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The 2020 Integrated HIV, STD, and Viral Hepatitis Surveillance Report provides data on infections reported to the Massachusetts Department of Public Health (MDPH), Bureau of Infectious Disease and Laboratory Sciences by healthcare providers and laboratories per regulation (105 CMR 300.000). This report focuses on a subset of these diseases:

- Chlamydia
- Gonorrhea
- Syphilis
- HIV
- Hepatitis A, B and C

The intended audience for this annual surveillance report includes the clinicians and laboratory professionals who report cases, community organizations, local public health departments, advocates, policymakers, and researchers who are interested in the health of Massachusetts residents.

**Key highlights in 2020**

The coronavirus disease 2019 (COVID-19) pandemic has had a large impact on the screening, treatment, and surveillance of other infectious diseases in 2020. Nationally, the Centers for Disease Control and Prevention (CDC) observed a sharp decline in reported STD cases from March-April 2020, compared to March-April 2019.\(^1\) Three factors were cited as likely contributing to the initial decrease in reported cases:

- Reduced screening – many health care clinics limited in-person visits to symptomatic cases or closed down
- Limited resources – many state and local health department STD staff were redirected from routine STD responsibilities to COVID-19 activities, which affected STD tracking capacity and reporting
- Stay-at-home orders – intended to reduce COVID-19 spread, may have influenced sexual behaviors and reduced STD transmission.

At time of publication, the COVID-19 pandemic continues, it’s full effect on case detection and reporting and efforts to control the spread of infectious disease in the Commonwealth has yet to be determined. As such, please interpret 2020 infectious disease data with caution.

**Chlamydia, gonorrhea, and syphilis:**

- Chlamydia continues to be the most frequently reported STI, with over 24,000 cases reported in 2020.
- The average age of confirmed chlamydia cases in Massachusetts increased from 23.2 years in 2011 to 25.6 years in 2020. This marks the third year that the average age has exceeded the CDC recommended female screening age range of 14 to 24 years.

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• After a sharp 58% increase from 2016 (N=4,617) to 2017 (N=7,307), gonorrhea incidence remained relatively stable through 2020 (N=7,367).

• The number of confirmed gonorrhea cases reported among males far exceeds cases reported among females. In 2020, 4,778 gonorrhea cases were reported among males, compared to 2,544 among females, and 41 among transgender individuals.

• The number of infectious syphilis cases (primary, secondary, and early non-primary non-secondary syphilis) increased to a ten-year high of 1,243 in 2019 and decreased slightly to 1,159 in 2020. Although cases among females have risen over the past decade, infectious syphilis continues to disproportionally affect males, reflecting an ongoing epidemic among MSM (men who have sex with men and male-to-male sex).

**HIV:**

• The number of persons living with HIV infection (PLWH) in Massachusetts increased by 19% from 19,543 at the end of 2010 to 23,291 at the end of 2019.

• After remaining relatively stable at approximately 700 diagnoses per year from 2010 to 2013 (four-year average = 701), then approximately 640 diagnoses per year from 2014 to 2018 (five-year average = 641), the number of new HIV infection diagnoses declined to a ten-year low of 538 in 2019. The number of new HIV infection diagnoses decreased by 25% from 715 in 2010 to 538 in 2019.

• The number of deaths due to any cause among individuals reported with HIV remained relatively stable from 2010 to 2019, with an average of 291 deaths per year (with a low of 266 in 2011 and a high of 320 in 2015).

• There were large disparities in age-adjusted HIV diagnosis rates by race/ethnicity: the rates among black (non-Hispanic) individuals and Hispanic/Latino individuals were eight and four times that of white (non-Hispanic) individuals, respectively.

• MSM remained the predominant exposure mode among individuals diagnosed with HIV infection from 2010 to 2019. Those reported with no identified risk (NIR) comprised the second largest exposure mode group, accounting for 27% of recent HIV infection diagnoses and consisting predominantly of individuals AMAB (67%), individuals born outside the US (53%), and individuals of black (non-Hispanic) (49%) and Hispanic/Latino (25%) ethnicity.

• The number of reported cases with injection drug use (IDU) as the primary exposure mode declined by 53% from 2010 (N=66) to 2014 (N=31), increased to a peak of 116 in 2017, then decreased to 60 in 2019. The increase was primarily associated with an outbreak among persons who inject drugs (PWID) in the northeast part of the state between 2016 and 2018. Following an

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1 Reported numbers among transgender individuals are likely to be underestimates.
2 Due to the extensive follow-up required to verify date of diagnosis, all HIV data reflect HIV infection diagnosed through 2019.
intensive and targeted public health response, the number of HIV infection diagnoses attributed to IDU in the northeast has decreased. However, in early 2019, a new cluster of HIV infection was identified in Boston among PWID who are experiencing or have experienced recent homelessness, renewing concerns about ongoing transmissions among PWID statewide. As of March 1, 2021, a total of 113 cases diagnosed since November 2018 have been investigated and identified as part of the Boston cluster. As it is an active cluster of concern, additional cases will continue to be investigated and added. Emerging trends among those newly diagnosed in the Boston cluster (N=33 cases diagnosed in 2019) include an increase in polysubstance and methamphetamine use.¹

- Because of effective HIV treatment, people diagnosed with HIV infection are living longer, healthier lives. The proportion of people living with HIV infection who were aged 50 years or older increased from 39% on December 31, 2010 to 62% on December 31, 2019.

**Hepatitis A, B, and C:**

- Between 2018 and 2020, MDPH and local health departments investigated an outbreak of hepatitis A. The populations most affected by the outbreak were those with recent homelessness or unstable housing, and/or substance use disorder. As of May 2020, the outbreak appeared to be over. Weekly case counts decreased to a pre-outbreak baseline and continued to do so for several months.

- From 2011 to 2020, an average of 1,824 confirmed and probable chronic hepatitis B virus (HBV) infection cases were reported each year (with a low of 1,613 in 2013 and a high of 2,008 in 2017).

- The total number of confirmed and suspect acute HBV cases reported increased from 126 in 2011 to a peak of 192 in 2018, and then decreased to 123 in 2020.

- In 2019, 4,686 confirmed and probable cases of Hepatitis C (HCV) were reported. Most reported cases are chronically infected and MDPH currently estimates that there are over 250,000 persons living with HCV infection in Massachusetts.

