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## Alaska School Tuberculosis Screening, 1994-1995

School tuberculosis (TB) screening in Alaska has two major purposes - to detect cases and outbreaks of TB disease and to identify children who would benefit from preventive therapy. All schools are required to administer a TB skin test to each child in pre-elementary school; in grades K, 1, 3, 7 and 11; or in a district or private school for the first time. Many rural schools screen children every year regardless of grade because of historically high rates of TB disease in their regions.

The initial screening test is typically a Mono-Vacc; if positive, a PPD skin test is administered. If the PPD skin test is positive, the child is referred to a physician or nurse.

### Incidence of newly positive skin tests, 1994-1995

There were 290 (0.4%) schoolchildren with newly positive PPD skin tests out of 71,476 tested during the 1994-1995 school year. Incidence rates differed by region, race, and grade (Tables 1-3). Incidence rates by race were calculated for grades where testing was required by applying the racial breakdown of all Alaska schoolchildren to the 53,897 children tested in the required grades. The incidence of newly positive PPDs was highest among schoolchildren from the Southwest region, among high school students, and among Asian/Pacific Islanders (PI). The only racial group that had a rate above 10/1000 was Asian/PI at 17.6/1000. Most (85%) of these Asian/PI children were foreign born.

Table 1. Schoolchildren with newly positive PPD skin tests by region, Alaska, 1994-1995

Region	Newly positive	Tested	Rate (newly positive/1000)
Aleutians <sup>1</sup>	2	893	2.2
North and West <sup>2</sup>	50	14,016	3.6
Southwest <sup>3</sup>	12	1,456	8.2
Southeast <sup>4</sup>	22	9,223	2.4
Interior <sup>5</sup>	38	10,268	3.7
Southcentral <sup>6</sup>	166	35,620	4.7
Total	290	71,476	4.1

1. Aleutians includes Aleutians East and Aleutians West census areas.  
2. North and West includes Bethel, Wade Hampton, Nome, Northwest Arctic and North Slope census areas.  
3. Southwest includes Bristol Bay, Dillingham, Kodiak, and Lake and Peninsula census areas.  
4. Southeast includes Yakutat, Haines, Skagway-Hoonah-Angoon, Juneau, Sitka, Wrangell-Petersburg, and Prince of Wales-Outer Ketchikan Gateway census areas.  
5. Interior includes Yukon-Koyukuk, Fairbanks North Star, Southeast Fairbanks and Denali census areas.  
6. Southcentral includes Matanuska-Susitna, Anchorage, Kenai Peninsula, and Valdez-Cordova census areas.

Table 2. Schoolchildren with newly positive PPD skin tests in required grades\* by race, Alaska, 1994-1995

Race	Newly positive	Tested (estimate)	Rate (newly positive/1000)
White	118	36,380	3.2
Alaska Native	20	12,073	1.7
African-American	11	2,641	4.2
Asian/PI	39	2,210	17.6
American Indian	0	539	0
Unknown	0	54	0

\* P, K, 1, 3, 7, 11 (53,897 children tested).

Table 3. School children with newly positive PPD skin tests by grade, Alaska, 1994-1995

Grade level	Newly positive	Tested	Rate (newly positive/1000)
P*	5	5,795	0.9
K*	20	10,620	1.9
1*	29	10,650	2.7
2	7	2,802	2.5
3*	24	10,375	2.3
4	5	2,745	1.8
5	6	2,652	2.3
6	7	2,497	2.8
7*	58	9,179	6.3
8	16	2,039	7.8
9	21	1,974	10.6
10	17	1,611	10.6
11*	57	7,278	7.8
12	17	1,259	13.5

\* required grade

## Outbreak cases of TB disease detected

As a result of the investigation of positive PPD skin tests among schoolchildren, TB disease and TB infections in other persons were detected. Nine schoolchildren with newly positive PPD skin tests were diagnosed with TB disease during 1994-1995. These children heralded two TB outbreaks in the North and West region leading to the detection of 24 additional persons with TB disease and 39 persons with TB infection who completed preventive therapy (Table 4). In comparison to the previous four years, more cases of TB disease were detected during 1994-1995 (Table 4). Only one case of TB disease from urban areas during 1991-1995 may have been detected as a result of an associate investigation secondary to school screening. The two TB outbreaks in 1994-1995 detected by school screening would have been discovered if only required grades had been screened.

Table 4. TB disease and infection detected by school screening

School year	Disease schoolchildren	Community	
		Disease	Infection*
1994-1995	9	24	39
1993-1994	2	0	0
1992-1993	0	1	1
1991-1992	1	1	5
1990-1991	1	0	0
<b>Mean (annual)</b>	<b>2.6</b>	<b>5.2</b>	<b>9</b>

\* Only converters or reactors who completed treatment were included.

## Discussion

School TB screening in Alaska has been important in detecting outbreaks in rural Alaska Native villages. During 1994-1995, two TB outbreaks in the North and West region involving 33 cases of TB disease were detected as a result of school screenings. The incidence of newly positive PPD skin tests detected during school screening in 1994-1995 was low (0.4%). The incidence did not vary widely between regions, although it did vary by race with Asians having the highest incidence. A special effort is currently underway to follow-up children with newly positive PPD skin tests through complete associate investigations to find possible undetected index cases. Pending the outcome of this project, new school TB screening guidelines may be developed.

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