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High Breast Milk Levels of Polychlorinated Biphenyls (PCBs) among Four Women Living Adjacent to a PCB-Contaminated Waste Site

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Abstract

As a consequence of contamination by effluents from local electronics manufacturing facilities, the New Bedford Harbor and estuary in southeastern Massachusetts is among the sites in the United States that are considered the most highly contaminated by polychlorinated biphenyls (PCBs). Since 1993, measures of intrauterine PCB exposure have been obtained for a sample of New Bedford area infants. Among 122 mother-infant pairs, we identified four milk samples with total PCB levels that were significantly higher than the rest, with estimated total PCBs ranging from 1,100 to 2,400 ng/g milk fat compared with an overall mean of 320 ng/g milk fat for the 122 women. The congener profile and history of one case was consistent with past occupational PCB exposures. Otherwise, the source of PCB exposures in these cases was difficult to specify. Environmental exposures including those from fish consumption were likely, whereas residence adjacent to a PCB-contaminated site was considered an unlikely exposure source. In all four cases, the infants were full-term, healthy newborns. Because the developing nervous system is believed to be particularly susceptible to PCBs (for example, prenatal PCB exposures have been associated with prematurity, decrements in birth weight and gestation time, and behavioral and developmental deficits in later infancy and childhood, including decrements in IQ), it is critical to ascertain if breast-feeding is a health risk for the women's infants. Despite the potential for large postnatal PCB exposures via breast milk, there is limited evidence of significant developmental toxicity associated with the transmission of moderate PCB concentrations through breast milk. Breast-feeding is associated with substantial health benefits including better cognitive skills among breast-fed compared with formula-fed infants. We conclude, based on evidence from other studies, that the benefits of breast-feeding probably outweigh any risk from PCB exposures via breast milk among the four New Bedford infants. In this case report, PCB analysis of breast milk and infant cord serum was a research

tool. PCB analysis of milk is rarely done clinically, in part because it is difficult to use the results of such analyses to predict health risks. Substantial effort is needed to achieve a better understanding of the clinical and public health significance of PCB exposures, particularly among potentially susceptible groups such as infants and children. Such efforts are critical to improving the clinical and public health management of widespread and ongoing population exposures to PCBs. **Key words:** breast milk, infancy, organochlorines, PCBs, polychlorinated biphenyls, prenatal exposure. **Environ Health Perspect** 106:513-518 (1998). [Online 14 July 1998]

<http://ehpnet1.niehs.nih.gov/docs/1998/106p513-518korrick/abstract.html>

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