- There continued to be an increase of HCV cases reported among adolescents (age 15–19 years) and young adults (age 20–29 years), reflecting ongoing transmission among young people who inject drugs.

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² Due to increased COVID-19-related surveillance work, release of 2020 HCV data is delayed. Please note, in 2016, revised case definitions for acute and chronic HCV infection were implemented that contain significant changes from the case definitions for 2009 to 2015. For further information see https://wwwn.cdc.gov/nndss/conditions/.
Chlamydia is the most commonly reported infectious disease in Massachusetts and nationally. Chlamydia is a bacterial sexually transmitted infection (STI) that can infect all gender identities. It can be spread through vaginal, anal, or oral sexual contact with an infected partner and from mother to child during birth. Chlamydia infection is easily treated, but repeated infections are common. Females are at great risk of complications of repeated infections. For more information see https://www.cdc.gov/std/chlamydia/stdfact-chlamydia-detailed.htm.

Figure 1. Number of laboratory-confirmed chlamydia cases reported by female and male gender, Massachusetts 2011–2020

Note: Cases reported as transgender or missing gender (2011–2020: N=698) are included in the statewide total but are not depicted in Figure 1 separately due to small numbers.

Data Source: Bureau of Infectious Disease and Laboratory Sciences, data are current as of 11/4/2021 and subject to change.
The total number of reported chlamydia cases increased by 38% from 22,851 in 2011 to 31,642 in 2019, and then decreased to 24,838 in 2020. A decrease in reported chlamydia cases in 2020 was also observed nationally. Case reporting could have been affected by a state of emergency that was declared in Massachusetts from March 10, 2020 until June 15, 2021 during which MDPH directed all hospitals and ambulatory surgical centers to postpone or cancel any nonessential elective procedures.

Each year from 2011 to 2020, approximately twice as many chlamydia cases were reported among females as among males. In 2020, the ratio of female-to-male chlamydia cases was 1.7 (1.7 = 15,742/9,003).

In 2020, 39 chlamydia cases were reported among transgender individuals. Please note this is likely an underestimate.

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1 Please consider the impact of the COVID-19 pandemic on infectious disease screening, treatment, and surveillance in the interpretation of 2020 data.

2 Pagaoa, Melissa MPH; Grey, Jeremy PhD; Torrone, Elizabeth PhD; Kreisel, Kristen PhD; Stenger, Mark MA; Weinstock, Hillard MD Trends in Nationally Notifiable Sexually Transmitted Disease Case Reports During the US COVID-19 Pandemic, January to December 2020, Sexually Transmitted Diseases: October 2021 - Volume 48 - Issue 10 - p 798-804

Figure 2. Number of laboratory-confirmed chlamydia cases reported by age group (years), Massachusetts 2011–2020

- Each year from 2011 to 2020, the greatest number of chlamydia cases was reported among 20–24 year-olds, followed by 15–19 year-olds.

Note: Cases with no age reported (2011–2020: N=202) are not included in this figure.

Data Source: Bureau of Infectious Disease and Laboratory Sciences, data are current as of 11/4/2021 and subject to change.

1 Please consider the impact of the COVID-19 pandemic on infectious disease screening, treatment, and surveillance in the interpretation of 2020 data.
The overall average age of laboratory-confirmed chlamydia cases in Massachusetts increased from 23.2 years in 2011 to 25.6 years in 2020.\(^2\) The overall increase in average age appeared to be driven mostly by male chlamydia cases. From 2011 to 2020, the proportion of chlamydia cases among males increased from 31% to 36% (See Figure 1, page 3). Additionally, the increase in average age of chlamydia cases reported among males was greater than the increase among females. From 2011 to 2020, the average age of chlamydia cases reported among males increased by 3.1 years compared to an increase of 1.8 years among females.

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2 Please consider the impact of the COVID-19 pandemic on infectious disease screening, treatment, and surveillance in the interpretation of 2020 data.
In 2020, the statewide chlamydia incidence rate of 356.6 per 100,000 population was lower than the national rate of 481.3 per 100,000. Massachusetts ranked the tenth lowest in chlamydia incidence rate among the 50 states.

Chlamydia cases continue to be reported throughout Massachusetts, with concentrations in urban areas.

The five cities with the highest chlamydia incidence rates in 2020 were Provincetown (1,587.4 per 100,000), Brockton (983.6 per 100,000), Lawrence (906.2 per 100,000), Springfield (869.2 per 100,000), and Boston (723.4 per 100,000).

1 As of 1/1/20, MDPH Bureau of Infectious Disease and Laboratory Sciences calculates rates per 100,000 population using denominators estimated by the University of Massachusetts Donahue Institute using a modified Hamilton-Perry model (Strate S, et al. Small Area Population Estimates for 2011 through 2020, report published Oct 2016). Note that rates and trends calculated using previous methods cannot be compared to these.

2 Please consider the impact of the COVID-19 pandemic on infectious disease screening, treatment, and surveillance in the interpretation of 2020 data.

3 Centers for Disease Control and Prevention. Sexually Transmitted Disease Surveillance 2020 Atlanta; U.S. Department of Health and Human Services; 2022.

4 Urban areas have a population of 50,000 or more, represent densely developed territory, and encompass residential, commercial, and other non-residential urban land uses.

5 Among cities that reported at least 12 confirmed chlamydia cases in 2020.

6 The chlamydia incidence rate for Provincetown is high because of small population size (2,583), as opposed to the number of cases (41).
Gonorrhea is a common bacterial STI. It can be spread through vaginal, anal, or oral sexual contact with an infected partner or to an infant during birth. Symptoms of gonococcal infection can vary depending on the site of infection and may include dysuria; vaginal, penile, or anal discharge; irregular bleeding; abdominal or anal pain; and sore throat. Still, many infected individuals do not present with any symptoms of infection. Although gonorrhea infection is treatable, treatment has become more complex with increased antimicrobial resistance. At the time of publication, ceftriaxone-resistant gonorrhea has not been reported in Massachusetts. For more information, see https://www.cdc.gov/std/gonorrhea/stdfact-gonorrhea-detailed.htm

**Figure 5.** Number of laboratory-confirmed gonorrhea cases reported by female and male gender, Massachusetts 2011–2020

Note: Cases reported as transgender or missing gender (2011–2020: N=220) are included in the statewide total but are not depicted in Figure 5 separately due to small numbers.

