

# Surveillance Snapshot

April 2011

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*Surveillance Snapshot* is a periodic publication of the Montana Communicable Disease Epidemiology Program. Each snapshot provides information about a topic of interest and includes an important public health prevention message.

## Tuberculosis in Montana

**Etiology, Transmission, and Pathogenesis:** Tuberculosis (TB) is caused by *Mycobacterium tuberculosis* and is spread from person to person through the air when a person with infectious TB coughs or sneezes. If another person inhales the infectious droplet nuclei, some bacteria may reach the alveoli in the lungs and multiply. A small number of bacteria will then enter the bloodstream and spread throughout the body. Within weeks, the immune system produces macrophages that surround the bacteria, halting further replication and preventing acute, symptomatic disease. Persons infected with *M. tuberculosis* but who do not have TB disease are asymptomatic and not infectious but are considered to have latent tuberculosis infection (LTBI). Persons with LTBI usually have a positive tuberculin skin test or Interferon gamma release assay test. Approximately 10% of persons with LTBI will develop active TB disease during their lifetime. TB disease occurs when the immune system can no longer contain the latent TB bacilli which then begin to rapidly multiply. The risk of developing active TB disease is much higher for those persons recently infected or with weakened immune systems.

**Trends:** In Montana, the number of tuberculosis cases reported annually has steadily decreased over the last decade - from 20 cases in 2001 to 6 cases in 2010 (Figure 1). TB cases among American Indians have declined from an average of 9.3 cases/year in the 1990's to 4.6 cases/year in the most recent decade. TB among foreign-born persons, however, has increased significantly, with as many cases (17) reported during 2006-2010 as were reported (also 17) during the preceding fifteen years.

**Prevention:** The most important prevention strategy in tuberculosis control is ensuring active TB cases are identified and treated with antibiotics until cured. Successful completion of therapy requires careful case management and medication administration by public health. The use of both directly observed therapy (DOT) - whereby all doses of antibiotics are administered by a public health professional - and incentives improves adherence to therapy and are used to manage active TB cases. DOT and incentives are also often used to treat those persons with LTBI at high-risk for developing active TB disease. Identifying persons who had contact with infectious TB cases and other persons at high risk for exposure to TB, including those recently arriving from high TB incidence countries, and treating these persons for LTBI *before* development of active TB disease, is also critical for preventing new TB cases. Other important prevention measures include: (a) maintaining clinical suspicion of TB in persons at high risk for exposure or development of TB and, (b) the use of timely molecular testing to identify the presence of multiple-drug resistant TB to ensure prompt initiation of effective therapy. For more information on TB see the Montana TB Policy Manual at <http://tb.hhs.mt.gov>.

**Figure: Active Tuberculosis Cases - Montana, 2001-2010**

