



Infectious Disease Epidemiology Report



Tuberculosis, 2007

Background

Tuberculosis (TB) is a mycobacterial disease caused by *Mycobacterium tuberculosis*. The disease is widespread 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) and not infectious if it occurs outside of the lungs (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. Individuals with TB who do not receive treatment can infect as many as 20-30 individuals.

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 offers evaluation and pharmaceutical needs.

Methods

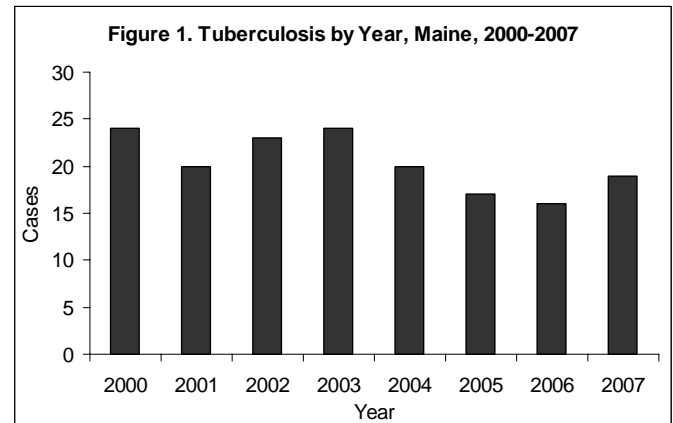
All TB cases in Maine are evaluated by a TB Consultant physician and receive case management services and directly observed therapy (DOT) by a Public Health Nurse (PHN). The TB Control Program coordinates TB Clinic visits and conducts monthly case management reviews with PHN and the State Epidemiologist. 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.

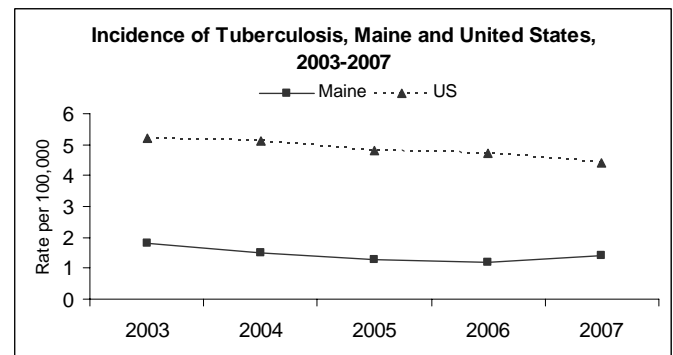
Tuberculosis cases are reported to federal CDC using a specific form (RVCT) with various pieces of information including demographics, laboratory testing, medication, and risk factors.

Results

A total of 19 confirmed cases of TB were reported in 2007 (Figure 1). There were no cases of multi-drug resistant (MDR) TB or extensively drug resistant (XDR) TB in Maine in 2007.



The rate of TB in Maine in 2007 was 1.4 cases per 100,000 population, much less than the national rate of 4.4 (Figure 2). Males accounted for 10 cases (52.6%). The mean age of cases was 40 years (range 5 months - 78 years).



Cases were reported to reside in 7 counties, Androscoggin (3), Aroostook (1), Cumberland (8), Kennebec (2), Knox (1), Penobscot (1) and York (3).

Fourteen cases had a positive tuberculin skin test, four cases had a negative skin test and one was not tested. All cases had a chest x-ray, 17 (89.5%) were abnormal.

Fourteen cases were classified as pulmonary, four cases as extrapulmonary and one case as both pulmonary and extrapulmonary. A positive sputum culture was found on 10 of the 12 cases with

sputum samples. None of the cases had a previous diagnosis of TB.

Risk factor information for all TB patients was available (Table 1). Thirteen (68.4%) cases were born outside of the US. Six of the TB cases (46%) occurred in persons who arrived in the United States between 2001 and 2007.

Table 1. Characteristics and Risk Factors for TB Cases, Maine, 2007

	Cases (%)
Demographics	
Male	10 (52.6)
Female	9 (47.4)
Ethnicity	
Hispanic	2 (10.5)
Non-Hispanic	17 (89.5%)
Asian	4 (21.1)
Black or African American	6 (31.6)
White	9 (47.4)
Country of origin	
U.S.	6 (31.6)
Non –US	13 (68.4)
Risk Factors	
Correctional Facility at time of diagnosis	1 (5)
Injected drug use in past year	0
Non-injected drug use in past year	0
Excess alcohol use within past year	3 (15.8)
HIV status known	16 (84.2)
Homeless within past year	0

In 2007, Maine received 503 reports of persons with LTBI. Seventy eight percent of LTBI cases were diagnosed among foreign born persons.

The TB Control Program conducted 15 contact investigations, including one international and three interstate investigations. Two workplace investigations were conducted. A total of 254 contacts were identified in Maine and 241 (95%) 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 life.

Prevention and targeted education about TB is needed to keep TB disease from spreading in our 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