Data Source: Bureau of Infectious Disease and Laboratory Sciences, data are current as of 11/4/2021 and subject to change

- After a sharp 58% increase from 2016 (N=4,617) to 2017 (N=7,307), gonorrhea incidence remained relatively stable through 2020 (N=7,367).

1 Please consider the impact of the COVID-19 pandemic on infectious disease screening, treatment, and surveillance in the interpretation of 2020 data.
Between 2011 and 2020, the number of gonorrhea cases reported among males increased by 3.8 times (from 1,275 to 4,778, respectively). The number of gonorrhea cases among males in 2020 was nearly double the number among females (2,544).

The number of gonorrhea cases reported among females increased by 2.4 times from 1,069 in 2011 to 2,544 in 2020.

In 2020, 41 gonorrhea cases were reported among transgender individuals. Please note this is likely an underestimate.

Please consider the impact of the COVID-19 pandemic on infectious disease screening, treatment, and surveillance in the interpretation of 2020 data.
Each year from 2011 to 2020, about half of gonorrhea cases were reported among individuals aged 20–24 or 25–29 years.

From 2011 to 2020, the largest increases in the number of reported gonorrhea cases were among individuals aged 30–39 years (more than quadrupled from 438 to 1,894), and individuals aged 50 years and above (nearly quadrupled from 124 to 481).

Please consider the impact of the COVID-19 pandemic on infectious disease screening, treatment, and surveillance in the interpretation of 2020 data.
In 2020, the statewide gonorrhea incidence rate of 105.8 per 100,000 population was lower than the national rate of 206.5 per 100,000.

- Massachusetts ranked the ninth lowest in gonorrhea incidence rate among the 50 states.

- Gonorrhea cases continued to be clustered in urban areas in Massachusetts in 2020.

- The five cities with the highest gonorrhea incidence rates in 2020 were Provincetown (1,664.8 per 100,000), Springfield (412.8 per 100,000), Brockton (308.4 per 100,000), Boston (282.7 per 100,000), and Holyoke (280.5 per 100,000).

1 As of 1/1/20, MDPH Bureau of Infectious Disease and Laboratory Sciences calculates rates per 100,000 population using denominators estimated by the University of Massachusetts Donahue Institute using a modified Hamilton-Perry model (Strate S, et al. Small Area Population Estimates for 2011 through 2020, report published Oct 2016). Note that rates and trends calculated using previous methods cannot be compared to these.

2 Please consider the impact of the COVID-19 pandemic on infectious disease screening, treatment, and surveillance in the interpretation of 2020 data.


4 Urban areas have a population of 50,000 or more, represent densely developed territory, and encompass residential, commercial, and other non-residential urban land uses.

5 Among cities that reported at least 12 confirmed gonorrhea cases in 2020.

6 The gonorrhea incidence rate for Provincetown is high because of small population size (2583), as opposed to the number of cases (43).
Syphilis is a sexually transmitted infection that can be spread through sexual contact with an infected person. The first symptom of syphilis infection is a sore or chancre at the site of inoculation that is usually firm, round, and painless. The most recognized symptom of the second stage of infection is a body rash which can be present on the palms of hands and soles of feet. As with primary syphilis symptoms, secondary symptoms also resolve with or without treatment. After the secondary stage of syphilis, untreated infected individuals enter a time of latent syphilis that can last for years. Individuals with syphilis are thought to be most infectious for the first year after acquisition. Syphilis infection can also be transmitted to an infant during pregnancy and birth. Syphilis transmission to an unborn baby is a serious complication of syphilis infection among pregnant individuals. In 2019 and 2020, the annual number of probable cases of congenital syphilis diagnosed in Massachusetts reached nine and ten, respectively, after remaining between zero and four from 2011 to 2018. Syphilis is treatable and it is possible to be re-infected with repeated exposure. For more information see https://www.cdc.gov/std/syphilis/stdfact-syphilis-detailed.htm

**Figure 8.** Number of confirmed and probable infectious syphilis cases reported by female and male gender, Massachusetts 2011–2020

Note: Cases reported as transgender or missing gender (2011–2020: N=71) are included in the statewide total but are not depicted in Figure 8 separately due to small numbers. Data Source: Bureau of Infectious Disease and Laboratory Sciences, data are current as of 11/4/2021 and subject to change.
<table>
<thead>
<tr>
<th>SYPHILIS BY GENDER</th>
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<tr>
<td>• The total number of reported confirmed and probable infectious syphilis cases(^1) increased by 2.3 times from 2011 (N=500) to 2020 (N=1,159). In the most recent five years from 2016 to 2020 the number of cases increased by 11% (from 1,038 to 1,159).(^2)</td>
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<tr>
<td>• Between 2011 and 2020, the proportion of syphilis cases among males remained between 89% and 94% each year. In 2020, there were nine times as many syphilis cases reported among males (N=1,029) as among females (N=111).</td>
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<tr>
<td>• In 2020, 19 syphilis cases were reported among transgender individuals. Please note this is likely an underestimate.</td>
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\(^1\) Infectious syphilis includes diagnoses made in the primary, secondary, and early non-primary non-secondary stages of infection (latent asymptomatic syphilis where infection occurred in the past 12 months).  
\(^2\) Please consider the impact of the COVID-19 pandemic on infectious disease screening, treatment, and surveillance in the interpretation of 2020 data.
From 2011 to 2020, the largest increase in the number of reported confirmed and probable infectious syphilis cases was among individuals aged 50 years and above (more than tripled from 58 to 221).

With the exception of 2011, the largest number of reported confirmed and probable infectious syphilis cases was among 30–39 year-olds in the past decade. In 2011, the largest number of reported cases was among 40–49 year-olds.
Figure 10. Incidence rate of confirmed and probable infectious syphilis cases per 100,000 population reported by city/town, Massachusetts, 2020

The statewide infectious syphilis incidence rate increased over the past ten years to a high of 17.7 per 100,000 in 2019, and then decreased to 16.6 per 100,000 in 2020.3

- Massachusetts ranked 28th in primary and secondary syphilis incidence rate among the 50 states in 2020.4

- The five cities with the highest infectious syphilis incidence rates were Boston (45.0 per 100,000), Brockton (40.3 per 100,000), Springfield (37.1 per 100,000), New Bedford (34.0 per 100,000), and Worcester (32.9 per 100,000).

