Active Tuberculosis Disease: 2022 Connecticut Case Updates and Trends

Tuberculosis (TB) is a treatable communicable disease caused by the bacillus *Mycobacterium tuberculosis* that spreads from person to person via airborne transmission during coughing, singing, sneezing, or speaking. It typically affects the lungs (pulmonary TB) but it may also affect other body parts. Persons with TB disease have symptoms and may be infectious if they have pulmonary TB. Persons with latent TB infection (LTBI) do not have symptoms and are not infectious but require treatment to prevent progression to TB disease (1). Until the COVID-19 pandemic, TB was the leading cause of death from a single infectious agent worldwide, ranking above HIV/AIDS (2).

Tuberculosis disease is a Category 1 reportable disease in Connecticut (CT) (3). This article highlights selected characteristics of CT 2022 TB disease cases and examines national and state trends in active TB disease from 2019 —2022.

2022 CT TB Case Characteristics

There were 67 TB disease cases reported in 2022 including 50 (74.6%) with pulmonary disease and one (1.5%) with multi-drug resistant disease. Most cases were between 15 and 64 years of age and were non-U.S. born (75% and 87% respectively) (4) (Table 1).

Nine (13.4%) cases had known LTBI prior to the diagnosis of TB disease and had been either untreated or insufficiently treated for LTBI. Other risk factors for developing TB disease included substance use (22.4%), diabetes (19.4%), and HIV (1.5%)(4,5).

Recent TB Trends — 2019 — 2022

Figure 1 presents active TB disease incidence trends for the US and CT from 2019 —

2022. Nationally, there was a marked 20% decrease in TB incidence between 2019—2020 (2.7 to 2.2 per 100,000) (6). Incidence began to increase in 2021 reaching 2.5 per 100,000 by 2022 although it remained below pre-pandemic levels. (7,8).

In CT, there was a similar decrease of 21.1% (1.9 to 1.5 per 100,000) in TB incidence between 2019 — 2020. Incidence returned to the pre-pandemic level in 2022 with a sharp increase of 26.6% (4).

Discussion

The incidence of active TB disease declined in CT, as in the US , between 2019 — 2020. COVID-19 transmission prevention measures likely played a role for several reasons: social distancing may have limited exposure, interruptions in healthcare access may have reduced timely access to TB testing, diagnoses, and treatment, and restrictions on immigration and international travel may have limited arrivals from countries with higher TB incidence than the US (7). As TB disease returns to pre-pandemic levels, clinicians should consider it as a potential diagnosis particularly among non-US born individuals with prolonged cough or other consistent symptoms and be aware of other risk factors such as diabetes, substance use, and HIV.

Table 1. Summary of TB Disease Cases Reported in CT, 2022

Case Characteristics (N=67)	No.	(%)
Age (years):		
<5	3	(4.5)
5-14	3	(4.5)
15-24	4	(6.0)
25-44	30	(44.7)
45-64	16	(23.8)
≥65	11	(16.4)
Race/Ethnicity:		
Asian	28	(41.8)
Black	9	(13.4)
White	7	(10.4)
Hispanic	23	(34.3)
Gender:		
Male	35	(52.2)
Female	32	(47.8)
Birth origin:		
Non-U.S. Born	58	(86.6)
U.S. Born	9	(13.4)
Counties with ≥ 4 TB cases:		
Hartford	23	(34.3)
Fairfield	22	(32.8)
New Haven	16	(23.8)
New London	4	(6.0)
Pulmonary cases	50	(74.6)
Multi-drug resistant*	1	(1.5)
Risk Factors for Progression:		
Substance abuse**	15	(22.4)
Diabetes	13	(19.4)
History of untreated LTBI	9	(13.4)
Contact to a TB case within 2 yrs.	5	(7.4)
HIV Positive	1	(1.5)

*MDR-TB is defined as TB that is resistant to at least two of the first line anti-TB drugs, isoniazid (INH) and rifampin (RIF)
**Includes alcohol, injecting, and/or non-injecting drug use.

The TB disease cases with known LTBI who were either untreated or had insufficient treatment prior to the diagnosis of TB represent missed opportunities to prevent TB disease. In order to break the chain of transmission of TB infection and prevent the breakdown of LTBI into TB disease, people need to be evaluated and then fully treated for LTBI. CDC 2020 guidelines recommend two shorter regimens for LTBI treatment. The first regimen is three months of isoniazid and rifapentine (3HP) once weekly for adults and for children older than 12, including HIV-positive persons. The second regimen is four months of daily rifampin (4R) for HIV-negative adults and children of all ages (9). These shorter regimens are as effective as six to nine months of daily isoniazid and are more likely to be completed (10).

The DPH TB Control Program works with healthcare providers and local health departments to monitor new caseworks to identify and treat recently exposed contacts, and to promote screening for LTBI in a variety of settings with the goal of preventing the spread of TB. For more information, visit the DPH TB Control Program website.

