



SPECIAL SUPPLEMENTAL NUTRITION PROGRAM FOR WOMEN, INFANTS, AND CHILDREN (WIC)  
MEDICAID II FEASIBILITY STUDY: FINAL REPORT (SUMMARY)

Overview

The U.S. Department of Agriculture's (USDA) Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) safeguards the health of low-income pregnant and postpartum women, infants, and children up to age 5 who are at nutritional risk. WIC provides a combination of services, including nutritious foods to supplement diets, nutrition education, breastfeeding support, and referrals to health care and social services.

The USDA Food and Nutrition Service's (FNS) 1990 WIC Medicaid Study I (WM-I) found that prenatal WIC participation was associated with improved birth outcomes and savings in Medicaid costs.<sup>1</sup> A 2003 study by Buescher, et al., found that WIC participation during childhood was associated with increased health care utilization and Medicaid costs, and concluded that WIC enhanced children's linkages to the health care system.<sup>2</sup>

Since these studies, much has changed in the populations and policies that govern WIC and Medicaid, including changes to WIC food packages (implemented in 2009) and increased Medicaid enrollment in managed care, making a new study that would yield comparable findings challenging. This study assessed the feasibility of replicating and potentially expanding the two previous studies under the 2010 policy and participation environments.

Methods

This study focused on assessing the feasibility of obtaining and linking administrative data and determining if analyses from previous studies could be updated or expanded. The study linked administrative data from WIC, Medicaid, and Vital Records to conduct two separate analyses:

- **Prenatal analysis:** examined the associations between WIC participation during pregnancy and birth outcomes, maternal behaviors and risk

<sup>1</sup> Devaney, B., L. Bilheimer, and J. Schore. "The Savings in Medicaid Costs for Newborns and Their Mothers from Prenatal WIC Participation in the WIC Program: Executive Summary and Volume 1." Alexandria, VA: Food and Nutrition Service, 1990.

<sup>2</sup> Buescher, P., S. Horton, B. Devaney, S. Roholt, A. Lenihan, J.T. Whitmire, and J. Kotch. "Child Participation in WIC: Medicaid Costs and Use of Health Care Services." *American Journal of Public Health*, vol. 93, no. 1, 2003, pp. 145–150.

factors, and Medicaid costs among Medicaid-covered births.

- **Children's analysis:** examined the associations between WIC participation during childhood and health care utilization, diagnosis and treatment of common childhood illnesses, and Medicaid costs among children continuously enrolled in Medicaid.

Two States, Missouri and Oklahoma, were selected to participate in the study.<sup>3</sup> In Missouri, over half of Medicaid enrollees were covered by managed care and in Oklahoma, all had fee-for-service arrangements. The linked database for the prenatal analysis included 37,837 Medicaid-covered births in Missouri, and 30,682 in Oklahoma. The linked database for the children's analysis included 110,198 children in Missouri and 63,297 in Oklahoma.<sup>4</sup> The prenatal analysis examined births during a 12-month period after implementation of the revised WIC food packages in late 2009 and the children's analysis examined children ages 1-4, who were enrolled in Medicaid in 2010.

Findings

Feasibility of Replicating Prior Studies

Due to challenges extracting cost data from Medicaid managed care claims and advances in examining WIC impacts on birth outcomes, it was not feasible to replicate the WM-I or the Buescher et al. studies and, thus, the estimates from this study cannot be compared to prior estimates. However, the findings in Missouri and Oklahoma provided useful insights on WIC impacts in those States, described below.

Prenatal Analysis:

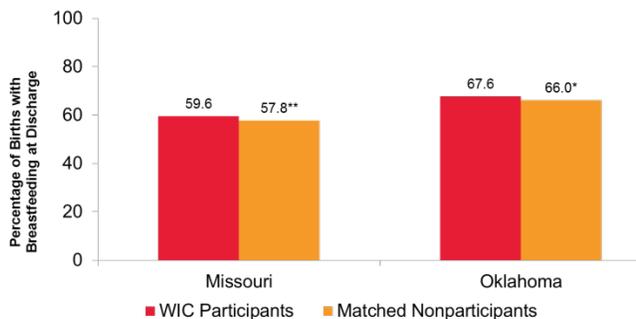
*Mothers receiving WIC were more likely to be breastfeeding their infants at hospital discharge.* The breastfeeding rate for Missouri WIC participants was 59 percent at discharge, compared

<sup>3</sup> Factors considered in the selection include: the availability of enhanced birth certificate data; whether Medicaid income-eligibility thresholds covered all WIC participants (i.e. everyone eligible for WIC was also eligible for Medicaid); the annual number of Medicaid-covered births; inclusion of Medicaid managed care; inclusion of Indian Tribal Organizations (ITOs); and willingness to participate.