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1 Infectious syphilis includes diagnoses made in the primary, secondary, and early non-primary non-secondary stages of infection (latent asymptomatic syphilis where infection occurred in the past 12 months).

2 As of 1/1/20, MDPH Bureau of Infectious Disease and Laboratory Sciences calculates rates per 100,000 population using denominators estimated by the University of Massachusetts Donahue Institute using a modified Hamilton-Perry model (Strate S, et al. Small Area Population Estimates for 2011 through 2020, report published Oct 2016). Note that rates and trends calculated using previous methods cannot be compared to these.

3 Please consider the impact of the COVID-19 pandemic on infectious disease screening, treatment, and surveillance in the interpretation of 2020 data.


5 Among cities that reported at least 12 confirmed syphilis cases in 2020.
Human immunodeficiency virus (HIV) is transmitted through exposure to blood, semen, vaginal secretions, or breast milk, most commonly through unprotected sex or through sharing injection drug equipment. HIV attacks the body’s immune system, specifically the CD4 cells. Without treatment, HIV can destroy so many of these cells that the body can’t fight off infections and can lead to acquired immunodeficiency syndrome (AIDS). But with proper medical care, HIV can be controlled. People with HIV who get effective HIV treatment can live long, healthy lives and protect their partners by reducing the risk for HIV transmission.¹

**Figure 11. Number of persons living with HIV infection, Massachusetts 2010–2019**

Data Source: Bureau of Infectious Disease and Laboratory Sciences, data are current as of 2/1/2021 and subject to change

- The number of persons living with HIV infection (PLWH) in Massachusetts increased by 19% from 19,543 in 2010 to 23,291 in 2019.

Figure 12. Number of HIV infection diagnoses and deaths from any cause among persons with HIV, Massachusetts 2010–2019

- After remaining relatively stable at approximately 700 diagnoses per year from 2010 to 2013 (four-year average = 701), then approximately 640 diagnoses per year from 2014 to 2018 (five-year average = 641), the number of new HIV infection diagnoses declined to a ten-year low of 538 in 2019. The number of new HIV infection diagnoses decreased by 25% from 715 in 2010 to 538 in 2019.
- The number of deaths due to any cause among individuals reported with HIV remained relatively stable from 2010 to 2019, with an average of 291 deaths per year (with a low of 266 in 2011 and a high of 320 in 2015).

Data Source: Bureau of Infectious Disease and Laboratory Sciences, data are current as of 2/1/2021 and subject to change
The cities and towns with the highest average annual rate of HIV infection diagnosis during 2017 to 2019 included Provincetown (169.3 per 100,000), Brockton (28.5), Lowell (26.9), Lawrence (23.5), and Everett (21.2).

Boston had the highest number of new HIV infection diagnoses from 2017–2019 (N=396).

1 As of 1/1/2020, BIDLS calculates rates per 100,000 population using denominators estimated by the University of Massachusetts Donahue Institute using a modified Hamilton-Perry model. Note that rates and trends calculated using previous methods cannot be compared to these.

2 Among cities that reported at least 12 HIV infections during 2017-2019. City/town is based on residence at HIV infection diagnosis and excludes individuals diagnosed in a correctional facility.

3 The rate of HIV infection diagnosis for Provincetown is high because of small population size (2,560), as opposed to the number of cases (13).
From 2017 to 2019, of the 1,819 HIV infections newly diagnosed in Massachusetts, 1,329 (73%) were among individuals assigned male at birth (AMAB) and 490 (27%) were among individuals assigned female at birth (AFAB). Among the 1,819 HIV infections, 15 (1%) were transgender,2 and 1,804 (99%) were cisgender.3

From 2017 to 2019, the most frequently reported known exposure mode among individuals AMAB was male-to-male sex (54%) and among individuals AFAB was presumed heterosexual sex (24%). A substantial proportion of diagnoses among both individuals AMAB and AFAB were reported with no identified risk (25% and 34%, respectively).

Among individuals AMAB, the proportion of HIV infection diagnoses with injection drug use (IDU) exposure mode increased from a ten-year low of 4% (N=19/494) in 2014 to a peak of 16% (N=76/462) in 2017, and then decreased to 9% (N=36/397) in 2019.

Among individuals AFAB, the proportion of HIV infection diagnoses with IDU exposure mode increased from a ten-year low of 7% (N=12/164) in 2014 to a peak of 25% (N=40/161) in 2017, and then decreased to 17% (N=24/141) in 2019.

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1 Data reflect sex assigned at birth and therefore not gender identity or gender expression of transgender individuals.
2 Reported numbers among transgender individuals are likely to be underestimates.
3 Persons whose current gender identity corresponds with their sex assigned at birth.
Since the mid-1990's, there has been a dramatic reduction in perinatal transmission of HIV infection related to high rates of antiretroviral treatment of HIV positive people and promotion of HIV screening during pregnancy.

There was only one case identified in the past five years (in 2018).
Because of effective HIV treatment, people diagnosed with HIV infection are living longer, healthier lives. The proportion of people living with HIV infection who were aged 50 years or older increased from 39% on December 31, 2010 to 62% on December 31, 2019.
Hepatitis A is a vaccine-preventable, viral liver disease that can cause mild to severe illness. It is usually transmitted person-to-person through the fecal-oral route or through consumption of contaminated food or water. Hepatitis A is a self-limited disease that does not result in chronic infection.

Between 2018 and 2020, the Massachusetts Department of Public Health (MDPH) and local health departments investigated an outbreak of hepatitis A. The populations most affected by the outbreak were those with recent homelessness or unstable housing, and/or substance use disorder. As of May 2020, the outbreak appeared to be over. Weekly case counts decreased to a pre-outbreak baseline and continued to do so for several months. MDPH acknowledges the tremendous work on the part of stakeholders statewide to control and end this outbreak and encourages continued vaccination of vulnerable populations in accordance with recommendations from the Advisory Committee on Immunization Practices.

