



Infectious Disease Epidemiology Report

Tuberculosis, 2011



Background

Tuberculosis (TB) is a mycobacterial disease caused by *Mycobacterium tuberculosis*. The disease is spread through the air by droplets when a person with infectious TB coughs, talks, sings or sneezes. Tuberculosis is only infectious when the disease is in the lungs or larynx (pulmonary) and is not infectious if it occurs outside of the lungs or larynx (extrapulmonary). Latent tuberculosis infections (LTBI) occur when the body's immune system is keeping the bacteria under control and inactive, so that disease does not develop. Individuals with LTBI are not symptomatic and not infectious to others.

Two tests are available to detect LTBI, either can be used. The TB skin test, called the tuberculin skin test (TST), has been used for many years. A newer blood test called interferon gamma release assays (IGRAs) is also available.

Maine monitors the incidence of TB through mandatory reporting by health care providers, clinical laboratories and other public health partners. Although not reportable, Maine also monitors LTBI diagnoses.

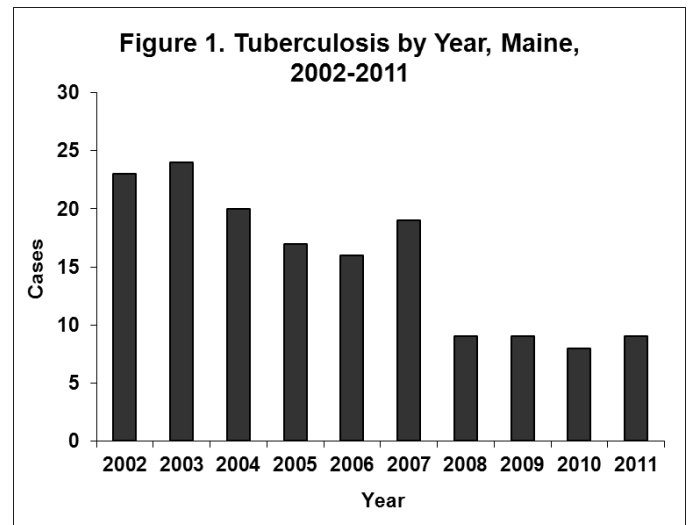
Methods

All TB cases in Maine are evaluated by a TB Consultant physician and receive case management services and directly observed therapy (DOT) by a Public Health Nurse (PHN). The TB Control Program coordinates TB clinic visits and routinely reviews case management with PHN and the State Epidemiologist. Cases are also reviewed with TB Consultants at quarterly meetings.

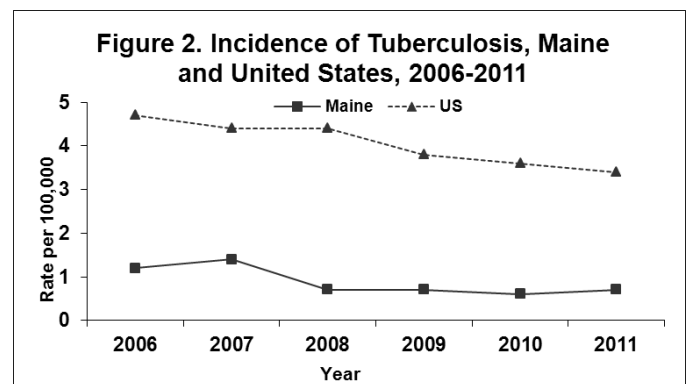
A confirmed case of TB must meet either clinical criteria or be laboratory confirmed with one of the following tests: isolation of *M. tuberculosis*; demonstration of *M. tuberculosis* by polymerase chain reaction (PCR); or demonstration of acid-fast bacilli when a culture has not been or cannot be obtained.

Results

A total of 9 confirmed cases of TB were reported in 2011 (Figure 1). There were no cases of multi – drug resistant (MDR) TB or extensively drug resistant (XDR) TB in Maine in 2011.



The incidence rate of TB in Maine in 2011, 0.7 cases per 100,000 population, is less than the national rate of 3.4 (Figure 2). Maine had the lowest rate of TB in the US states for the second year in a row. Nationwide, the case rate decreased by 6.4% from 2010.



The majority of cases in 2011 were female (67%). The median age of cases was 70 years (range 22 years - 90 years). Cases resided in 6 counties, Androscoggin (2), Cumberland (2), Kennebec (2) and one each in Franklin, Waldo and York counties.

Six cases (67%) were pulmonary and three (33%) were extrapulmonary. Seven cases had a tuberculin skin test (TST), of which five (71%) were positive. All six pulmonary cases had either an abnormal chest x-ray or CT scan.

None of the pulmonary cases had a positive sputum smear. Four (67 had a positive sputum culture and two were diagnosed by culture positive bronchial fluid specimens.

Risk factor information was available for all but one case, who expired prior to diagnosis (Table 1). Eight cases were tested for HIV, and all were negative. Five (56%) cases were born outside of the US. One (20%) of the foreign-born TB cases arrived in the United States in the 5 years prior to diagnosis (2007-2011).

Table 1. Characteristics and Risk Factors for TB Cases, Maine, 2011

	Cases (%)
Demographics	
Male	3 (33)
Female	6 (67)
Hispanic	0 (0)
Non-Hispanic	9 (100)
Asian	1 (11)
Black or African American	3 (33)
White	5 (56)
Country of origin	
U.S.	3 (33)
Non –U.S.	5 (56)
Unknown	1 (11)
Risk Factors	
Correctional facility at time of diagnosis	0
Injected drug use in past year	0
Non-injected drug use in past year	0
Excess alcohol use within past year	1 (11)
Homeless within past year	1 (11)
HIV status known	8 (89)
Incomplete LTBI therapy	1 (11)

There were five contact investigations in 2011 (one pulmonary case had no contacts identified). Eighty-four percent (84%) of identified contacts were evaluated. Seventeen individuals were identified

with latent TB infection, and 16 (94%) started treatment.

In 2011, Maine received 432 reports of persons with LTBI. Of those reported, 407 started treatment and 69% completed therapy (6 individuals are still being treated). Eighty-one percent (81%) of LTBI cases were diagnosed among persons who are foreign born. PHN followed 391 LTBI patients on treatment through monthly visits with each individual.

Discussion

Nationwide, the incidence of TB has decreased during recent years.

To enhance detection of TB and LTBI, Maine CDC conducts a targeted testing project in Portland which is a collaboration between the Tuberculosis Control Program, Public Health Nursing and homeless shelters. There have been two outbreaks of TB in Maine among the homeless population in the past 10 years.

While overall TB incidence is declining, an increase in TB among foreign-born persons in Maine and the US has been observed since 1993. The Public Health Nursing program continues to screen all newly arriving primary refugees for TB to facilitate case finding and treatment initiation and completion.

Early identification, reporting, prevention and targeted education about TB is necessary to keep TB disease from spreading in the Maine population. The evaluation and treatment of TB disease is more costly than LTBI treatment.

All suspected cases of TB must be reported immediately to the Tuberculosis Control Program at Maine CDC by calling 1-800-821-5821. The state Health and Environmental Testing Laboratory (HETL) provides all confirmatory TB testing for the state.

Additional information about tuberculosis is available at:

- Maine CDC: www.maine.gov/idepi
- Federal CDC: <http://www.cdc.gov/tb/>
- World Health Organization: <http://www.who.int/tb/en/>