

### Tuberculosis - Massachusetts

In 2013, 201 cases (incidence rate 3.0 per 100,000 population) of active tuberculosis (TB) were reported to and verified by the Massachusetts Department of Public Health, TB Program. This represents a 6.5% decrease over the 2012 case rate. There is little local transmission of TB in Massachusetts, likely due to robust case reporting and management. The majority of TB in Massachusetts residents continues to be due to reactivation of previous TB infection.

### Drug Resistance

In 2013, 152 (76%) of these 201 TB cases were bacteriologically confirmed by positive culture for *Mycobacterium tuberculosis*.

Drug resistance to one or more anti-TB drugs was detected in 25/150 (17%) of TB cases that had drug susceptibility testing completed. Resistance to isoniazid (INH), either alone or in combination with other agents, accounted for 12% of the 150 cases. Drug resistance of all types has increased from 2012.

In 2013, there were seven (5%) multi-drug resistant TB cases (MDR-TB, defined as resistance to at least INH and rifampin (RIF)). This is a substantial increase over recent years and represents an area of focus for the Division going forward. There were no extremely drug resistant TB cases (XDR-TB, defined as MDR-TB with additional resistance to any fluoroquinolone and at least one injectable second-line drug [amikacin, kanamycin or capreomycin]).

### Race/Ethnicity

Racial/ethnic minorities are disproportionately affected by TB; 78% of TB cases in 2013 were diagnosed among minorities. The TB case rate in 2013 was 19.1 per 100,000 among Asian residents, 13.6 among black residents, and 4.8 among Hispanic residents, compared with 0.84 among white residents. Compared with white residents, TB rates in 2013 were approximately 16.3 times higher among black residents, 22.9 times higher among Asian residents, and 5.7 times higher among Hispanic residents.

### Higher Risk Groups

**Non-U.S. born** (persons born outside the United States and its territories): Among 201 cases of TB in 2013, 159 (79%) were reported in non-U.S. born persons. 76 cases (39%) were from 7 countries: 17 (8%) born in China, 16 (8%) born in Haiti, 11 (5%) each among persons born in Vietnam and India, and 7 (3%) each from Brazil, Cambodia, and Guatemala. The remaining 83 cases (41%) occurred in persons born in 42 additional countries.

**Homeless:** Of the 201 cases of TB reported in 2013, four (2%) were in persons reported to have been homeless. Among these four, two (50%) were reported from Boston with the remaining two from other Massachusetts communities. Three (75%) were U.S.-born individuals.

**Incarcerated:** In 2013, three cases of TB (2%) were diagnosed in persons in correctional facilities.

**HIV co-infected (preliminary):** Twelve persons (6%) diagnosed with TB in 2013 were known to be co-infected with human immunodeficiency virus (HIV), a slight decrease from 2012.

**Children:** In 2013, three cases of TB were diagnosed in children under 15 years of age (1.5% of cases, incidence rate <1 per 100,000 among children <15 years old). Two of the three children (67%) were born in the U.S.

Characteristics of TB Cases 2013 (N=201)	
Demographics	# (%)
<b>Sex</b>	
Male	105 (52%)
Female	96 (48%)
<b>Race Ethnicity</b>	
White, non-Hispanic	44 (22%)
Black, non-Hispanic	59 (30%)
Hispanic	30 (15%)
Asian	67 (33%)
<b>Place of Birth</b>	
U.S. born	42 (21%)
Non-U.S. born	159(79%)
<b>Age (years)</b>	
<5	2 (1%)
5-14	1 (<1%)
15-19	11 (5%)
20-24	21 (10%)
25-44	78 (39%)
45-64	44 (22%)
65+	44 (22%)
<b>Clinical Presentation</b>	
<b>Primary Site of Disease</b>	
Pulmonary	118 (59%)
Extra-pulmonary	56 (28%)
Both	27 (13%)
<b>Chest X-Ray Results (pulmonary involvement)</b>	
(N=145)	
Cavitary disease only	16 (11%)
Miliary disease only	0 (0%)
Cavitary and miliary disease	0 (0%)
Non-cavitary disease only	118 (81%)
Normal	6 (4%)
X-Ray not done (CT only)	5 (4%)
<b>High Risk Groups<sup>+</sup></b>	
Non-U.S Born	159 (79%)
Children < 15 Yrs.	3 (2%)
Prison/jail	3 (2%)
Homeless	4 (2%)
Substance abuse*	17 (9%)
HIV positive	12 (6%)
<b>Drug Resistance (N=150)</b>	
Bacteriologically Confirmed Cases with Drug Sensitivity results)	
<b>Pattern</b>	
Resistance to at least 1 drug	25 (17%)
Resistance to at least INH	18 (12%)
Resistance to at least INH + RIF (MDR-TB)	7 (5%)
+ Not mutually exclusive groups	
* Alcohol, injecting and/or non-injecting drug abuse	