Table 1. Reported hepatitis A cases linked to person-to-person outbreak (April 1, 2018 – May 29, 2020) compared to pre-outbreak cases (2017), Massachusetts

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<th>Complications</th>
<th>2017 cases</th>
<th>2018-2020 outbreak cases</th>
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<tr>
<td>Number of cases</td>
<td>53</td>
<td>563</td>
<td></td>
<td>58% (31)</td>
<td>79% (442)</td>
</tr>
<tr>
<td>Demographics</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>64% male</td>
<td>64% male</td>
<td></td>
<td>0%</td>
<td>2% (9)</td>
</tr>
<tr>
<td>Age: median (range)</td>
<td>36 (5-85)</td>
<td>35 (6-98)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asian</td>
<td>6%</td>
<td>1%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td>6%</td>
<td>4%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NH/PI³</td>
<td>--</td>
<td>&lt;1%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>49%</td>
<td>71%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>4%</td>
<td>9%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unknown</td>
<td>36%</td>
<td>14%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hispanic</td>
<td>2%</td>
<td>7%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Hispanic</td>
<td>47%</td>
<td>68%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unknown</td>
<td>51%</td>
<td>26%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Co-infections</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hepatitis B⁴</td>
<td>2%</td>
<td>3%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hepatitis C⁴</td>
<td>2%</td>
<td>46%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HIV</td>
<td>2%</td>
<td>4%</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Risks</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Homelessness/ unstable housing</td>
<td>0%</td>
<td>35%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Known injection drug use</td>
<td>2%</td>
<td>55%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Known any illicit drug use</td>
<td>4%</td>
<td>68%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Affected counties</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Barnstable</td>
<td>0%</td>
<td>2%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Berkshire</td>
<td>2%</td>
<td>1%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bristol</td>
<td>6%</td>
<td>5%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dukes</td>
<td>2%</td>
<td>0%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Essex</td>
<td>9%</td>
<td>13%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Franklin</td>
<td>0%</td>
<td>1%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hampden</td>
<td>4%</td>
<td>8%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hampshire</td>
<td>0%</td>
<td>2%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Middlesex</td>
<td>30%</td>
<td>15%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Norfolk</td>
<td>8%</td>
<td>7%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plymouth</td>
<td>9%</td>
<td>7%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Suffolk</td>
<td>19%</td>
<td>20%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Worcester</td>
<td>9%</td>
<td>21%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1 Please consider the impact of the COVID-19 pandemic on infectious disease screening, treatment, and surveillance in the interpretation of 2020 data.
3 Native Hawaiian/Pacific Islander
4 Includes confirmed and probable cases.

Data Source: Bureau of Infectious Disease and Laboratory Sciences, data are current as of 5/29/2020 and subject to change.

- The chart above summarizes outbreak-associated cases and compares them to 2017 cases (pre-outbreak). Outbreak cases have higher rates of co-infections, hospitalizations, and deaths than 2017 cases, and were more frequently associated with drug use.
Hepatitis B is a liver infection caused by the hepatitis B virus. Transmission occurs via contact with blood or other body fluids, including from mother to infant at birth, via sexual contact, and through sharing of drug injection equipment. Most people who get the disease recover from it and cannot be re-infected. However, about 10% of adults who get hepatitis B will go on to have chronic (long-term) infection and can pass it on to others. When it is chronic, it can be a serious disease that can lead to cirrhosis (scarring of the liver) and/or liver cancer. The younger a person is when infected, the more likely he or she is to go on to have chronic infection and to develop serious liver disease. There is a vaccine to prevent hepatitis B infection.

The burden of chronic hepatitis B in the US is greater among people born in regions of the world with high or moderate prevalence of chronic hepatitis B, including much of Asia and the Pacific Islands.

**Figure 17.** Number of confirmed and probable chronic hepatitis B cases reported by year, Massachusetts 2011–2020

- From 2011 to 2020, an average of 1,824 confirmed and probable chronic hepatitis B virus (HBV) infection cases were reported each year (with a low of 1,613 in 2013 and a high of 2,008 in 2017).

- The surveillance case definition for chronic HBV requires two positive tests; for certain test types, these two tests must be taken at least six months apart. Reported cases are classified as "probable" following the initial test result and are re-classified as "confirmed" if additional test results are received. During the most recent year of data, 2020, some cases currently reported as probable may be eventually confirmed in future reports as additional information is obtained.

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1 Please consider the impact of the COVID-19 pandemic on infectious disease screening, treatment, and surveillance in the interpretation of 2020 data.

2 Case definitions and classifications can be found in the Technical Notes beginning on page 58.
In 2020, 1,876 (55%) newly confirmed and probable chronic HBV infection cases were reported among males, 706 (45%) were reported among females, and less than five were reported among transgender individuals. Please note the number of transgender individuals is likely underreported.

Hepatitis B in women of childbearing age is of particular concern due to the risk of transmission from mother to infant at birth. Perinatal HBV transmission can be prevented by identifying HBV positive pregnant women and providing post-exposure prophylaxis (PEP) to their infants within 12 hours of birth. The MDPH Perinatal Hepatitis B Prevention Program provides case management to pregnant women who are HBV positive and their infants to ensure appropriate PEP, vaccination, and post-vaccination serologic testing.

Note: Cases reported as transgender or missing gender (2011–2020: N=70) are included in the statewide total but are not depicted in Figure 18 separately due to small numbers.

Data Source: Bureau of Infectious Disease and Laboratory Sciences, data are current as of 10/24/2021 and subject to change.

1 Please consider the impact of the COVID-19 pandemic on infectious disease screening, treatment, and surveillance in the interpretation of 2020 data.
In 2020, there were 16 confirmed acute and 107 suspect acute HBV cases for a total of 123 acute cases.

The total number of confirmed and suspect acute HBV cases reported increased from 126 in 2011 to a peak of 192 in 2018, and then decreased to 123 in 2020.

Injection drug use (IDU) is a significant, and increasingly important, risk factor for acquisition of acute HBV infection.

1 Please consider the impact of the COVID-19 pandemic on infectious disease screening, treatment, and surveillance in the interpretation of 2020 data.

2 Case definitions and classifications can be found in the Technical Notes beginning on page 58.
Hepatitis C is a liver infection caused by the hepatitis C virus. The majority of infected individuals are asymptomatic, but symptoms can include fatigue, loss of appetite, nausea, vomiting, abdominal pain, and jaundice. Over time, liver damage can result, and complications can include cirrhosis and liver cancer. Hepatitis C infection is spread by direct contact with the blood of an infected person. Transmission mechanisms can include: sharing equipment used to inject drugs, blood transfusions and organ transplants (primarily prior to 1992 when widespread screening of the blood supply began), from mother to child at birth, sharing personal items such as toothbrushes or razors, tattoos and piercings in non-sterile environments, infection control breaches in healthcare settings, and, rarely, through sexual contact (more likely with HIV co-infection). Most people who get the infection will go on to have chronic infection. With the advent of direct-acting antivirals, hepatitis C infection is curable with a weeks-long course of treatment.

