



Infectious Disease Epidemiology Report

Tuberculosis, 2008



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 laryngeal 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

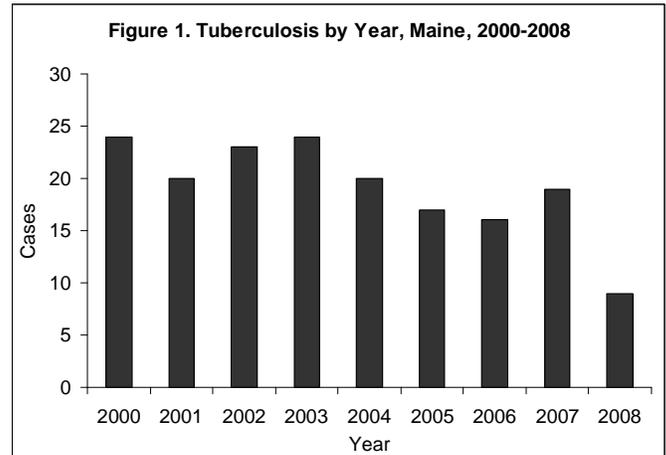
All TB cases in Maine are evaluated by a TB Consultant physician and receive case management services and directly observed therapy (DOT) by a Public Health Nurse (PHN). The TB Control Program coordinates TB clinic visits and conducts monthly case management reviews with PHN and the State Epidemiologist.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

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.

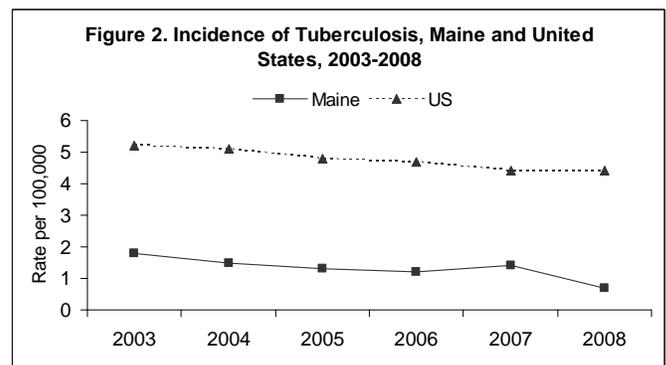
Tuberculosis cases are reported to federal CDC using a specific form with various pieces of information including demographics, laboratory testing, medication, and risk factors.

Results

A total of 9 confirmed cases of TB were reported in 2008 (Figure 1). There were no cases of multi-drug resistant (MDR) TB or extensively drug resistant (XDR) TB in Maine in 2008.



The rate of TB in Maine in 2008 was 0.7 cases per 100,000 population, much less than the national rate of 4.4 (Figure 2). Females accounted for 7 cases (78%). The median age of cases was 45 years (range 24 years - 70 years).



Cases were reported to reside in 5 counties, Androscoggin (2), Cumberland (3), Oxford (2), Somerset (1) and York (1).

Seven cases had a positive tuberculin skin test, one case had a negative skin test and one was not tested. All cases had a chest x-ray, 6 (66.6%) were abnormal.

Five cases were classified as pulmonary, and four cases as extrapulmonary. A positive sputum culture was found on 2 of the 7 cases with sputum

samples. One case had a previous diagnosis of TB.

Risk factor information for all TB patients was available (Table 1). Eight (89%) cases were born outside of the US. Three of the TB cases (33%) occurred in persons who arrived in the United States in the previous 5 years (2003-2007).

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

	Cases (%)
Demographics	
Male	2 (22)
Female	7 (78)
Ethnicity	
Hispanic	0
Non-Hispanic	9 (100)
Race	
Asian	2 (22.2)
Black or African American	4 (44.4)
White	3 (22.2)
Country of origin	
U.S.	1 (11)
Non –U.S.	8 (89)
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
HIV status known	6 (67)
Homeless within past year	0

In 2008, Maine received 400 reports of persons with LTBI. Seventy-seven percent of LTBI cases were diagnosed among foreign born persons.

The TB Control Program conducted 5 contact investigations, including one workplace investigation. A total of 78 contacts were identified in Maine and 75 (98%) were evaluated.

Discussion

Nationwide TB cases have decreased steadily; and more recently this decrease has slowed. 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.

Adherence to treatment can be complicated by multiple factors. The TB Control Program offers incentives through a pediatric program “Treasure Chest” and other incentives are offered to facilitate the ability to keep TB cases supported through a stressful time in their lives.

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/>.

References

- Centers for Disease Control and Prevention. Trends in Tuberculosis – United States, 2007. MMWR March 21, 2008; 57 (11);281-285.
- Heymann, David L., MD. *Control of Communicable Diseases Manual*. 18th ed. Washington, DC: American Public Health Association, 2004.
- U.S. Department of Health and Human Services, CDC National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention. *Modules on TB*. Atlanta, Georgia. 2008.