Infectious Disease Epidemiology Report

Tuberculosis, 2010

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 within the lungs (pulmonary) or larynx 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 bacilli under control and inactive, so that disease does not develop.

Two kinds of tests are available to help detect TB infection. The TB 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 and assists with evaluation and pharmaceutical needs.

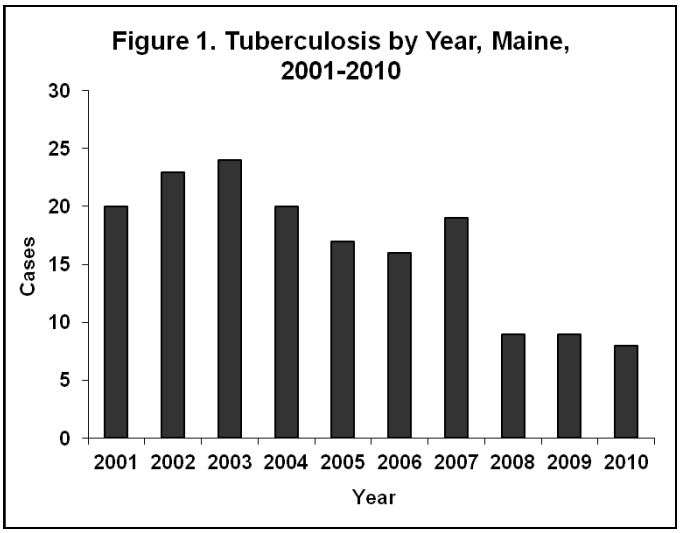
Methods

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 conducts routine case management reviews with PHN and the State Epidemiologist. Cases are also reviewed with TB Consultants at quarterly meetings.

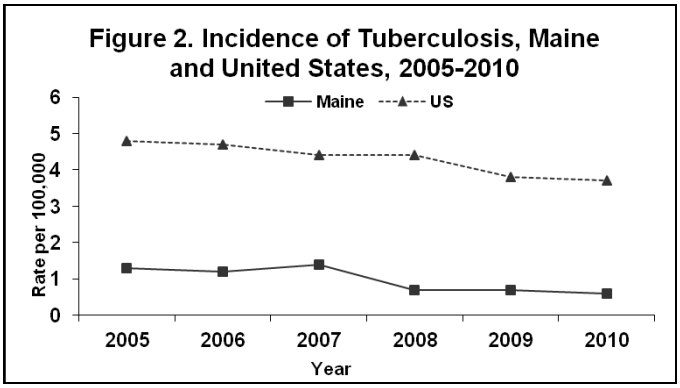
A confirmed case of TB must meet either the clinical criteria or be laboratory confirmed with one of the following tests: isolation of *M. tuberculosis*; demonstration of *M. tuberculosis* by nucleic acid amplification test; or demonstration of acid-fast bacilli when a culture has not been or cannot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

Results

A total of 8 confirmed cases of TB were reported in 2010 (Figure 1). There were no cases of multi – drug resistant (MDR) TB or extensively drug resistant (XDR) TB in Maine in 2010.



The rate of TB in Maine in 2010, 0.6 cases per 100,000 population, is less than the national rate of 3.7 (Figure 2). Maine had the lowest rate of TB compared to other US states. Nationwide, the number of cases reported in 2010 decreased by 3.1%.



The majority of cases in 2010 were female (75%). The median age of cases was 30 years (range 2 years - 80 years). Cases resided in 2 counties, Androscoggin (2) and Cumberland (6).

Three cases (37%) were pulmonary and five cases (63%) were extrapulmonary (lymphatic). All cases had a tuberculin skin test (TST), of which seven (87%) were positive. All three pulmonary cases had an abnormal chest x-ray.

A positive sputum smear and culture was found for two of the three pulmonary cases. The third case was clinically diagnosed, and no specimens were available.

Risk factor information for all TB patients was available (Table 1). All cases tested negative for HIV. Seven (88%) cases were born outside of the US. Three of the foreign born TB cases arrived in the United States in the previous 5 years (2006-2010).

Table 1. Characteristics and Risk Factors for TB Cases, Maine, 2010

	Cases (%)
Demographics	
Male	2 (25)
Female	6 (75)
Hispanic	1 (13%)
Non-Hispanic	7 (87%)
Asian	1 (13)
Black or African American	5 (62)
White	2 (25)
Country of origin	
U.S.	1 (13)
Non –U.S.	7 (87)
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	0
Homeless within past year	0
HIV status known	8 (100)
Incomplete LTBI therapy	4 (50)

In 2010, Maine received 420 reports of persons with LTBI. Eighty percent (80%) of LTBI cases were diagnosed among foreign born persons.

There were two contact investigations in 2010. Ninety-six percent (96%) of identified contacts were evaluated.

Discussion

Nationwide TB cases have decreased steadily; however, in 2009 the decrease of 11.4% is the greatest single-year decrease ever recorded. Federal CDC recently published a report on the findings of an analysis of the decline in cases. Federal CDC ruled out changes in surveillance methods or improvement in TB control activities that may have lead to the decline. Instead, the report concluded that multiple causes related to the economic recession may have caused the decline, including decreased immigration and delayed access to medical care.

To enhance detection of TB cases and LTBI cases, Maine CDC implemented 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 among the homeless population in the past 10 years.

Since 1993, there has been an increase in TB cases among foreign-born persons in Maine and the US. The Public Health Nursing program continues to screen all newly arriving primary refugees for TB.

Prevention and targeted education about TB is needed 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: http://www.maine.gov/dhhs/boh/ddc/tuberculosis_control.htm;
- federal CDC: http://www.cdc.gov/tb/;
- World Health Organization: http://www.who.int/tb/en/ .

References

Winston CA et al. Unexpected decline in tuberculosis cases coincident with economic recession – United States, 2009. *BMC Public Health* 2011:11:846.