Figure 20. Number of confirmed and probable hepatitis C cases reported by year, Massachusetts 2010–2019

- The total number of reported confirmed and probable hepatitis C cases decreased from 7,735 in 2010 to 4,686 in 2019.
- Most reported cases are chronically infected and MDPH currently estimates that there are over 250,000 people living with HCV infection in Massachusetts.

Data Source: Bureau of Infectious Disease and Laboratory Sciences, data are current as of 11/19/2021 and subject to change

Please note, in 2016, revised case definitions for acute and chronic HCV infection were implemented that contain significant changes from the case definitions for 2010 to 2015. For further information see https://wwwn.cdc.gov/nndss/conditions/.
In 2007, reported cases of hepatitis C were distributed in a curve with two age peaks, with the lower peak at age 24 years and the higher peak at age 49 years.

In 2019, the reported cases were again distributed in a bi-modal curve, but with the higher peak at age 29 years and the lower peak at age 57 years.

Data Source: Bureau of Infectious Disease and Laboratory Sciences, data are current as of 11/19/2021 and subject to change.
In 2019, 2,870 (63%) confirmed and probable hepatitis C infection cases were reported among males, 706 (45%) were reported among females, and less than five were reported among transgender individuals. Please note the number of transgender individuals is likely underreported.

Fifty-eight percent (N=591/1,013) of confirmed and probable hepatitis C infection cases in those less than 30 years of age were reported among males, 42% (N=422/1,013) were reported among females, and less than 1% were reported among transgender individuals.

- For newly reported hepatitis C infections among persons less than 30 years of age with a known risk history, injection drug use was the most commonly reported risk factor for infection.

Sixty-four percent (N=2,275/3,544) of confirmed and probable hepatitis C infection cases in those 30 years of age and older were reported among males, 36% (N=1,269/3,544) were reported among females, and less than 1% were reported among transgender individuals.
In 2020, among 1,159 reported cases of infectious syphilis, 31% (N=361/1,159) were co-infected with HIV.

Among infectious syphilis cases reported in 2020, higher rates of HIV co-infection were observed in transgender individuals, males, and individuals aged 40 years and above. Co-infection rates were similar across categories of race/ethnicity.

Seventy-eight percent (N=807/1,029) of infectious syphilis cases among males reported same sex contact. Of those who reported male-to-male sex, 36% (N=294/807) were co-infected with HIV, compared to 25% (N=55/222) of males with unknown risk.

1 Infectious syphilis includes diagnoses made in the primary, secondary, and early non-primary non-secondary stages of infection (latent asymptomatic syphilis where infection occurred in the past 12 months).

2 HIV/syphilis co-infections include all infectious syphilis cases reported in 2020 that were ever diagnosed with HIV infection.

3 Please consider the impact of the COVID-19 pandemic on infectious disease screening, treatment, and surveillance in the interpretation of 2020 data.
In 2020, among 7,367 reported cases of gonorrhea, 8% (N=570/7,367) were ever co-infected with HIV.

Among laboratory-confirmed gonorrhea cases reported in 2020, higher rates of HIV co-infection were observed in males, transgender individuals, and individuals aged 50 years or older. Co-infection rates were similar across categories of race/ethnicity.

---

### Table 3. Percentage of 2020 laboratory-confirmed gonorrhea cases ever co-infected with HIV by gender, race/ethnicity, and age

<table>
<thead>
<tr>
<th>Gender</th>
<th>Gonorrhea Cases (N=7,367)</th>
<th>HIV/Gonorrhea Co-infections (N=570)¹</th>
<th>% of Gonorrhea Cases Co-infected with HIV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>2,544</td>
<td>540</td>
<td>21%</td>
</tr>
<tr>
<td>Female</td>
<td>4,778</td>
<td>25</td>
<td>1%</td>
</tr>
<tr>
<td>Transgender</td>
<td>41</td>
<td>5</td>
<td>12%</td>
</tr>
<tr>
<td>Race/Ethnicity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White NH</td>
<td>1,522</td>
<td>152</td>
<td>10%</td>
</tr>
<tr>
<td>Black NH</td>
<td>1,415</td>
<td>86</td>
<td>6%</td>
</tr>
<tr>
<td>Hispanic/Latino</td>
<td>1,138</td>
<td>120</td>
<td>11%</td>
</tr>
<tr>
<td>Other</td>
<td>561</td>
<td>56</td>
<td>10%</td>
</tr>
<tr>
<td>Unreported</td>
<td>2,731</td>
<td>159</td>
<td>6%</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;15 years</td>
<td>21</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>15–19 years</td>
<td>796</td>
<td>2</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>20–24 years</td>
<td>1,856</td>
<td>46</td>
<td>2%</td>
</tr>
<tr>
<td>25–29 years</td>
<td>1,620</td>
<td>112</td>
<td>7%</td>
</tr>
<tr>
<td>30–39 years</td>
<td>1,894</td>
<td>209</td>
<td>11%</td>
</tr>
<tr>
<td>40–49 years</td>
<td>699</td>
<td>91</td>
<td>13%</td>
</tr>
<tr>
<td>50+ years</td>
<td>481</td>
<td>101</td>
<td>21%</td>
</tr>
</tbody>
</table>

¹ HIV/gonorrhea co-infections include all laboratory-confirmed gonorrhea cases reported in 2020 that were ever diagnosed with HIV infection.

² Please consider the impact of the COVID-19 pandemic on infectious disease screening, treatment, and surveillance in the interpretation of 2020 data.

