Infectious Disease Epidemiology Report

Tuberculosis, 2013

Background

Tuberculosis (TB) is caused by the bacteria *Mycobacterium tuberculosis*. The bacteria are 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 (pulmonary) or larynx. Extrapulmonary disease occurs outside of the lungs or larynx and is not infectious. Latent tuberculosis infection (LTBI) occurs when the body's immune system keeps 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 screen for tuberculosis. The TB skin test, called the tuberculin skin test (TST), has been used for many years. A newer blood test called interferon gamma release assay (IGRA) is also available. Neither test differentiates between latent or active TB. All positive results require additional evaluation.

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

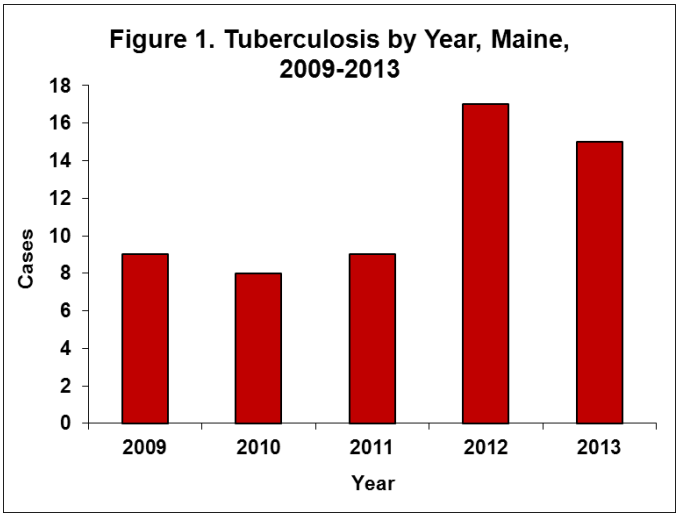
Methods

All TB cases in Maine are evaluated by a healthcare provider in consultation with 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 Medical Epidemiologist. Cases are also reviewed with TB Consultants at quarterly meetings.

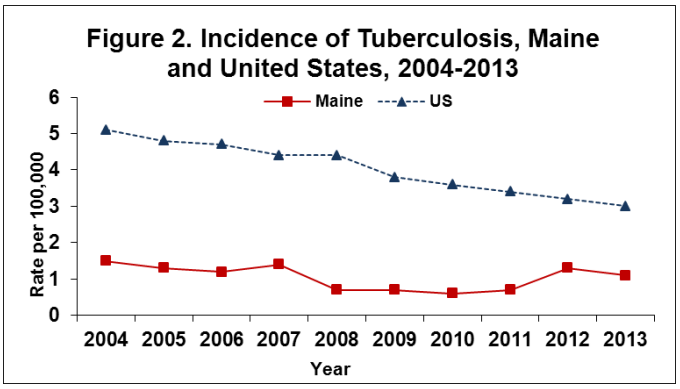
A confirmed case of TB must meet either clinical criteria or be laboratory confirmed with one of the following tests: isolation of *M. tuberculosis*; demonstration of *M. tuberculosis* by polymerase chain reaction (PCR); or demonstration of acid-fast bacilli when a culture has not been or cannot be obtained.

Results

A total of 15 confirmed cases of TB were reported in 2013 (Figure 1). No cases of multi–drug resistant (MDR) TB or extensively drug resistant (XDR) TB were reported in Maine in 2013. One case was resistant to pyrazinamide.



The incidence rate of TB in Maine in 2013, 1.1 cases per 100,000 population, is less than the national rate of 3.0 (Figure 2). Nationwide, the case rate decreased from 2012 by 4.3%.



The median age of TB cases was 55 years (range 1 year - 89 years). Cases resided in eight counties, Androscoggin (2), Aroostook (3), Cumberland (3), Franklin (1), Knox (1), Penobscot (2), Sagadahoc (1) and York (2).

Table 1. Clinical characteristics of TB Cases, Maine, 2013*

	Cases (%)
Pulmonary	9 (60)
Extrapulmonary	5 (33)
Both pulmonary and extrapulmonary	1 (7)
Tuberculin skin test (TST)	10 (67)
--Positive TST	9
IGRA	5 (33)
--Positive IGRA	5
Pulmonary cases (N = 10)	
Abnormal chest x-ray or CT scan	10 (100)
Positive sputum culture	5 (50)
Positive sputum acid fast bacilli (AFB) smear	3 (30)
Positive bronchial fluid culture	2 (20)
Positive lung specimen	2 (20)
Positive gastric aspirate	1 (10)
Clinical definition only	3 (30)

*Patients can have multiple characteristics

Table 2. Characteristics and Risk Factors for TB Cases, Maine, 2013

	Cases (%)
Demographics	
Male	8 (53)
Female	7 (47)
Hispanic	1 (7)
Non-Hispanic	14 (93)
Asian	1 (7)
Black or African American	6 (40)
White	8 (53)
Country of origin	
U.S.	7 (47)
Foreign-born	8 (53)
In US <1 year before diagnosis	4
Risk Factors	
Resident of long term care facility at time of diagnosis	3 (20)
Injected drug use in past year	0 (0)
Non-injected drug use in past year	2 (13)
Excess alcohol use within past year	2 (13)
Homeless within past year	2 (13)
HIV status known	11 (73)
Incomplete LTBI therapy	0 (0)
Contact of infectious TB case	2 (13)
Diabetes mellitus	3 (20)

A cluster of three cases of TB occurred at a long term care facility in Aroostook County. The investigation identified 535 contacts, of which 97% were evaluated with a skin test. Thirty-four (6.5%) of those evaluated were positive. Twenty-one individuals were started on LTBI therapy.

There were seven contact investigations in 2013. Ninety-six percent (96%) of identified contacts were evaluated. Forty-seven individuals were identified with LTBI, and thirty-three (70%) started treatment.

In 2013, Maine received 433 reports of persons with LTBI. Eighty-two percent of LTBI cases were diagnosed among persons who are foreign-born. The country of birth reported includes 48 different countries (excluding the US) and 16 different primary languages.

Discussion

Nationwide, the incidence of TB continues to decrease each year. In Portland Maine, collaboration between the Tuberculosis Control Program, Public Health Nursing and homeless shelters provides TB screening. There have been two outbreaks of TB in Maine among the homeless population in the past ten years. 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 and protect the public's health. The evaluation and treatment of TB disease is more costly than LTBI treatment.

All suspected or confirmed cases of active TB must be reported immediately to the Tuberculosis Control Program at Maine CDC by calling 1-800-821-5821. Reporting of LTBI cases is encouraged. 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/

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