

## Abstract

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### **Association of prepregnancy diabetes and average birth-weight infant mortality by pregnancy body mass index: Findings from CDC's national vital statistics system, 2011**

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*APHA's 2019 Annual Meeting and Expo (Nov. 2 - Nov. 6)*

**Background:** Prepregnancy diabetes is associated with neonatal mortality of low birthweight newborns, however, little is known about the association of prepregnancy diabetes and mortality among babies with average birthweight ( $\geq 7$ lbs). We examined Average Birth-Weight Infant Mortality (ABIM), by pregnancy Body Mass Index for women diagnosed with diabetes prior to pregnancy.

**Methods:** Data from CDC's NVSS-Linked Birth-Infant Death dataset, 3,638,143 newborns in 2011 were analyzed. The outcome was ABIM, defined as annual deaths per 1,000 live births with birthweight of  $\geq 7$  pounds. The independent variable was self-reported diabetes (of any type) prior to pregnancy. Covariates were maternal co-morbidities, hospital and infant characteristics. Underlying causes of death (ICD codes 10th Revision) was included. Chi-square tests, stratified models and adjusted logistic regression analysis were conducted using STATA/SE v.15.1. P-values  $< 0.05$  were considered statistically significant.

**Results:** 7,419 average birthweight newborns died before their first birthday. ABIM was prevalent among diabetic mothers (0.3%), women who smoked (0.5%), infants born  $\geq 37$  weeks (0.4%) and African Americans (0.3%), with 65% of deaths occurring during post-neonatal period. The leading causes were congenital malformations (25.35%) and SIDS (20.0%). The odds of ABIM were 2 times higher for obese diabetic mothers (95%CI:1.6-2.8) compared to non-diabetic obese mothers. Among infants born  $\geq 37$  weeks, the odds of ABIM were 2 times higher for all BMI categories compared to infants born  $< 37$  weeks.

**Conclusions:** Obese-diabetic mothers, smokers and full-term infants were at increased risk of ABIM, and particularly congenital malformations and SIDS. Interventions should focus on reducing maternal obesity, smoking and promoting safe sleep.

Chronic disease management and prevention Epidemiology Public health or related public policy Public health or related research