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Data Source: Bureau of Infectious Disease and Laboratory Sciences, data are current as of 11/4/2021 and subject to change.
Figure 23. Number of individuals diagnosed with HIV infection only, and ever co-infected with hepatitis C (HCV) by year of HIV infection diagnosis, Massachusetts 2008–2017

- The percentage of individuals diagnosed with HIV infection who were co-infected with hepatitis C decreased from 16% (N=157/981) in 2008 to 8% (N=61/811) in 2014, and then increased to 17% (N=119/698) in 2017.¹

¹ Total number of annual HIV diagnoses presented here is larger than totals presented elsewhere in the report because all HIV diagnoses, including those first made in another state, were included in the co-infection analysis. Please note that due to increased COVID 19-related surveillance work, release of updated HIV/HCV co-diagnosis data is delayed until publication of the 2021 edition of the Integrated HIV, STD, and Viral Hepatitis Report.
From 2013 to 2017, the proportion of individuals co-infected with HIV/HCV who were white (non-Hispanic) increased from 45% to 61%, while the proportion of black (non-Hispanic) individuals decreased from 17% to 6%. During the same time period, the proportion of 20-29 year-olds increased from 13% to 37% and the proportion of 30-39 year-olds increased from 25% to 39%, while the proportion of 40-49 year-olds decreased from 35% to 16%, and the proportion of individuals age 50 years and above decreased from 27% to 8%. There was also a shift in the distribution of exposure mode: the proportion of individuals co-infected with HIV/HCV who had IDU exposure mode increased from 43% to 84%, while the proportion with MSM exposure mode decreased from 19% to 3%.

The distribution of individuals co-infected with HIV/HCV infection by sex assigned at birth remained relatively stable from 2013 to 2017.
SPECIFIC POPULATIONS - ADOLESCENTS AND YOUNG ADULTS, STD DIAGNOSES BY AGE

Figure 24. Distribution of confirmed chlamydia and gonorrhea cases reported by age group (years), Massachusetts 2020

- In 2020,¹ in Massachusetts, 59% of chlamydia cases and 36% of gonorrhea cases were reported among adolescents and young adults aged 15–24 years.
- Nationally, 61% of chlamydia cases and 42% of gonorrhea cases were reported among adolescents and young adults aged 15–24 years.²

Data Source: Bureau of Infectious Disease and Laboratory Sciences, data are current as of 11/4/2021 and subject to change

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¹ Please consider the impact of the COVID-19 pandemic on infectious disease screening, treatment, and surveillance in the interpretation of 2020 data.
In 2020, in Massachusetts, 47% of chlamydia cases reported among males, 67% among females, 28% among transgender individuals, and 59% of total cases were reported among adolescents and young adults aged 15–24 years.

- Nationally, 49% of chlamydia cases reported among males, 67% among females, and 61% of total cases were reported among adolescents and young adults aged 15–24 years.\(^2\)

In 2020, in Massachusetts, 28% of gonorrhea cases reported among males, 51% among females, 27% among transgender individuals, and 36% of total cases were reported among adolescents and young adults aged 15–24 years.

- Nationally, 34% of gonorrhea cases reported among males, 53% among females, and 42% of total cases were reported among adolescents and young adults aged 15–24 years.\(^2\)

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\(^1\) Please consider the impact of the COVID-19 pandemic on infectious disease screening, treatment, and surveillance in the interpretation of 2020 data.

During 2017 to 2019, 13% (N=245/1,819) of HIV infection diagnoses were reported among adolescents and young adults aged 15–24 years.

Adolescent and young adults aged 15–24 years newly diagnosed with HIV infection in Massachusetts during 2017 to 2019 were predominantly Hispanic/Latino (38%) or white (non-Hispanic) (31%), male (82%), and US born (66%), with an exposure mode of male-to-male sex (60%).
The age distribution of hepatitis C virus (HCV) cases reported in Massachusetts changed between 2002 and 2019 with a significant increase in cases among young persons who inject drugs.

- In 2002, reported HCV cases were distributed in a curve with one age peak at 44 years.
- In 2007, reported cases of hepatitis C were distributed in a curve with two age peaks, with the lower peak at age 24 years and the higher peak at age 49 years.
- In 2019, HCV cases among young adults who inject drugs outnumbered newly reported cases among the older age (“baby boomer”) cohort.
- The proportion of cases among young adults (aged 15–29 years) was higher in 2019 (21%, \(N=976/4,566\)) and 2007 (22%, \(N=1,854/8,266\)) compared to 2002 (11%, \(N=978/9,025\)).
- The primary risk for hepatitis C infection in younger adults is injection drug use. While the primary exposure mode for HIV infection in younger adults is male-to-male sex, recent increases in the number of HIV infections attributed to injection drug use have been observed, particularly among young adults (aged 13–29 years).

*Probable and Confirmed Hepatitis C 2002, \(N=9,025\) (excludes 164 with missing age and/or gender), 2007 \(N=8,266\) (excludes 810 with missing age and/or gender), 2019 \(N=4,566\) (excludes 120 with missing age and/or gender). Cases reported as transgender (2002, 2007, and 2019 \(N<5\)) are not depicted in Figure 27 separately due to small numbers. Data Source: Bureau of Infectious Disease and Laboratory Sciences, data are current as of 11/19/2021 and subject to change.
The Massachusetts Youth Risk Behavior Survey (MYRBS) is performed biennially among a sample of ninth to twelfth grade students.

From 2011 to 2019, there were no significant changes in sexual behaviors reported by respondents to the Massachusetts YRBS.