Figure 1. Active TB Disease Incidence: United States and Connecticut, 2019–2022
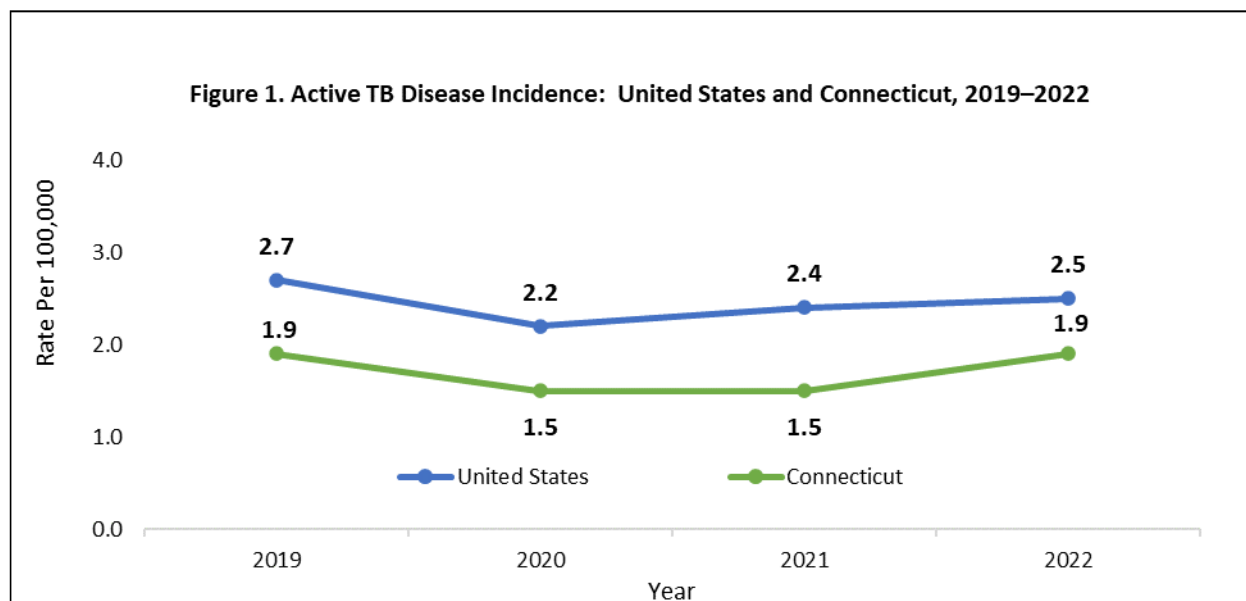
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Mpox in Connecticut, 2022

Mpox (formerly known as monkeypox) is a rash illness caused by infection with monkeypox virus, an *Orthopoxvirus* closely related to the virus that causes smallpox. Beginning in May 2022, an unprecedented increase in mpox cases occurred in countries where the virus is not endemic and among persons without traditional risk factors for mpox virus infection (1). Effective July 1, 2022, mpox was made reportable in Connecticut (2). This article describes mpox cases in Connecticut residents during 2022.

During 2022, a total of 145 mpox cases were reported to the Connecticut Department of Public Health (CT DPH), with most cases occurring July–September (Figure 1). Almost all cases were in males (142, 98%) and the median age was 34 years (range 16–69 years) (Table 1). The incidence rate was 8.85 per 100,000 population among non-Hispanic Black persons, 6.74 among Hispanic persons, and 2.36 among non-Hispanic White persons. Among 106 case patients for which data were available, 95 (90%) identified as lesbian, gay, bisexual, transgender, queer, or another diverse identity (LGBTQ+).

Thirty-three (32%) case patients self-identified as HIV positive and 19 (18%) reported being on HIV pre-exposure prophylaxis among 104 case patients with data available. The most common symptoms were rash, fever, and lymphadenopathy, with rash most often reported on the trunk, arms, and genitals. Twenty-one (19%) of 113 case patients with data available were hospitalized. There were no reported deaths. Forty-eight (33%) of 145 case patients received tecovirimat, an antiviral drug used to treat smallpox and mpox.

Two case patients were fully vaccinated at the time of symptom onset, defined as having received two JYNNEOS vaccine doses at least 14 days prior. Twenty-six other case patients had received at least one vaccine dose. Four received their first vaccine dose more than two weeks before symptom onset, nine received their first dose within two weeks prior to symptom onset, and nine received their first dose after symptom onset. The timing of vaccination was not reported for four people.

Discussion

Prior to 2022, mpox cases in people outside of Africa were linked to international travel to countries where the disease is endemic or to contact with imported animals (1). In 2022, more than 29,000 mpox cases were reported in the US, including 145 in CT (3). Mpox can spread to anyone through close, often skin-to-skin contact, including direct contact with mpox rash and scabs (1). During this outbreak, mpox spread primarily through sexual or close intimate contact, with most cases among men and disproportionately affecting people who identify as LGBTQ+ (4).

