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Alaska Mercury Biomonitoring Program Update, July 2002–December 2006

Alaska Mercury Biomonitoring Program

In July 2002, the Alaska Division of Public Health (DPH) began the Statewide Maternal Hair Mercury Biomonitoring Program, offering free and confidential hair mercury testing to all pregnant women in Alaska. Eligibility was since expanded to include all women of childbearing age (15-45 years old).

Purpose of the Program

People are most commonly exposed to mercury through consumption of fish and marine mammals. This program focuses on women of childbearing age, as the growing fetus is most vulnerable to the neurotoxic effects of mercury. Having their hair tested for mercury permits individual Alaskan women to assess their own mercury exposures, and to learn whether dietary changes are necessary. The purpose of this *Bulletin* is to present updated Alaska Mercury Biomonitoring Program results.

Results

Hair Samples

Through December 31, 2006, we analyzed hair samples from 201 pregnant women and 158 women of childbearing age who lived in 51 Alaska communities (Figure 1). The median age of the pregnant women was 28 years (range, 15-47 years). The median hair mercury level among pregnant women was 0.46 parts per million (ppm, range, 0.02-6.35 ppm). The median age of non-pregnant women of childbearing age was 34 years (range, 16-45 years). The median hair mercury level among non-pregnant women of childbearing age was 0.59 ppm (range, 0.01-7.82 ppm). The median hair mercury level among all pregnant women and non-pregnant women of childbearing age was 0.53 ppm (Figure 2).

Follow-up Investigations

Follow-up investigations were conducted for the three women whose hair samples exceeded 5 ppm; all were women from the Yukon-Kuskokwim Delta and the Aleutian Islands who consumed large amounts of marine mammal livers and kidneys. The women were informed of ways to reduce their mercury exposure by choosing to eat marine mammal tissues that contain lower concentrations of mercury.

Summary

To date, no one has been found to have a hair mercury level of public health concern as a result of eating Alaska fish. Because of the beneficial effects of seafood consumption by pregnant women on child development,² DPH continues to strongly support fish consumption by pregnant women. We are currently developing fish consumption recommendations for pregnant women and young children, which will be released in a forthcoming Recommendations and Reports this spring.

Recommendation

Health care providers should encourage women of childbearing age to participate in the Alaska Mercury Biomonitoring Program in order to better monitor mercury exposures throughout Alaska, ensure optimal Alaska dietary recommendations, and enable individual participants to learn about their mercury exposure.

Figure 1. Locations of Women who Participated in the Alaska Mercury Biomonitoring Program — Alaska, July 2002–December 2006

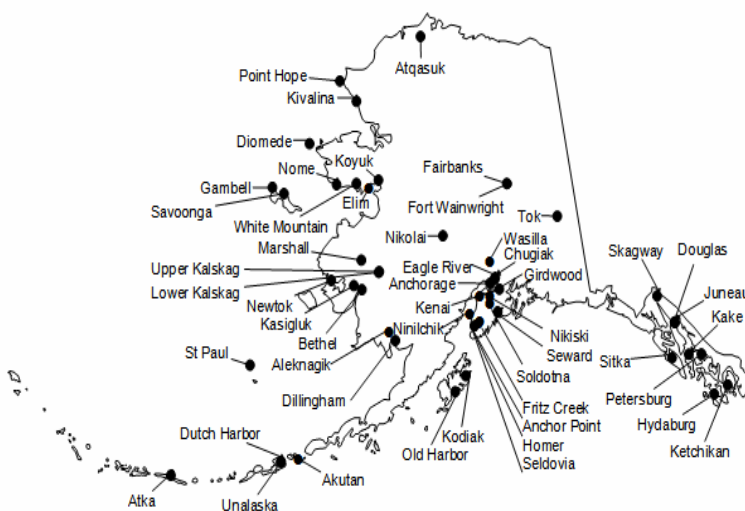
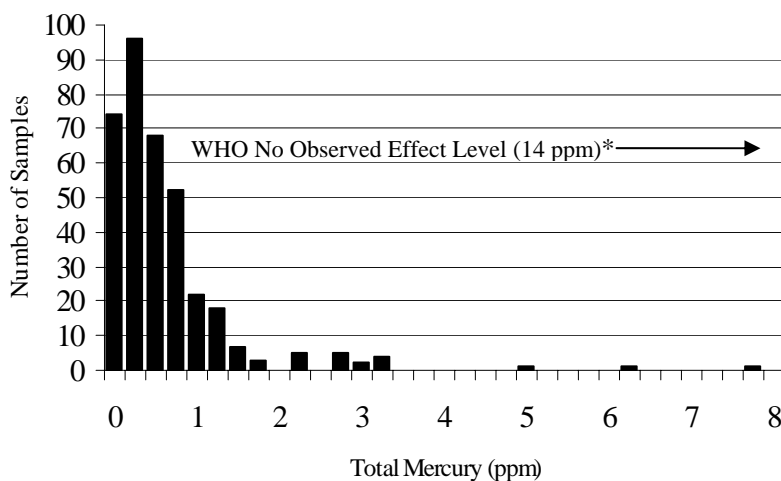


Figure 2. Hair Mercury Concentrations of Women who Participated in the Alaska Mercury Biomonitoring Program — Alaska, July 2002–December 2006 (N=359)



*The World Health Organization's (WHO) analysis of two large epidemiological studies determined that there were no adverse health effects to the fetus associated with maternal hair mercury levels under 14 ppm (parts per million).¹ However, to provide a margin for safety, DPH conducts follow-up investigations on all hair mercury levels above 5 ppm.

Reference

1. Joint FAO/WHO Expert Committee on Food Additives (JECFA) (2003) Summary and Conclusions. Sixty-first meeting. Rome, Italy. Available at: http://www.who.int/ipcs/food/jecfa/summaries/en/summary_61.pdf.
2. Hibbeln Jr, Davis JM, Steer C, et al. Maternal seafood consumption in pregnancy and neurodevelopmental outcomes in childhood (ALSPAC Study): an observational cohort study. *Lancet* 2007;369:578-85.

Contact the Alaska Section of Epidemiology, Environmental Public Health Program at 907-269-8000 for information on how to collect and submit hair samples.