State of Alaska Epidemiology **Bulletin**

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Tuberculosis and Air Travel

On November 2, 1994, a 46-year-old man suspected of having pulmonary tuberculosis (TB) flew via commercial airline on a 2½ hour flight from a rural village in Alaska to Anchorage. The patient had submitted three sputum specimens during the previous month and, although two of the smears were 1+ positive for acid-fast bacilli (AFB), anti-tuberculosis medications had not been started. The patient did not wear a mask during the flight. Subsequently, all three sputum specimens grew *Mycobacterium tuberculosis*, sensitive to isoniazid, rifampin, and ethambutol. He completed 6 months of anti-tuberculosis treatment without complication.

The TB Control Program conducted an investigation of the 12 other persons on the plane. Among the passengers, four had Mantoux (PPD) skin tests which were 0 mm when tested within 3 weeks after the flight and again 3-5 months later; one had a previous positive skin test and was not re-tested; one had a negative multiple-puncture skin test within 1 week of the flight and was then lost to follow-up; and one, a close contact of the TB case, had 0 mm Mantoux tests 4 weeks before and 2 weeks after the flight. Four of the five crew members had Mantoux tests of 0 mm within 4 weeks of the flight, and all five had 0 mm Mantoux tests 3-5 months later.

**Discussion:** This investigation indicated no evidence of TB transmission during a 2½ hour flight. The finding was similar to results of a 1993 investigation conducted by the Minnesota Department of Health after a patient with pulmonary TB traveled on a 9-hour flight from London to Minneapolis (1). In that investigation, despite the fact that the index case had cavitary disease and a strongly positive (4+) AFB smear, all 58 U.S. born passengers who were skin-tested ≥ 12 weeks after the flight were negative. Only two investigations have identified situations where TB was transmitted on commercial jet aircraft. The first investigation found that TB had been transmitted from a flight attendant to other crew members, but evidence of transmission to passengers was inconclusive (2,3). The other investigation concluded that there was evidence of TB transmission from a passenger ill with TB to other passengers and flight crew members (2,4). The U.S. Centers for Disease Control and Prevention found that the risk of transmission appeared to be greatest for flights exceeding 8 hours duration and stated that although the "risk for *Mycobacterium tuberculosis* transmission on an aircraft does not appear to be greater than in other confined spaces," persons known to have infectious TB should not travel by commercial aircraft (2).

**Recommendations:**
1. Alaskans, probably more than residents of any other state, depend on commercial air carriers for routine travel.

Although the risk of transmission of TB on an aircraft is exceedingly small, a patient diagnosed by a health-care provider with infectious TB should not travel on commercial aircraft while still infectious.

2. Generally, persons with a positive AFB smear and those suspected by their health-care provider to have infectious TB, but for whom AFB smears have not been done, should not travel by air. Possible exceptions to these guidelines, such as the travel needs of an acutely ill person, should be discussed with the TB Control Program. **If problems arise, the TB Control Program should immediately be contacted (1-907-269-8000 during business hours; 1-800-478-0084 after hours).**

3. Health-care providers are required to report persons with known or suspected TB to the Division of Public Health. If a patient with possibly infectious TB needs to travel by air for a medical reason, their health-care provider should review the situation with the TB Control Program.

4. A person diagnosed with infectious TB can travel without restriction when:
a. The patient has completed at least 14 days of adequate anti-tuberculosis treatment; and
b. The patient has demonstrated a favorable clinical response to treatment; and
c. The patient has had three consecutive negative sputum AFB smears collected on 3 different days.

5. Multiple-puncture skin tests (e.g., Tine or Mono-Vacc tests) have no role in the follow-up evaluation of persons exposed to TB. All persons examined as part of an investigation around a TB case (or converter) should be tested with a Mantoux test. Testing should be repeated 3 months after exposure has stopped.

References:
1. McFarland JW, Hickman C, Osterholm MT, MacDonald KL. Exposure to *Mycobacterium tuberculosis* during air travel. Lancet 1993; 342:112-3.
2. CDC. Exposure of passengers and flight crew to *Mycobacterium tuberculosis* on commercial aircraft, 1992-1995. MMWR 1995; 44(8):137-40.
3. Driver CR, Valway SE, Morgan M, Onorato IM, Castro KG. Transmission of *Mycobacterium tuberculosis* associated with air travel. JAMA 1994; 272:1031-5.
4. Kenyon TA, Valway SE, Ihle WW, Onorato IM, Castro KG. Transmission of multi-drug-resistant *Mycobacterium tuberculosis* during a long airplane flight. N Engl J Med 1996; 334:933-8.

(Thanks to the passengers and flight crew involved. Contributed by Michael Beller, MD, MPH.)

Preliminary Announcement - Mark your Calendar!!
Fifth Bi-Annual Alaska Tuberculosis Conference will be held in Anchorage, March 21-22, 1997.
Details will be available soon.