THE SAVINGS IN MEDICAID COSTS FOR NEWBORNS AND THEIR MOTHERS RESULTING FROM PRENATAL PARTICIPATION IN THE WIC PROGRAM

ADDENDUM

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ADDENDUM

This report is an addendum to a study mandated by the Commodity Distribution Reform Act and WIC Amendments of 1987 (Public Law 100-237) and the Joint Resolution Continuing Appropriation for Fiscal year 1988 (Public Law 100-202). The Department of Agriculture released the original study on October 1, 1990. The primary objective of the study was to determine the savings in Medicaid costs for newborns and their mothers during the first 60 days after birth resulting from participating the Special Supplemental Food Program for Women, Infants, and Children (WIC) during pregnancy. The original report presents the basic results of the study. This addendum discusses an alternate approach to calculating Medicaid costs beyond the Congressionally mandated 60 day period, and presents the resulting increased benefit/cost ratios for prenatal WIC participation.

STUDY DESIGN

The WIC/Medicaid study analyzed the effects of prenatal WIC participation on Medicaid costs and birth outcomes in five states: Florida, Minnesota, North Carolina, South Carolina, and Texas. The study period was 1987 for Florida, Minnesota, North Carolina, and South Carolina and January through June 1988 for Texas. In each of the five study states, the analysis database was constructed from multiple program data files: (1) Medicaid files, which provided Medicaid cost and eligibility data on newborns and their mothers; (2) Vital Records birth files, which provided data on maternal characteristics, birthweight and other newborn characteristics, prenatal care, and infant deaths; and (3) WIC program files, from which the Medicaid mothers were identified as either WIC prenatal participants or nonparticipants and which provided WIC cost data on the participants. These data files were linked to create a database of 1987 Medicaid births (1988 in Texas) that included data on Medicaid costs, WIC participation status and costs, birthweight and other pregnancy outcomes, and some information on maternal characteristics, including age, race, previous live births, education, marital status, and the use of prenatal care.

REVIEW OF THE ORIGINAL STUDY FINDINGS

The study is limited to women who were eligible for Medicaid in each of the five study States. Since the income criteria for Medicaid eligibility were extremely stringent in 1987 (1988 in Texas), (33 to 88 percent of poverty), the women in this study are, by definition, extremely low income. The basic study results indicated that prenatal participation in the WIC program improves birth outcomes and generates savings in Medicaid costs for mothers and newborns. The following specific findings were reported:

- Prenatal participation in the WIC program is associated with substantial savings in Medicaid costs for newborns and their mothers during the first 60 days after birth. Estimated savings in newborn and maternal Medicaid costs due to prenatal WIC participation ranged from $277 in Minnesota to $598 in North Carolina, with intermediate values of $347, $493, and $565 for Florida, Texas, and South Carolina (hospital costs only), respectively.

- When newborn and maternal Medicaid costs were able to be separated, the estimated savings in newborn Medicaid costs associated with prenatal WIC participation were even greater than the estimated savings when newborn and maternal costs are combined; these estimates were $744 in North Carolina and $573 in Texas.

- In all five study states, the benefits of prenatal WIC participation, as measured by the estimated savings in Medicaid costs, exceeded the costs of providing prenatal WIC benefits. For newborns and mothers, the estimated benefit-cost ratios ranged from 1.77 in Florida to 3.13 in North Carolina, with intermediate values of 1.83 for Minnesota and 2.44 for both South Carolina and Texas. For newborns only, the benefit-cost estimates were 3.90 in North Carolina and 2.84 in Texas. Thus, for every dollar spent on the prenatal component of the WIC program, the associated savings in Medicaid costs during the first 60 days after birth ranged from $1.77 to $3.13 for newborns and mothers and from $2.84 to $3.90 for newborns only.

- In all five study states, prenatal WIC participation by Medicaid beneficiaries is associated with increased birthweight, longer gestational age, a lower incidence of low birthweight, and a lower incidence of preterm birth.

- In all five study states, receiving inadequate levels of prenatal care is associated with increased Medicaid expenditures during the first 60 days after birth. As with the findings on the effects of prenatal WIC participation, the estimated cost savings associated with receiving adequate versus inadequate levels of prenatal care for newborns alone exceeded the cost savings for newborns and mothers combined.

THE ANALYSIS

The primary results of this study and their interpretation are based on straightforward analytic models in which Medicaid costs and newborn birthweight depend on prenatal WIC participation, newborn characteristics, and maternal characteristics. This model specification was judged to be the most appropriate after several methodological problems and issues were assessed and examined.

One of the issues considered was how to treat Medicaid claims for health care that extended beyond the 60-day postpartum period specified by the legislation.

There are three ways to operationalize the 60-day time period. One way is to consider only the costs incurred for health care that began and ended within that time period. This approach was rejected as too conservative, because it would have excluded costs incurred for many of the sickest infants. Another approach is to consider the full costs of illnesses that began within the 60-day postpartum period, regardless of when they ended. An intermediate approach is to prorate Medicaid reimbursements with a start date of service within the first 60 days of birth but whose end date of service was outside of the 60-day postpartum period.

