State of Alaska Epidemiology Bulletin

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Tuberculosis in Anchorage, 1996-1997

During 1996 and 1997, 46 Anchorage residents were diagnosed with active tuberculosis. Twenty-nine were male and 17 were female. They ranged in age from 3 months to 91 years; median age was 40 years. The 3-month-old presented with a large left upper lobe infiltrate and *Mycobacterium tuberculosis* grew from gastric aspirates, demonstrating how rapidly active TB may develop in young infants.

Race and ethnicity: There was a high rate of TB among the Asian/Pacific Islander population, 2½ times that of the American Indian/Alaska Native population (Table 1). This contrasts with other areas of Alaska, where the highest rates were among American Indians/Alaska Natives. Nineteen persons (41%) were foreign born; all were Asian/Pacific Islanders from the Philippines (7), Korea (6), Taiwan (2) and Vietnam (2), China (1) and Thailand (1).

Social challenges: Three cases were reported to be homeless during the year preceding the diagnosis of TB. Three cases were in correctional institutions at the time of diagnosis. Ten cases were reported to use alcohol in excess and two cases to use injection drugs in the year preceding diagnosis.

Site of disease and laboratory results: Forty persons (87%) had pulmonary tuberculosis, two had pleural disease and two cervical node involvement. One person each had genitourinary and vertebral TB. Thirty-nine (85%) of the 46 persons with TB were culture positive. Thirty-five persons with pulmonary TB had sputums stained for acid fast bacteria; 16 (45%) were positive. No cases with single or multiple drug resistance (MDR-TB) were identified during 1996-1997.

TB fingerprinting: The U.S. Centers for Disease Control and Prevention (CDC) performs DNA fingerprints[1] (FP) on Alaska *M. tuberculosis* isolates cultured by the State Public Health Laboratory. FP results were available for 24 of the 39 culture positive cases; 19 distinct FPs were identified. Sixteen isolates had unique FP patterns while three patterns were seen in multiple isolates. Two co-workers shared a FP pattern not identified elsewhere in Alaska. Three persons had a pattern which was seen in 1996 in Kokhanok; two of three Anchorage cases had an epidemiologic link to Kokhanok. Three persons had a FP pattern identical to that of several cases on St. Lawrence Island from 1994-96; no epidemiologic links were established between these cases and St. Lawrence Island.

HIV co-infection: HIV test results were reported for only 18 persons (39%); one was positive, and 17 were negative. Persons co-infected with HIV and *M. tuberculosis* are at very high risk of developing active disease—the risk of TB disease may be more than 100 times greater than for persons with *M. tuberculosis* infection alone. A new CDC report[2] on TB and HIV states "early diagnosis and effective treatment of TB among HIV-infected patients are critical for curing TB, minimizing the negative effects of TB on the course of HIV, and interrupting the transmission of *M. tuberculosis* to other persons in the community." CDC strongly recommends that **all persons suspected of having TB undergo HIV testing unless there is a) documentation of a positive HIV antibody test or b) a negative result to an HIV antibody test conducted within the past 6 months**.

Discussion: According to World Health Organization (WHO) estimates, one third of the world's population is infected with *M. tuberculosis.*[3] WHO estimates there are 7-8 million new cases and 2-3 million TB-related deaths annually. Drug resistance is now found throughout the world, and the prevalence of both single drug resistant and MDR-TB strains is increasing.[4] The likelihood of importation of TB and MDR-TB into Anchorage is great because of international travel and immigration to Alaska.

The priorities of TB control are prompt identification and reporting of persons with TB, initiation of appropriate therapy, and completion of therapy using directly observed therapy. Diligent contact investigation by public health professionals and preventive therapy for persons with TB infection are critical. Control of TB in Anchorage will only be successful through the ongoing collaboration of both private and public health care communities.

References:

1. Van Embden J, Cave MD, Crawford JT, et al. Strain identification of *Mycobacterium tuberculosis* by DNA fingerprinting: Recommendations for a standardized methodology. J Clin Microbiol 1993;31:406-9.
2. CDC. Prevention and treatment of tuberculosis among patients with human immunodeficiency virus: principles of therapy and revised recommendations. MMWR 1998;47(No. RR-20):1-58.
3. WHO. Tuberculosis Fact Sheet, Global Tuberculosis Programme http://www.who.int/gtb/publications/factsheet/index.htm
4. WHO. Antituberculosis drug resistance worldwide. Wkly Epidemiol Rec August 14, 1998; 73:249-53.

Table 1. Tuberculosis cases and rates per 100,000 in Anchorage, Alaska and the United States: 1996-1997

Race/Ethnicity	Anchorage Cases	Rates per 100,000 population/year			
		Anchorage*	Elsewhere in Alaska*	Total Alaska*	United States**
White, Not Hispanic	10	2.6	2.6	2.6	2.7
Black, Not Hispanic	5	18.6	0.0	13.1	21.4
American Indian / Alaska Native	9	27.3	64.7	58.2	14.0
Asian / Pacific Islander	21	70.7	40.0	57.5	41.1
Hispanic, all races	1	4.2	19.1	11.2	15.2
Total	46	9.2	18.0	14.3	7.7

*Rates calculated using US Census Bureau "Estimates of the population of counties by race and Hispanic origin: July 1, 1996," http://www.census.gov/population/estimates/county/crh/crhak96.txt.

**Calculated by averaging 1996 and 1997 TB rates published in CDC, National Center of HIV, STD, and TB Prevention, Division of Tuberculosis Elimination: Reported Tuberculosis in the United States 1996, Table 3, p. 6 and Reported Tuberculosis in the United States 1997, Table 3, p 10.

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