<sup>4</sup> Analyses on medical costs were based on the smaller sample of Medicaid enrollees covered by fee-for-service.

with 57 percent among matched nonparticipants. The rate at discharge for Oklahoma WIC participants was 67 percent, compared with 66 percent among nonparticipants. These differences were statistically significant in both States (Figure 1).

**Figure 1. Prenatal WIC Participation and Percent Breastfeeding at Hospital Discharge (2010)\***



Statistical significance: \*  $p < .05$ , \*\*  $p < .01$ .

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**Prevalence of adverse birth outcomes among WIC participants was not different from those of nonparticipants.** In both Missouri and Oklahoma, there were no statistically significant differences between WIC participants and nonparticipants in the prevalence of low birthweight, very low birthweight, or small-for-gestational-age (SGA) births, or in the rate of neonatal infant mortality; differences in the prevalence of preterm delivery could not be assessed.<sup>5</sup>

**Prenatal WIC participants had lower fee-for-service Medicaid costs from birth through 60 days postpartum.** In Missouri, average Medicaid costs from birth through 60 days postpartum were \$6,676 for WIC participants and \$7,256 for matched nonparticipants. The \$580 difference was statistically significant. In Oklahoma, Medicaid costs for this period were similar for WIC participants and matched nonparticipants (\$5,692 versus \$5,638) and not significantly different.

### Children's Analysis

**Child WIC participation was associated with increased health care use.** In both States, children with any WIC participation were significantly more likely to have had well-child and emergency room visits than matched nonparticipants.

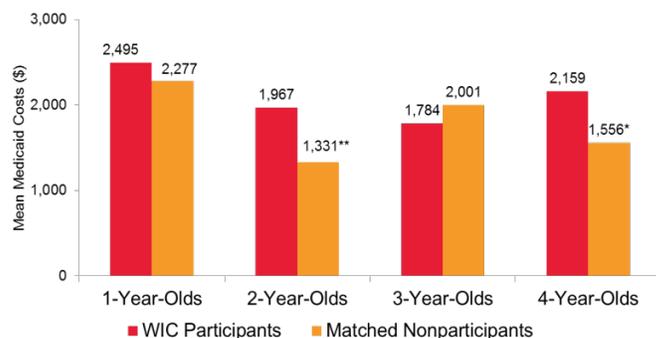
**Child WIC participation was associated with an increased probability of diagnosis and treatment**

<sup>5</sup> Because the study matched prenatal WIC participants to nonparticipants on gestational age to adjust for gestational age bias, any differences in outcomes (e.g., preterm delivery) between these groups attributed to gestational age cannot be assessed.

**of common childhood illnesses.** In Missouri, 76 percent of 2-year-old children receiving WIC had a visit with a diagnosis or treatment, compared with 68 percent of matched nonparticipants. In Oklahoma, the difference was 5 percentage points (77 versus 72 percent). These differences were statistically significant in both States.

**Associations between child WIC participation and total Medicaid costs varied by State.** Among fee-for-service beneficiaries in Missouri, total Medicaid costs in 2010 were higher, on average, for WIC participants than nonparticipants, and this difference was statistically significant for 2- and 4-year-olds (Figure 2). In Oklahoma, total Medicaid costs were lower, on average, for WIC participants than nonparticipants. However, this difference was statistically significant for 2-year-olds only.

**Figure 2. Average Medicaid Costs by WIC Participation, for Children in Missouri (2010)\***



Statistical significance: \*  $p < .05$ , \*\*  $p < .01$ .

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## Conclusions

Though replication of prior study approaches was not feasible, the successful creation of the linked analytic databases for Missouri and Oklahoma demonstrate that it is feasible to collect and link data from State WIC, Medicaid, and Vital Records agencies. Results in those States indicate that WIC participants are better connected to the healthcare system than nonparticipants. The prenatal analysis results demonstrate a need for continued research on pregnant women and infants who participate in WIC and Medicaid programs.

## For More Information

Krunker, K., Fox, M.K., & Caronongan, P., (2018). The WIC Medicaid II Feasibility Study: Final Report. Prepared by Mathematica Policy Research Under Contract No. AG-3198-D-10-0057. Alexandria, VA: U.S. Department of Agriculture, Food and Nutrition Service. Project Officer: Ruth Morgan. Available online at: [www.fns.usda.gov/research-and-analysis](http://www.fns.usda.gov/research-and-analysis).