The intermediate approach was selected for the main report as it best reflected the intent of the legislation mandating the study. All of the benefit-cost ratios presented in the original report use the prorated Medicaid cost variable.

NEW FINDING

This addendum presents the results of using the full cost method of defining Medicaid costs. The full costs definition of Medicaid costs yields higher average values of Medicaid costs from birth to 60 days after birth and larger estimated reductions in Medicaid costs relative to the prorated Medicaid cost variable (see Tables I and II). The difference in the definition of Medicaid costs has the most dramatic influence on the findings for Minnesota, in which the savings in Medicaid costs associated with prenatal WIC participation increases from an estimate of $277, which is not statistically significant at conventional two-tailed significance levels, to an estimate of $636, which is statistically significant at the .05 level. The alternative definitions of Medicaid costs have the smallest impact on the findings for Florida and Texas. These results are not surprising, given that the study states vary considerably in the nature of services eligible for reimbursement, and the maximum number of hospital days that Medicaid will reimburse for a given episode of illness. Both Florida and Texas, for example, imposed limits on the number of inpatient days that could be reimbursed by Medicaid, and, thus, service periods that extended beyond the 60-day postpartum period were less likely to be reimbursed in full by Medicaid. However, even in these states, the estimated savings in Medicaid costs associated with prenatal WIC participation increase with the definition that includes the full reimbursements for services starting within the first 60 days of birth.

- In all five study states, the benefits of prenatal WIC participation, as measured by the estimated savings in Medicaid costs, exceeded the costs of providing prenatal WIC benefits. For newborns and mothers, the estimated benefit-cost ratios ranged from 1.92 in Florida to 4.21 in Minnesota, with intermediate values of 2.57 in Texas, 3.17 in South Carolina, and 3.94 in North Carolina. For newborns only, the benefit-cost estimates were 2.98 in Texas, and 4.75 in North Carolina. Thus, for every dollar spent on the prenatal component of the WIC program, the associated savings in Medicaid costs for illnesses beginning in the first 60 days after birth ranged from $1.92 to $4.21 for newborns and mothers and from $2.98 to $4.75 for newborns only.

SUMMARY

Including the full reimbursements for Medicaid claims that extended beyond the first 60-day postpartum period increases the estimated benefit-cost ratios from prenatal WIC participation and the associated Medicaid cost savings, relative to prorating Medicaid reimbursements to include only the portion of costs incurred during the first 60 days postpartum.

TABLE I

RESULTS FOR ALTERNATIVE DEFINITIONS OF MEDICAID COSTS FROM BIRTH TO 60 DAYS AFTER BIRTH

	Prorating Reimbursements for Medicaid Claims Extending Beyond 60 Days		Full Reimbursements for Medicaid Claims Extending Beyond 60 Days Postpartum	
	Mean Value of Reimbursements	Estimated Savings from Prenatal WIC Participation	Mean Value of Reimbursements	Estimated Savings from Prenatal WIC Participation
Florida				
Newborns and Mothers	$2,483	$347**	$2,530	$376**
Minnesota				
Newborns and Mothers	$3,815	$277	$4,092	$636*
North Carolina				
Newborns	$1,942	$744**	$2,051	$907**
Newborns and Mothers	$2,812	$598**	$2,919	$753**
South Carolina				
Newborns and Mothers	$2,433	$565**	$2,586	$736**
Texas				
Newborns	$1,866	$573**	$1,921	$601**
Newborns and Mothers	$3,247	$493**	$3,299	$519**

SOURCE: WIC/Medicaid birth-event analysis file for Florida, Minnesota, North Carolina, South Carolina, and Texas.

NOTE: The unit of observation is the birth event. Observations with Medicaid costs from birth to 60 days after birth < $200 are excluded.

[a]Medicaid costs include hospital costs only.

*(**): Signficant at the .05 (.01) level, two-tailed test.

TABLE II

ESTIMATED BENEFIT-COST RATIOS
FULL REIMBURSEMENTS FOR MEDICAID CLAIMS SPANNING THE
60-DAY POSTPARTUM PERIOD

	Prorating Reimbursements for Medicaid Claims Extending Beyond 60-Day Postpartum Period[a]	Full Reimbursements for Medicaid Claims Extending Beyond 60-Day Postpartum Period[b]
Florida		
Newborns and Mothers	1.77	1.92
Minnesota		
Newborns and Mothers	1.83	4.21
North Carolina		
Newborns	3.90	4.75
Newborns and Mothers	3.13	3.94
South Carolina[c]		
Newborns and Mothers	2.44	3.17
Texas		
Newborns	2.84	2.98
Newborns and Mothers	2.44	2.57

SOURCE: WIC/Medicaid database for Florida, Minnesota, North Carolina, South Carolina, and Texas.

[a]All estimates are statistically significant at the .01 level (two-tailed test), except in Minnesota where the estimate is statistically at the .07 level (two-tailed test) and at the .03 level (one-tailed test).

[b]All estimates are statistically significant at the .01 level (two-tailed test), except in Minnesota where the estimate is statistically significant at the .05 level (two-tailed test).

[c]Medicaid costs refer to hospital costs only.