Infectious Disease Epidemiology Report

Tuberculosis, 2009

Background

Tuberculosis (TB) is a mycobacterial disease caused by *Mycobacterium tuberculosis*. The disease is spread through the air by droplet nuclei when a person with infectious TB coughs, talks, sings or sneezes. Tuberculosis is infectious when the disease is within the lungs (pulmonary) or larynx and 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.

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

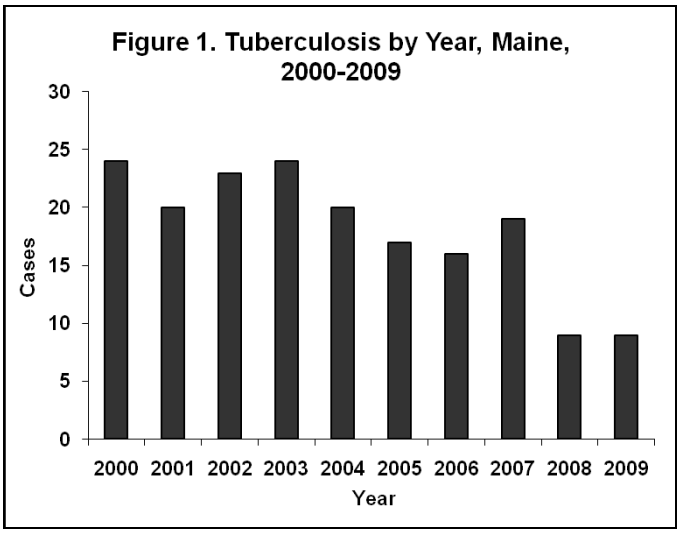
All TB cases in Maine are evaluated by a TB Consultant physician and receive case management services and directly observed therapy (DOT) by a Public Health Nurse (PHN). The TB Control Program coordinates TB clinic visits and conducts routine case management reviews with PHN and the State Epidemiologist. Cases are also reviewed with TB Consultants through 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* from a clinical specimen; demonstration of *M. tuberculosis* from a clinical specimen by nucleic acid amplification test; or demonstration of acid-fast bacilli in a clinical specimen when a culture has not been or cannot be obtained.

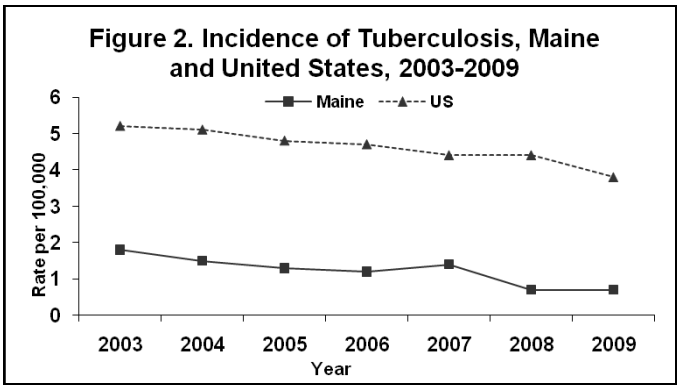
Tuberculosis cases are reported to federal CDC using a specific form with various pieces of information including demographics, laboratory testing, medication, and risk factors.

Results

A total of 9 confirmed cases of TB were reported in 2009 (Figure 1). There were no cases of multi - drug resistant (MDR) TB or extensively drug resistant (XDR) TB in Maine in 2009.



The rate of TB in Maine in 2009 was 0.7 cases per 100,000 population, much less than the national rate of 3.8 (Figure 2). Females accounted for 3 cases (33%). The median age of cases was 48 years (range 5 years - 86 years).



Cases were reported to reside in 5 counties, Androscoggin (2), Cumberland (4), Aroostook (1), Hancock (1) and Penobscot (1).

Seven cases had a positive tuberculin skin test, one case had a negative skin test and one was not tested. All cases had an abnormal chest x-ray.

All nine cases were classified as pulmonary. A positive sputum culture was found on 5 of the 6 cases with sputum samples. One case had a previous diagnosis of TB.

Risk factor information for all TB patients was available (Table 1). Four (44%) cases were born outside of the US. All four of the foreign born TB cases (33%) arrived in the United States in the previous 5 years (2005-2009).

Table 1. Characteristics and Risk Factors for TB Cases, Maine, 2008

	Cases (%)
Demographics	
Male	6 (67)
Female	3 (33)
Hispanic	0
Non-Hispanic	9 (100)
Asian	0
Black or African American	5 (56)
White	4 (44)
Country of origin	
U.S.	5 (56)
Non –U.S.	4 (44)
Risk Factors	
Correctional facility at time of diagnosis	0
Injected drug use in past year	1 (11)
Non-injected drug use in past year	2 (22)
Excess alcohol use within past year	3 (33)
HIV status known	7 (77)
Homeless within past year	1 (11)

In 2009, Maine received 401 reports of persons with LTBI. Seventy-eight percent of LTBI cases were diagnosed among foreign born persons.

In 2009 two cases matched by genotype testing. Both cases were associated with homelessness and over 400 contacts were identified through these two contact investigations.

Discussion

Nationwide TB cases have decreased steadily; however in 2009 the decrease of 11.4% is the greatest single-year decrease ever recorded. This decrease may be represented by a decrease in TB incidence or problems with identifying and reporting TB cases. The federal CDC is attempting to determine what may be the cause of the sudden decrease. If the decrease is not due to underreporting and underdiagnosis, then identifying which public health intervention may be the cause is important to achieve further decreases in TB incidence.

Since 1993 there has been an increase in TB cases among foreign born persons. Forging partnerships with community-based organizations are a focus of the TB Control program. There are two pilot projects serving the at-risk populations of Androscoggin and Cumberland Counties. The focus is targeted on the Lewiston immigrant and refugee population and the Portland homeless. These collaborative initiatives bring TB suspects and LTBI patients services which follow federal CDC recommended practices.

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 need to be reported immediately to the Tuberculosis Control Program at Maine CDC by calling 1-800-821-5821. The state Health and Environmental Testing Laboratory provides all TB testing for the state.

Additional information about tuberculosis is available at the Maine CDC website: http://www.maine.gov/dhhs/boh/ddc/tuberculosis_control.htm; at the federal CDC website http://www.cdc.gov/tb/; and at the World Health Organization website http://www.who.int/tb/en/ .

Prepared by Amy Robbins, MPH and Adriene Whitaker, BSN, MPH
www.mainepublichealth.gov