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CONSEQUENCE OF TRIHALOMETHANE ON INFANT GROWTH

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Introduction. Disinfection of drinking water results in the formation of numerous disinfection byproducts (DBPs). The trihalomethanes are typically the most prevalent class of DBPs found in treated water and include chloroform, bromodichloromethane, dibromochloromethane, and bromoform. In the present study, we evaluated the effect of maternal TTHM exposure on several indices of fetal development.

Aims. Investigate the effect of total trihalomethane (TTHM) exposure on infant birth weight, low birth weight, and intrauterine growth retardation in term births.

Methods. According to data recorded in the Massachusetts birth registry, cross sectional analysis of 56 513 singleton infants born to residents of Massachusetts during 1990. Total trihalomethane samples were collected weekly on Mondays in vials containing ascorbic acid as a preservative for the trihalomethane compounds.Trihalomethane concentrations were determined. The total trihalomethane exposure estimates on gestational age, and environmental sampling data were done. Relying on weekly total trihalomethane samples, calculated each mother's trimester-specific and pregnancy average exposure, assuming that the mothers lived at the residence reported on the birth certificate throughout pregnancy. Analytical variability or precision for the total trihalomethane sampling method is estimated at about 20 percent.

Results. The results indicate that exposure to high trihalomethane levels during pregnancy is associated with reductions in birth weight among term births. Reductions of 2.8 g for each 20 μg/l increase in pregnancy average TTHM concentration and 2.6 g for each 20 μg/l increase in second trimester TTHM concentration were observed. Increased pregnancy average and second trimester TTHM exposure were associated with small for gestational age and reductions in

birth weight after adjusting for potential confounding variables. Compared to ≤ 60 μg/l, pregnancy average TTHM exposure over 80 μg/l was associated with a 32 g reduction in birth weight. There was a 23 g reduction in birth weight in infants born to mothers exposed to greater than 80 μg/l TTHM during the second trimester.

Conclusion. Maternal exposure to THMs may be associated with fetal growth retardation. Although there is a smaller effects of TTHMs on low birth weight and intrauterine growth retardation. Therefore, the pregnant women must prevent these products as much as they can.