

Infant morbidity decreases with incentive-based prenatal tobacco interventions

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Colorado is taking a critical step to protect low-income women during their pregnancy through incentive-based smoking cessation interventions. A new study from the Colorado School of Public Health at

the Anschutz Medical Campus shows a significant reduction in infant morbidity due to the program.

The study, published in *Public Health Nursing*, examines the results of the interventions provided by the Baby & Me Tobacco Free program (BMTF) throughout Colorado.

"Young women, especially when raised in low-income households, are a vulnerable target for tobacco use," said Tessa Crume, Ph.D., MSPH, associate professor at the Colorado School of Public Health, and lead researcher in the study.

In Colorado, smoking in the third trimester of pregnancy is three to four times higher among women who live in poverty relative to women with [higher incomes](#), according to Colorado Pregnancy Risk Assessment Monitoring System 2012-2014. Smoking during pregnancy is the most substantial modifiable risk factor for infant morbidity and mortality in the United States.

"The problem of prenatal smoking will not go away, especially when tobacco products target a younger generation, and nicotine addictions begin before becoming pregnant. This study is important because successful interventions improve the health of mothers and children, disrupt familial propagation of tobacco use while also saving Coloradans millions in healthcare costs," Crume said.

The BMTF intervention includes counseling (based on motivational interviewing) provided throughout the pregnancy and postpartum period, biomonitoring feedback via carbon-monoxide breath testing and financial incentives in the form of diaper vouchers contingent on cessation-status.

Key findings from the study include:

- Reduction in infant morbidity: BMTF participants had a 24% to 28% reduction in the risk of preterm birth and a 24% to 55% reduction in the risk of neonatal intensive care unit (NICU) admissions.
- Significant [cost savings](#): Cost savings per participant in BMTF compared to the birth certificate population was \$6,040 and Pregnancy Risk Assessment Monitoring System (PRAMS) reference was \$2,182.
- Total annual cost savings for Colorado associated with the BMTF intervention was \$4,144,118 and \$1,497,299 compared to the birth certificate and PRAMS reference populations, respectively. Costs for each adverse maternal delivery and birth outcome were based on the average Medicaid reimbursement for a delivery complicated with the outcome, minus the average reimbursement for an uncomplicated delivery.
- Based on an extrapolation estimate: if the BMTF program covered all Colorado Medicaid recipients who smoked in the three months prior to or during pregnancy in Colorado, the state of Colorado would save an estimate between 16.8 and 6 million dollars annually on [healthcare costs](#) associated with adverse smoking-related birth outcomes.

To assess birth outcomes and cost-savings of the program, the study compared BMTF participants to two state-level referent populations: a birth certificate reference population consisting of over 16,000 women and the Pregnancy Risk Assessment Monitoring System reference population that reflects a response of over 16,000 women.

More information: Kristen J. Polinski et al, Impact of an incentive-based prenatal smoking cessation program for low-income women in Colorado, *Public Health Nursing* (2019). [DOI: 10.1111/phn.12682](https://doi.org/10.1111/phn.12682)

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