***Massachusetts Department of Public Health, Bureau of Infectious Disease and Laboratory Sciences***

***Summary Tuberculosis Statistics for the Year 2021***

### Tuberculosis - Massachusetts

In 2021, 151 cases (incidence rate 2.2 per 100,000 residents[[1]](#footnote-1)) of tuberculosis (TB) disease were reported to, and verified by, the Massachusetts Department of Public Health. The 2021 national TB case rate is 2.4 per 100,000 residents[[2]](#footnote-2). Compared with the five-year period 2015-2019, the average annual number of cases has declined 24% during 2020-2021, from 194 to 147. It is likely that some proportion of this decrease in cases is related to the COVID-19 pandemic, perhaps due to delays in diagnosis, increased precautions for airborne pathogens, decreased travel, or declines in care-seeking behaviors.

### Race/Ethnicity

Racial and ethnic minority groups are disproportionately affected by TB; 89% of active TB disease in 2021 was diagnosed in members of minority groups. The TB case rate per 100,000 residents in 2021 was 14.1 among Asian non-Hispanic residents, 6.5 among black non-Hispanic residents, and 3.3 among Hispanic residents; compared with 0.3 among white non-Hispanic residents. Compared with white residents, the relative risk for being diagnosed with TB in 2021 was approximately 40.9 times higher among Asian (95% CI 24.1 to 69.6), 18.9 times higher among black (95% CI 10.5 to 33.9), and 9.6 times higher among Hispanic (95% CI 5.2 to 17.4) residents.

### Higher Risk Groups

Persons Born outside the U.S. and Territories (non-U.S. born): Among 151 cases of TB in 2021, 136 (90%) were reported in non-U.S. born persons. 84 (56%) cases were in persons born in one of eight countries: India (17, 11%), Vietnam (17, 11%), Haiti (12, 8%), Dominican Republic (10, 7%), Cambodia (9, 6%), China (8, 5%), Philippines (6, 4%), and Guatemala, (5, 3%). 52 (34%) cases occurred in persons born in one of 30 additional countries outside the U.S.

Children <15 Years of Age: In 2021, two cases of TB were diagnosed in children under 15 years of age (1% of cases, incidence rate <1/100,000 children under 15 years old).

Incarcerated in Prison/Jail: No cases of TB were diagnosed in persons in the Massachusetts correctional system in 2021.

Unstably Housed: Of the 151 cases of TB reported in 2021, 2 (1%) were in persons experiencing homelessness within the previous year.

HIV Co-infected (preliminary): 3 persons (2%) diagnosed with TB in 2021 were known to be co-infected with human immunodeficiency virus (HIV).

Known Contacts to Massachusetts Cases: 2 persons (1%) were known contacts to previous TB cases in Massachusetts, an indicator of possible community transmission occurring within Massachusetts.

**Drug Resistance**

In 2021, 124 (82%) of the 151 TB cases were bacteriologically confirmed by positive culture for *Mycobacterium tuberculosis* and had isolates available for drug susceptibility testing. Resistance testing was successfully completed on all 124 (100%) of the cultured isolates.

Resistance to one or more anti-TB drugs was detected in 7 (6%) of the 124 isolates. Resistance to isoniazid (INH), either alone or in combination with other agents, was seen in 6%. With MDR-TB increasing worldwide, MDR-TB in Massachusetts is carefully monitored and remains a priority of the TB program.

**Characteristics of TB Cases, 2021 (N=151)**

|  |  |
| --- | --- |
| **Demographics** | # (%) |
| Male | 91 (60%) |
| Female | 60 (40%) |
| Race Ethnicity |  |
| White, non-Hispanic | 17 (11%) |
| Black, non-Hispanic | 33 (22%) |
| Hispanic | 28 (19%) |
| Asian, non-Hispanic | 70 (46%) |
| Other | 3 (2%) |
| **Origin of Birth** |  |
| U.S.-born | 15 (10%) |
| Non-U.S. born | 136 (90%) |
| **Age (years)** |  |
| <5 | 1 (1%) |
| 5-14 | 1 (1%) |
| 15-19 | 8 (5%) |
| 20-24 | 10 (7%) |
| 25-44 | 49 (32%) |
| 45-64 | 40 (26%) |
| 65+ | 42 (28%) |

**Clinical Presentation**

**Primary site of disease**

|  |  |
| --- | --- |
| Pulmonary | 82 (54%) |
| Extra-pulmonary | 46 (30%) |
| Both | 23 (15%) |

**Chest radiography**

|  |  |
| --- | --- |
| Cavitary disease only | 37 (25%) |
| Miliary disease only | 3 (2%) |
| Cavitary and miliary | 3 (2%) |
| Non-cavitary disease only | 85 (56%) |
| Normal | 22 (15%) |

**Known Higher Risk Groups[[3]](#footnote-3) (N=151)**

|  |  |
| --- | --- |
| Non-U.S. born | 136 (90%) |
| Children <15 yrs old | 2 (1%) |
| Incarceration | 0 (0%) |
| Homelessness | 2 (2%) |
| Substance use[[4]](#footnote-4) | 9 (6%) |
| HIV co-infection | 3 (2%) |
| Contact to previous MA case | 2 (2%) |

**Drug Resistance** Culture confirmed cases with drug susceptibility results **(N=124)**

|  |  |
| --- | --- |
| Resistance to >1 drug | 7 (6%) |
| Resistance to INH | 7 (6%) |
| Resistance to INH and RIF (MDR-TB) | 0 (0%) |

1. As of 9/9/2020 BIDLS calculates rates per 100,000 population using denominators estimated by the University of Massachusetts Donahue Institute using a modified Hamilton-Perry model (UMDI Oct 2016). Note that rates and trends calculated using previous methods cannot be compared to these. Denominators were last updated in 2019. [↑](#footnote-ref-1)
2. Filardo TD, Feng P, Pratt RH, Price SF, Self JL. Tuberculosis – United States, 2021. MMWR Morb Mortal Wkly Rep 2022;71:441-446. [www.cdc.gov/mmwr/volumes/71/wr/mm7112a1.htm](http://www.cdc.gov/mmwr/volumes/71/wr/mm7112a1.htm) [↑](#footnote-ref-2)
3. Not mutually exclusive groups [↑](#footnote-ref-3)
4. Alcohol, injecting and non-injecting drug use [↑](#footnote-ref-4)