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Investigations of Schoolchildren with Newly Positive
Tuberculosis Skin Tests, Anchorage, 1997

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. The incidence of newly positive tuberculin skin tests detected during school screening in Alaska during 1994-1995 was low (0.4%) (*Epidemiology Bulletin* no. 25, 1997). However, school screening during 1995 led to detection of two TB outbreaks involving 33 cases of TB disease in rural Alaska Native villages. Only one case of TB disease from urban areas of Alaska during 1991-1995 may have been detected as a result of an associate investigation secondary to school screening (*Epidemiology Bulletin* no. 25, 1997). Associate investigations are the systematic evaluations of persons who have been around a person newly infected with TB for evidence of TB disease or infection. We sought to determine if cases of TB disease could be detected as a result of thorough associate investigations around Anchorage schoolchildren with newly positive tuberculin skin tests during the 1996-1997 school year who were likely to be recently infected with TB.

Methods

Anchorage school children with newly positive tuberculin skin tests during 1996-1997 were included if they were ≤ 7 years old or were older but had had a documented skin test conversion (they had had a negative skin test in the past two years). The school nurse and health care provider for each child were contacted to verify TB skin testing history. The child's family was evaluated either at home or at the Municipality of Anchorage Tuberculosis Clinic. An attempt was made to screen all household members and any other persons who routinely visited the household such as baby-sitters, grandparents, or other relatives. For persons with a history of a positive tuberculin skin test, screening consisted of a thorough symptom history and further evaluation as warranted. All others received a tuberculin skin test.

Results

Of 34 children who met the inclusion criteria, 32 had associate investigations. Skin test indurations ranged from 10-35mm (mean 14mm). One hundred and forty-one hours were spent on these investigations (4.4 hours/investigation). Both of the children who were not investigated moved without a forwarding address. Seventeen of the 32 were aged ≤ 7 years; six of these children had documented skin test conversions. All 15 of the older children had documented skin test conversions. Twenty-two children were white, eight were Asian, and four were of unknown race.

No cases of TB disease were found as a result of these associate investigations. One hundred- twelve associates were investigated (3.5 persons/investigation) (Table 1). Of these persons, eight (7%) had had a previous positive tuberculin skin test, and 20 (18%) were newly positive. Fourteen (70%) of those newly positive were classified as skin test reactors as they had no documented negative skin test in the past 2 years. Twelve of the 20 persons with newly positive skin tests started isoniazid (INH) preventive therapy; two persons with skin test conversions did not start INH.

Of the 34 children with newly positive tuberculin skin tests, 25 (74%) started and continued INH. Of the nine who were not taking INH at the time of the associate investigation, eight had never started. Health care providers made the decision not to start INH for six of the eight children; the other two had moved. Health care providers did not start children on INH for two reasons; history of BCG ($n=2$) and the skin test was repeated with a result <10 mm ($n=4$).

Table 1. Results of Associate Investigations Around Schoolchildren with Newly Positive Tuberculosis Skin Tests, Anchorage 1997

Age (years)	Investigations	Persons Investigated	PPDs Placed	Previous Positive PPDs	Reactors	Converters	Started INH
≤ 7	17	64	60	4	9	4	11
> 7	15	48	44	4	5	2	1
Total	32	112	104	8	14	6	12

Discussion

Thorough associate investigations of 112 persons around 32 school children likely to have been recently infected with TB did not result in the detection of TB disease. As a result of the investigations, 12 persons started and continued INH. Most children (74%) in this study started and continued INH preventive therapy. Most of those who didn't start INH followed the recommendation of their health care provider not to start which was based on a history of BCG or a repeat skin test. As stated in *Epidemiology Bulletin* no. 26, 1997, school children with newly positive tuberculin skin tests should receive preventive therapy, regardless of BCG status.

(Contributed by Gerri Yett, RN and Michael Landen, MD, MPH, Section of Epidemiology. Thanks to Sherrell Holtshouser, RN and Suzanne Banda, RN, Municipality of Anchorage)