

NEGATIVE BIRTH OUTCOMES ASSOCIATED WITH OPEN DUMPSITES IN ALASKA NATIVE VILLAGES

Susan Gilbreath

ABSTRACT

A retrospective cohort study was used to evaluate the risk of negative birth outcomes in infants whose birth records indicated maternal residence in villages that have been identified as containing dumpsites ranked by agencies as posing an intermediate or high hazard potential to health and the environment. Birth records from 1997-2001 were used to identify the 10,073 eligible infants born to mothers who resided in 197 Alaska Native villages with dumpsite rankings. Negative birth outcomes included: low and very low birth weight, preterm birth, and small for gestational age (SGA). Infants born to mothers living in villages with intermediate [(odds ratio) OR=1.64; 95% CI: 1.03, 2.63] and high hazard dumpsites (OR=1.99; 95% CI: 1.26, 3.13) had a higher proportion of low birth weight infants than infants in the referent category. Infants, on average, weighed 36 g less (95% CI: -71.2, -0.8) when born to mothers from the high exposure group than infants in the intermediate exposure group and 55.4 g less (95% CI: -95.3, -15.6) than infants in the low exposure group. On average, pregnancies, lasted 1.2 days less (95% CI: -2.0, -0.3 g) in mothers from high hazard potential villages than pregnancies in the intermediate hazard ranked villages and 1.0 days less (95% CI: -2.0, -0.1 days) than pregnancies in the referent category. No differences were detected across exposure levels for incidences of other outcomes. This is the first study to evaluate adverse pregnancy outcomes associated with open dumpsites in Alaska Native villages. Problems with the study include a population-based exposure measurement and biases related to information recorded in birth records. Future studies should look at more sensitive indicators of risks.

STILLBIRTHS, NEONATAL DEATHS, AND CONGENITAL ANOMALIES ASSOCIATED WITH OPEN DUMPSITES IN ALASKA NATIVE VILLAGES

Susan Gilbreath

ABSTRACT

A retrospective cohort study was used to evaluate the risks of fetal and neonatal deaths and congenital anomalies in infants whose birth records indicated maternal residence in villages identified as containing dumpsites ranked by agencies as posing a high hazard potential to health and the environment. The most highly weighted hazard factors (dumpsite contents, distance of site to drinking water aquifer, and site drainage) were also used as predictors of adverse pregnancy outcomes. Birth records from 1997-2001 were used to identify the 10,360 eligible infants born to mothers who resided in 197 Alaska Native villages with dumpsite rankings. Congenital anomalies investigated included: all congenital anomalies, central nervous system anomalies, circulatory and respiratory anomalies, gastrointestinal anomalies, urogenital anomalies, musculoskeletal and integumental anomalies, other defects, and multiple anomalies. Neither crude nor adjusted estimates detected a difference in risks across exposure levels, although adjusted estimates were positive in all congenital anomaly categories except gastrointestinal defects. Infants born to mothers residing in villages with high hazard dumpsite contents were more likely (RR=4.27; 95% CI: 1.76, 10.36) to have "other defects" than other infants. Other hazard factors were not significant predictors for any of the adverse outcomes examined. This is the first study to evaluate fetal and neonatal deaths and congenital anomalies associated with open dumpsites in Alaska Native villages. Problems with the study include a population-based exposure measurement, small sample size, and biases related to information recorded in birth records. Future studies should look at more sensitive indicators of risks.