

## **Background**

The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) provides supplemental foods, nutrition education, breastfeeding support, and referral to other services for pregnant and postpartum women, and infants and young children. The objectives of the program include but are not limited to: improving fetal growth and development, improving the health and development of infants and young children, and increasing access to needed services. This report summarizes the research literature published since the last major review of the effectiveness of WIC in meeting these objectives.<sup>1</sup>

## **Pregnancy and Birth Outcomes**

This review uncovered 15 studies conducted since the last review that evaluated WIC participation, pregnancy, and birth outcomes. Research on birth outcomes typically focused on birth weight, measures of gestational age, and measures of fetal growth such as small for gestational age or term low birth weight. The majority of the research found that participation in WIC is positively associated with gestational age and mean birth weight. Estimates of low and very low birth weight, unadjusted for gestational age, suggest substantial improvements associated with WIC. The association between WIC participation and fetal growth, however, was less consistent, with weak or no associations identified.

## **Infant Feeding Practices**

This research uncovered 13 studies conducted since the last review that evaluated WIC participation and infant feeding practices. These studies typically focused on breastfeeding initiation, duration, and exclusivity, and the introduction of infant formula. Overall, the studies suggested lower breastfeeding rates among WIC participants; 11 of 13 studies found either negative or no association between WIC participation and breastfeeding. One study, however,

found a positive association between WIC participation and breastfeeding initiation. Another study cited evidence that providing infant formula through WIC delays the introduction of cow's milk into infants' diets.

## **Infant and Child Dietary Intake, Food Security, and Related Outcomes**

This review uncovered 16 studies conducted since the last review that evaluated WIC participation and infant and child dietary intake, food security, and related outcomes. These studies also included data on diet quality, knowledge of infant feeding practices, and food labeling behaviors. Overall, the studies suggested that WIC participation is associated with improved diets, including increased iron density, fewer added sugars, and a greater variety of foods.

## **Infant and Child Growth Outcomes**

This review uncovered seven studies conducted since the last review that evaluated WIC participation and infant and child growth outcomes. The most commonly considered outcome was likelihood of being obese. Overall, the evidence was mixed. One study concluded WIC participants tended to be lighter and shorter and two studies suggested significant reductions in the risk of being overweight among WIC participants. Another study found weight differences by race for WIC participants. The remaining studies found no consistent evidence of a relationship between WIC participation and weight.

## **Child Immunization**

This review uncovered only three studies conducted since the last review that evaluated WIC participation and child immunization. Two studies concerned the up-to-date status of immunizations among children ages 19 to 35 months and were largely inconclusive. One of the two studies found no significant association and one found WIC participants were more likely to be vaccinated. The final study considered WIC participation and the hepatitis A

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vaccine. These findings suggested that WIC participants had a higher rate of vaccination against hepatitis A at age 1.

### Infant and Child Utilization of Health Care Services and Related Costs

This review uncovered six studies conducted since the last review that evaluated WIC participation and infant and child utilization of health care services and related costs. Three studies evaluated the association between WIC and preventative care that included common childhood illnesses, Medicaid expenditures, possible cost savings related to WIC participation, and dental care. In general, WIC participation was associated with greater utilization of health care and curative health services including preventative and restorative dental care. The greater utilization of services was often associated with higher Medicaid costs.

### Child Health and Socioemotional and Cognitive Development

This review uncovered seven studies conducted since the last review that evaluated WIC participation and child health and development. Two studies considered childhood morbidity, four evaluated children's general health, and one considered cognitive, motor, and socioemotional abilities. In general, the studies found no clear evidence of an association between WIC participation and child health outcomes.

### More Information

*Effects of the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC): A Review of Recent Research*<sup>2</sup> is available online: <http://www.fns.usda.gov/ora/MENU/Published/WIC/WIC.htm>. Additional information on the WIC Program is available at: <http://www.fns.usda.gov/wic/>

<sup>1</sup>Fox, M., W. Hamilton, and B. Lin. *Effects of Food Assistance and Nutrition and Health: Volume 3, Literature Review*, Food Assistance and Nutrition Research Report No. 19-3, USDA, ERS, October 2004. Available at <http://www.ers.usda.gov/Publications/FANRR19-3/>

<sup>2</sup> Colman, S., I. P. Nichols-Barrer, J. E. Redline, B. L. Devaney, S. V. Ansell, and T. Joyce. 2012. *Effects of the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC): A Review of Recent Research*.

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