

Effects of timing and duration of prenatal enrollment in Washington Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) on adverse pregnancy outcomes

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Objectives: To assess the effect of the Washington State Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) on birth weight, pre-term delivery (PTD), and fetal death by timing and duration of prenatal WIC enrollment.

Methods: Using a record-linkage retrospective cohort study, outcomes were assessed using linear regression for birth weight, unconditional logistic regression for PTD, and chi-square analyses for fetal death. Subjects were WIC-enrolled women in Washington State who gave birth or had a fetal death between 9/1/1999 and 10/15/2001. Enrollees who were successfully matched to birth certificate records (N=29,013) were divided by trimester of enrollment for further analyses and were compared in a univariate analysis to WIC-eligible women who did not enroll prenatally (10,595). Women who disenrolled prior to delivery were excluded from PTD and fetal death analyses and were controlled for in the birth weight analysis.

Results: Duration on WIC prenatally was significantly predictive of birth weight, where increased duration was associated with an increase in birth weight, both before and after accounting for the effects of gestational age at birth. Odds of PTD were higher for women enrolling later in their pregnancies: these odds were greater for more premature deliveries, although the pattern was not significant. After accounting for interaction effects, women who were more vulnerable (eg, had inadequate prenatal care, history of premature delivery, anemia) had the most reduction in risk of PTD. Fetal deaths occurred less frequently among infants of women who enrolled earlier in pregnancy than among those who enrolled later. Significant differences in fetal deaths were found between those who never enrolled and those who enrolled in 1st trimester and between those who enrolled in their 2nd versus in their 3rd trimester.

Conclusions: Overall, for the study period, earlier prenatal enrollment in Washington WIC was associated with reduced risk of adverse pregnancy outcomes, including low birth weight, PTD, and fetal death. These results supplement the current literature with evidence of prenatal WIC enrollment benefits, particularly earlier enrollment. Future studies that take recent changes in the WIC program into account, especially changes to the nutritional packages, are needed.

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