To prevent further spread, mpox education and vaccination should be integrated into routine sexual health care for people at risk. In Connecticut, the JYNNEOS vaccine continues to be available for prevention of mpox in people at risk and for post-exposure prophylaxis within 14 days after exposure to mpox. Evidence that some people may transmit mpox one to four days prior to symptom onset underscores the importance of vaccination for persons at risk (4). Vaccination is particularly important for people at risk who are living with HIV or have another condition that weakens the immune system. An estimated 53% of US cases and 32% of cases in Connecticut have been in persons living with HIV and most severe mpox cases in the US have occurred in people living with untreated HIV (3,5). CDC recommends that patients with suspected mpox be evaluated and treated as indicated for HIV and sexually transmitted diseases (5).

To reduce the spread of mpox and combat stigma, CT DPH educated providers and the public about mpox, and collaborated with local health departments and community partners to conduct equity-focused outreach and provide mobile vaccine clinics for disproportionately affected communities. Moving forward, CT DPH will continue mpox surveillance and work with local partners to destigmatize mpox, integrate mpox into routine sexual health care, and promote vaccination for those at risk.

Reported by

Bailey Glenn, MPH; Sydney A. Jones PhD

Table 1: Age, Gender, and Race/Ethnicity of Mpox Cases — Connecticut, 2022

	Number of Cases (%)	Incidence per 100,000 population
Total	145 (100%)	4.02
Age, years		
Median (range)	34 (16-69)	-
≤19	4 (2.8%)	0.48
20–29	51 (35.2%)	10.78
30–39	43 (29.7%)	9.54
40–49	32 (22.1%)	7.42
≥50	15 (10.3%)	1.06
Gender		
Male	142 (97.9%)	8.07
Female	2 (1.4%)	0.11
TGNCNB[1]	1 (0.7%)	-
Race/Ethnicity		
Non-Hispanic White	55 (37.9%)	2.36
Non-Hispanic Black/African American	33 (22.8%)	8.85
Hispanic	42 (29.0)	6.74
Non-Hispanic Multiracial	2 (1.4%)	2.11
Non-Hispanic Asian/Pacific Islander	3 (2.1%)	1.72

[1] TGNCNB refers to transgender, gender nonconforming and nonbinary individuals.

Figure 1: Mpox cases by week — Connecticut, 2022
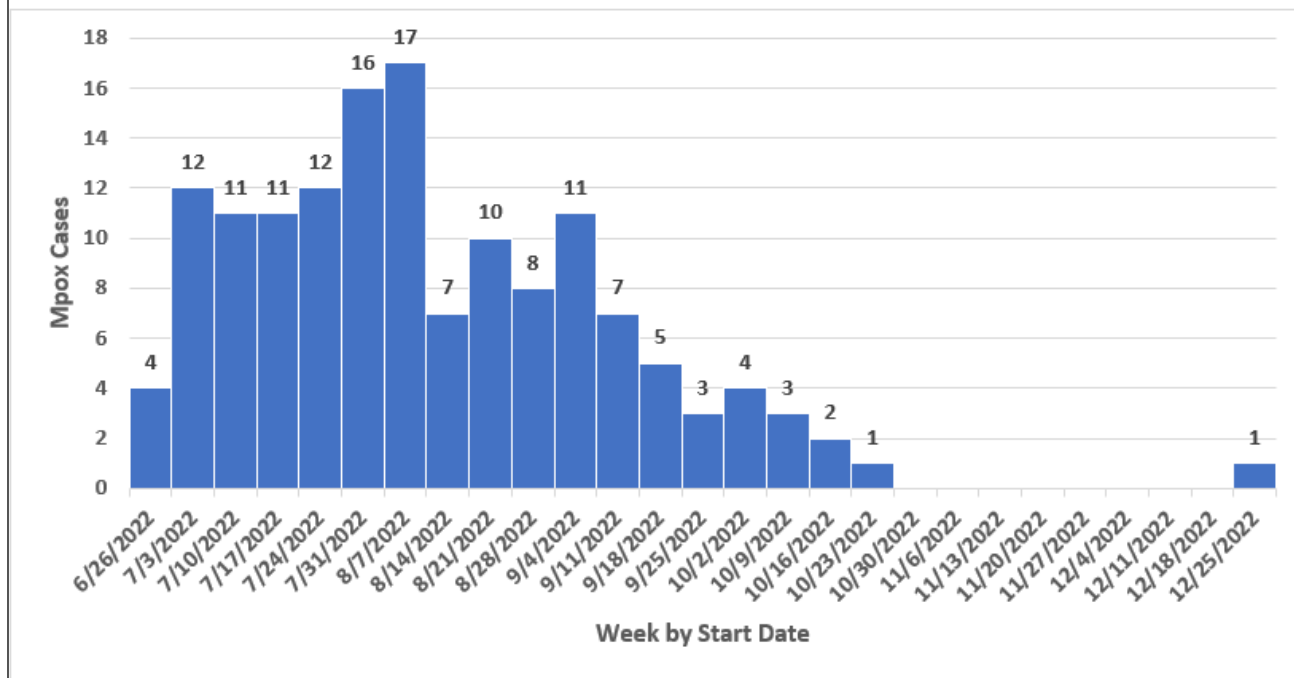
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