



Department of Health and Social Services
Joel Gilbertson, Commissioner

Division of Public Health
Richard Mandsager, MD, Director

Section of Epidemiology
Beth Funk, MD, MPH, Editor

3601 C Street, Suite 540, PO Box 240249, Anchorage, Alaska 99524-0249 (907) 269-8000
24-Hour Emergency Number 1-800-478-0084

Bulletin No. 22 October 20, 2004

<http://www.epi.Alaska.gov>

Tuberculosis in Anchorage, Alaska, 1999-2003

In a collaborative effort, Anchorage medical providers, the Alaska Department of Health and Social Services, and the Municipality of Anchorage Department of Health and Human Services identified, investigated, and treated 95 Anchorage residents with active tuberculosis (TB) during 1999-2003 (Table 1).

Table 1. Characteristics of Active TB Cases, Anchorage, 1999-2003 (n=95)

Demographics	
• Median age: 39 years (range 3 months to 82 years)	
• Gender: Male 60%, Female 40%	
• Race:	
Asian/Pacific Islander	40%
Alaska Native/American Indian	34%
White	16%
Black	9%
• Foreign-born: 44% -- [Philippines (24 cases); Republic of Korea (4 cases); 2 cases each from Laos and Mexico; and 1 case each from Algeria, Cambodia, China, Dominican Republic, Germany, Honduras, India, Indonesia, Vietnam, and Western Samoa]	
• HIV positive: 1%	
• Excess alcohol use: 32% (compared to 32% of Alaska cases and 15% of US cases)	
• Homeless: 17% (compared to 6% of Alaska cases and 6% of US cases)	
Site of Disease	
• Pulmonary	86%
• Cervical/scrofula	8%
• Miliary/disseminated	2%
• Colon	1%
• Pleural	1%
• Peritoneal	1%
Microbiology	
• Culture positive	86%
• Acid fast bacilli (AFB) smear positive	50%
• Isoniazid (INH) resistance, total	10%
Foreign-born cases	15%
US-born cases	4%
• Multi-drug (INH+rifampin) resistance	0%

During this period TB rates were higher in Anchorage than for the United States but lower than for Alaska. Highest rates of disease were in the Asian/Pacific Islander and Alaska Native/American Indian populations (Table 2).

Table 2. Selected TB Rates, 1999-2003 (cases per 100,000)

• United States	5.6
• Alaska	10.4
• Anchorage	7.2
- Asian/Pacific Islander	42.9
- Alaska Native/American Indian	31.8
- Black	11.0
- White	1.5

Deaths: Two persons died before completion of TB treatment. One was a 46-year-old male who had recently arrived from the Philippines with cavitary TB. After 1 month of directly observed therapy (DOT), he died suddenly at home of massive pulmonary hemorrhage secondary to rupture of a pulmonary artery due to tissue destruction associated with severe disease.

The second case was a 54-year-old male who died in hospital 3 weeks after admission for respiratory failure. He had multiple medical problems including chronic obstructive pulmonary disease, atherosclerotic heart disease, hypertension, and renal failure for which he had received a transplant 9 years earlier. He was on immunosuppressive therapy with prednisone, cyclosporine, and azathioprine. TB was not suspected at admission. Although sputa collected on admission were AFB smear negative, cultures were positive for *Mycobacterium tuberculosis* at 3 weeks. He died on the day treatment was initiated.

Latent TB Infection (LTBI): From 1999 to 2003, 1,890 persons started treatment for LTBI; of these, 59% completed treatment, 10% were still on treatment at the end of December 2003, 7% discontinued treatment on medical advice for adverse reactions and other medical reasons, and 24% discontinued medication on their own or did not return for refills and follow-up despite calls and mailed reminders.

Because of the risk of progression to active disease among young children with immunologic immaturity, these patients are increasingly treated with DOT. Among older children and adults, highest completion rates were among children ages 5 to 9 years (67%) and 10 to 14 years (68%). A likely contributing factor is the willingness of many school nurses in the Anchorage School District to provide biweekly DOT to students during the school year.

The Work of TB Control: "An ounce of prevention is a ton of work!" While this phrase applies to most public health activities, it is especially true for TB. (Table 3) According to current guidelines,¹ a routine 6-month short course treatment for active TB requires a minimum of 58 DOT visits. Persons with cavitary TB who remain culture positive at 2 months require a minimum of 9 months of treatment, (minimum 84 DOT visits), and patients with drug resistant TB may require 12 to 24 months of treatment. Infants and children and others who cannot tolerate biweekly treatment usually remain on daily DOT for their entire treatment—a minimum of 130 DOT visits.

Table 3. The Work of TB Control, Anchorage, 1999-2003

• Home visits for DOT to active TB cases	9,836
• Home visits for DOT to high-risk infants, children, and others with LTBI	6,774
• Total home visits	17,792
• Total clinic visits	32,084

Challenges: For a portion of the TB patients in Anchorage, especially those dealing with alcoholism and homelessness, TB treatment is not a personal priority, and the city presents more potential hiding spaces than a small village. TB control staff regularly search streets, shelters, emergency departments, and campsites to find wayward patients and use rewards and incentives to motivate them to comply with treatment. In addition, many foreign-born patients and families do not speak English, requiring regular use of interpreters for communication and education. And finally, while TB control in Anchorage involves different challenges than in rural Alaska, limited personnel and funding remain a constant threat to successful TB control everywhere.

1. Centers for Disease Control and Prevention. Treatment of Tuberculosis, American Thoracic Society, CDC, and Infectious Diseases Society of America. MMWR 2003;52 (RR-11). <http://www.cdc.gov/mmwr/PDF/rr/rr5211.pdf>