



Department of Health and Social Services  
Margaret R. Lowe, MEd, EdS, Commissioner

Division of Public Health  
Peter M. Nakamura, MD, MPH, Director

Section of Epidemiology  
John Middaugh, MD, Editor

3601 C Street, Suite 576, P.O. Box 240249, Anchorage, Alaska 99524-0249 (907) 561-4406

Bulletin No. 14 June 28, 1994

## Childhood Blood Lead Screening in Alaska - Preliminary Results

In 1992, the Health Care Financing Administration (HCFA) issued a regulation requiring that blood lead testing be offered to all Medicaid eligible children at 6 to 12 months of age and again at 24 months of age except in "lead-free communities." Following this, the Section of Epidemiology initiated a program to 1) offer lead screening to Medicaid eligible children throughout the state, and 2) determine the risk of elevated blood lead among Medicaid eligible children.

Between September 1993 and March 1994, 967 Medicaid eligible children in 33 communities in Alaska were tested (Figure 1). Children were tested in all seven Medicaid regions with approximately 40% of those tested residing in urban areas and 60% in rural villages. Blood was collected from 2- to 3-year-olds in urban areas and 2- to 6-year-olds in villages. Samples were collected by venipuncture; blood was tested at ESA Laboratories in Bedford, MA.

**Blood lead levels were very low.** The overall arithmetic mean was 2.4  $\mu\text{g/dL}$  and the geometric mean was 2.0  $\mu\text{g/dL}$  (CDC recommended safety level = 10  $\mu\text{g/dL}$ ). Preliminary analysis did not identify any important differences in blood lead levels when examined by the age, race, sex, or place of residence of the child.

Six children had initial blood lead levels considered "elevated" (i.e.,  $\geq 10 \mu\text{g/dL}$ ). One child had a blood lead level of 21  $\mu\text{g/dL}$ ; no other child had a level  $> 13 \mu\text{g/dL}$ . When these six children were retested, five had levels  $< 10 \mu\text{g/dL}$  and the child with an initial blood lead of 21  $\mu\text{g/dL}$  had a retest level of 11  $\mu\text{g/dL}$ . **No children were identified who would be expected to benefit from any medical or environmental intervention to lower their blood lead level.**

A verbal risk assessment questionnaire using questions recommended by the U.S. Centers for Disease Control and Prevention (CDC) was administered to a parent of each child tested. None of the questions successfully distinguished between children with blood lead levels below versus  $\geq 10 \mu\text{g/dL}$ . Of 631 children who had a "yes" response to at least one risk question and would therefore be classified by CDC as being at "high risk" for having an elevated blood lead level, only 5 (0.8%) had a lead level  $\geq 10 \mu\text{g/dL}$ . Evaluation of the performance characteristics (sensitivity, specificity, and predictive value positive) of these questions demonstrated that they had no value when used in Alaska.

The Section of Epidemiology is preparing a detailed report describing the methods, findings, and conclusions of the testing program. The results presented here are preliminary, and it is possible that the final results will vary slightly.

### Recommendations

The results of this study do not support continued universal blood lead screening of Medicaid-eligible children in Alaska. In addition, the CDC risk factor questions were of no value as a risk assessment tool for identifying Alaska children with elevated blood lead levels.

In October 1993, HCFA removed the "lead-free communities" exemption from its regulation, mandating that all Medicaid eligible children, regardless of risk, be offered testing for blood lead twice during their first 2 years of life. We estimate that the cost of operating such a program in Alaska would exceed \$1.0 million per year. As our study failed to identify any child or group of children who would benefit from blood lead screening, the Section of Epidemiology believes that HCFA should reinstate the "lead-free community" exemption.

The Section of Epidemiology does not support routine blood lead screening of Alaska children. Targeted blood lead testing is recommended if an individual child has signs or symptoms suggesting lead poisoning or a child has an identifiable exposure to lead.

**Figure 1.** Communities (and number of children tested) included in the Medicaid blood lead screening program; September 1993 to March 1994.

