thiamin, niacin and vitamin B6, without an increase in food energy intake, indicating an increase in the nutrient density of the diet;<sup>7</sup>
- Positive effects on the intakes of ten nutrients without an adverse effect on fat or cholesterol;<sup>8</sup>
- More effective than other cash income or food stamps at improving preschoolers' intake of key nutrients;<sup>8</sup> and
- Decline in the rate of iron deficiency anemia from 7.8 percent in 1975 to 2.9 percent in 1985 which the Centers for Disease Control and Prevention attributed to both a general improvement in iron nutrition and participation in WIC and other public nutrition programs.<sup>2,9</sup>

However, a comprehensive evaluation of the WIC program has not been completed in over 15 years.

#### References

1. Gordon, Anne; and Lyle Nelson. *Characteristics and Outcomes of WIC Participants and Nonparticipants: Analysis of the 1988 National Maternal and Infant Health Survey*. Alexandria, Virginia: U.S. Department of Agriculture, March 1995.
2. 7. U.S. General Accounting Office, "Early Intervention: Federal Investments Like WIC Can Produce Savings," Document HRD 92-18, Washington, DC, April 1992.
3. Kowaleski-Jones, L. and GJ Duncan. *Effects of Participation in the WIC Program on Birth Weight: Evidence from the National Longitudinal Survey of Youth*. American Journal of Public Health Vol 92: 799-804. May 2002.
4. Devaney, Barbara, Linda T. Bilheimer, and Jennifer Schore. *The Savings in Medicaid Costs for Newborns and Their Mothers from Prenatal Participation in the WIC Program*. Alexandria, Virginia: U.S. Department of Agriculture, October 1990.

5. Devaney, Barbara. *Very Low Birthweight Among Medicaid Newborns in Five States: The Effects of Prenatal WIC Participation*. Alexandria, Virginia: U.S. Department of Agriculture, September 1992

6. Devaney, Barbara, and Allen Schirm. *Infant Mortality Among Medicaid Newborns in Five States: The Effects of Prenatal WIC Participation*. Alexandria, Virginia: U.S. Department of Agriculture, May 1993.

7. U.S. Department of Agriculture Food and Nutrition Service. *The National WIC Evaluation: An Evaluation of the Special Supplemental Food Program for Women, Infants, and Children. Vol. 1: Summary*. Alexandria, Virginia: U.S. Department of Agriculture, 1987.

8. Rose, D., Habicht, J-P., and Devaney, B.: "Household Participation in the Food Stamp and WIC Programs Increases the Nutrient Intakes of Preschool Children," *Journal of Nutrition*, 128:548-555, March 1998.

9. Oliveira, Victor, Elizabeth Racine, Jennifer Olmsted and Linda M. Ghelfi. *The WIC Program: Background, Trends, and Issues*. Alexandria, Virginia: U.S. Department of Agriculture, September 2000.

#### V. History and Development of WIC Food Packages

Early legislation for the WIC Program, Public Law 92-433 (1972) through Public Law 94-105 (1975), specifically identified protein, iron, calcium and Vitamins A and C as nutrients of particular concern for WIC participants. However, Public Law 95-627, enacted in November 1976, deleted the reference to these nutrients. Instead, it defined supplemental foods as those foods containing nutrients determined by nutritional research to be lacking in the diets of pregnant, breastfeeding and postpartum women, infants, and children, as prescribed by the Secretary of Agriculture. The Program direction announced by that law remains in effect today (section 17(b)(14) of the CNA, 42 U.S.C. 1786(b)(14)). The law also directs the Secretary in section 17(f)(11) of the CNA (42 U.S.C. 1786(f)(11)) to assure that, to the degree possible, the fat, sugar, and salt content of WIC foods is appropriate.

The law provides substantial latitude to the Department in designing WIC food to supply nutrients lacking in the diets of the WIC eligible population. Historically, the Department has based its prescriptions of WIC foods on sound nutritional research and input from State and local agencies, the health and scientific communities, industry and the general public.

In anticipation of the passage of Public Law 95-627, the Department, in October 1978, assembled a WIC Food Package Advisory Panel composed of State health officials, representatives of the nutrition community and advocacy groups, to review the original food

packages and recommend changes. Panel recommendations included retaining high-quality protein, iron, calcium, and vitamins A and C as the targeted nutrients in the WIC Program and expanding the number of available packages. Based on the Panel's recommendations and an evaluation by the Department of the available nutrition research on the nutrient, fat, sugar and salt content of the WIC foods, the Department proposed retaining high-quality protein, iron, calcium, and vitamins A and C as the targeted nutrients in the WIC Program and expanding the number of available packages in 1979 (44 FR 69254-69270, November 30, 1979). Based on public response to proposed rules in 1979, new WIC food package regulations were published in 1980 (45 FR 74854, November 12, 1980) that are consistent with Public Law 95-627.

These food package requirements appear in 7 CFR 246.10 of the WIC Program regulations. The 1980 rule established six different monthly packages: Food Package I for infants 0-3 months; Food Package II for infants 4-12 months; Food Package III for children and women with special dietary needs; Food Package IV for children 1-5 years of age; Food Package V for pregnant and breastfeeding women; and Food Package VI for nonbreastfeeding postpartum women. The Department created an additional food package in 1992 (57 FR 56231, November 27, 1992). This enhanced food package, Food Package VII, is designed for breastfeeding women who elect not to receive infant formula through WIC for their infants.

Authorized WIC foods include iron-fortified infant formula, iron-fortified cereals, vitamin C-rich 100 percent fruit and/or vegetable juice, calcium/protein-rich milk and cheese, protein/iron-rich eggs, protein-rich peanut butter or dried beans/peas, and physician-prescribed formula/medical foods for participants with certain special dietary needs. The enhanced package for breastfeeding women increases allowable amounts of juice, cheese, peanut butter and dry beans/peas, and also allows protein-rich tuna fish and carrots that provide beta-carotene (precursor to vitamin A) and dietary fiber. All WIC foods are nutrient dense, economical, administratively manageable for WIC State agencies; readily available in retail stores; offer variety and versatility; have broad appeal; and generally can be apportioned into daily servings.

#### VI. Recent Science and National Dietary Guidance

During the last decade, science has provided new information on the