### Table 5. Reported sexual behaviors among Massachusetts high school students, 2011–2019

<table>
<thead>
<tr>
<th>Percentage who reported:</th>
<th>2011</th>
<th>2013</th>
<th>2015</th>
<th>2017</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>% (95% CI)</td>
<td>% (95% CI)</td>
<td>% (95% CI)</td>
<td>% (95% CI)</td>
<td>% (95% CI)</td>
</tr>
<tr>
<td></td>
<td>n1</td>
<td>n</td>
<td>n</td>
<td>n</td>
<td>n</td>
</tr>
<tr>
<td>Ever having sexual intercourse</td>
<td>42.0% (37.5–46.6)</td>
<td>38.1% (34.3–42.0)</td>
<td>36.4% (32.4–40.6)</td>
<td>35.3% (31.8–39.1)</td>
<td>36.9% (32.8–41.3)</td>
</tr>
<tr>
<td></td>
<td>2,513</td>
<td>2,516</td>
<td>2,779</td>
<td>2,889</td>
<td>1,946</td>
</tr>
<tr>
<td>Having sexual intercourse before age 13</td>
<td>4.2% (3.1–5.5)</td>
<td>3.0% (2.4–3.8)</td>
<td>2.9% (2.2–3.8)</td>
<td>2.4% (1.6–3.4)</td>
<td>2.5% (1.7–3.4)</td>
</tr>
<tr>
<td></td>
<td>2,512</td>
<td>2,506</td>
<td>2,793</td>
<td>2,886</td>
<td>1,951</td>
</tr>
<tr>
<td>Having had sexual intercourse with 4+ partners during their life</td>
<td>11.4% (9.1–14.2)</td>
<td>9.3% (8.0–10.8)</td>
<td>7.9% (6.2–10.0)</td>
<td>6.7% (5.4–8.2)</td>
<td>7.8% (6.3–9.5)</td>
</tr>
<tr>
<td></td>
<td>2,510</td>
<td>2,508</td>
<td>2,781</td>
<td>2,886</td>
<td>1,938</td>
</tr>
<tr>
<td>Using a condom at last sexual intercourse²</td>
<td>57.7% (52.8–62.5)</td>
<td>57.6% (52.9–62.2)</td>
<td>62.5% (58.9–65.9)</td>
<td>57.8% (53.1–62.3)</td>
<td>51.4% (45.3–57.4)</td>
</tr>
<tr>
<td></td>
<td>761</td>
<td>667</td>
<td>766</td>
<td>719</td>
<td>427</td>
</tr>
<tr>
<td>Drinking alcohol or using drugs before last sexual intercourse³</td>
<td>22.7% (19.5–26.4)</td>
<td>23.5% (19.9–27.5)</td>
<td>21.8% (18.1–26.0)</td>
<td>18.2% (15.8–21.0)</td>
<td>23.4% (19.5–27.9)</td>
</tr>
<tr>
<td></td>
<td>770</td>
<td>679</td>
<td>782</td>
<td>631</td>
<td>434</td>
</tr>
<tr>
<td>Ever tested for HIV</td>
<td>10.9% (8.7–13.7)</td>
<td>11.0% (9.0–13.4)</td>
<td>9.9% (8.0–12.2)</td>
<td>10.5% (9.0–12.1)</td>
<td>12.6% (10.4–15.3)</td>
</tr>
<tr>
<td></td>
<td>2,652</td>
<td>2,659</td>
<td>3,010</td>
<td>3,125</td>
<td>2,085</td>
</tr>
</tbody>
</table>

1 The number of respondents (unweighted) varied for each question because participants may not answer all questions.

2 Among youth reporting sexual intercourse in the past three months

Figure 28. Estimated¹ average annual HIV diagnosis rate per 100,000 population: MSM (men who have sex with men) compared to non-MSM (males) ages 18–64 years: Massachusetts 2017–2019

- At 223.6 per 100,000 population, the estimated average rate of HIV diagnosis from 2017 to 2019 among MSM (ages 18-64) was 26 times the rate of infection in men who did not report sex with men (8.5 per 100,000).

At 538.5 per 100,000 population, the estimated infectious syphilis rate in 2020 among MSM (ages 18-64) was 50 times the rate of infection in men who did not report sex with men (10.7 per 100,000).

**Figure 29.** Estimated infectious syphilis rate per 100,000 population: MSM compared to non-MSM (males) ages 18–64 years: Massachusetts 2020


2 Infectious syphilis includes diagnoses made in the primary, secondary, and early non-primary non-secondary stages of infection (latent asymptomatic syphilis where infection occurred in the past 12 months).

3 Please consider the impact of the COVID-19 pandemic on infectious disease screening, treatment, and surveillance in the interpretation of 2020 data.
**Figure 30.** Number of confirmed and probable infectious syphilis\(^1\) cases among MSM and the percent of cases among MSM known to ever be co-infected with HIV, Massachusetts 2016–2020

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Cases</th>
<th>Total MSM</th>
<th>% HIV Co-infected MSM</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>683</td>
<td>1,038</td>
<td>44%</td>
</tr>
<tr>
<td>2017</td>
<td>850</td>
<td>1,091</td>
<td>40%</td>
</tr>
<tr>
<td>2018</td>
<td>767</td>
<td>1,162</td>
<td>38%</td>
</tr>
<tr>
<td>2019</td>
<td>882</td>
<td>1,243</td>
<td>39%</td>
</tr>
<tr>
<td>2020</td>
<td>807</td>
<td>1,159</td>
<td>36%</td>
</tr>
</tbody>
</table>

Data Source: Bureau of Infectious Disease and Laboratory Sciences, data are current as of 11/4/2021 and subject to change

- The incidence of syphilis in Massachusetts increased by 11% in the past five years; men who have sex with men represented the majority of cases (70% in 2020).
- In 2020,\(^2\) 36% (N=294/807) of infectious syphilis cases among men reporting sex with men also self-reported co-infection with HIV.\(^3\)

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\(^1\) Infectious syphilis includes diagnoses made in the primary, secondary, and early non-primary non-secondary stages of infection (latent asymptomatic syphilis where infection occurred in the past 12 months).

\(^2\) Please consider the impact of the COVID-19 pandemic on infectious disease screening, treatment, and surveillance in the interpretation of 2020 data.

\(^3\) Please note that the syphilis/HIV co-infection rate among MSM is based on self-report; not database matching analyses, which were used to calculate HIV/syphilis co-infection rates on page 26 of this report.
In 2020, the largest proportion of MSM among infectious syphilis cases was reported in Worcester County (80%, N=97/121), followed by Middlesex (77%, N=179/231) and Barnstable, Dukes, and Nantucket Counties (77%, N=30/39).

1 Infectious syphilis includes diagnoses made in the primary, secondary, and early non-primary non-secondary stages of infection (latent asymptomatic syphilis where infection occurred in the past 12 months).
2 Barnstable, Dukes and Nantucket Counties are combined because of small numbers.
3 Please consider the impact of the COVID-19 pandemic on infectious disease screening, treatment, and surveillance in the interpretation of 2020 data.
Figure 32. HIV infection diagnoses among men reporting sex with men by race/ethnicity, age at diagnosis, and place of birth, Massachusetts 2017–2019 (N=722)

- Black (non-Hispanic) and Hispanic/Latino individuals represented 7% and 13% of men in Massachusetts, compared to 18% and 32%, respectively, of men recently diagnosed with HIV infection with MSM exposure mode.

- Individuals with MSM exposure mode newly diagnosed with HIV infection in Massachusetts during 2017 to 2019 were predominantly in their twenties or thirties (42% 20–29 year-olds, 31% 30–39 year-olds), white (non-Hispanic) (42%), and US born (61%).
Figure 33. Confirmed and probable infectious syphilis\(^1\) cases among men reporting sex with men, by race/ethnicity and age, Massachusetts 2020 (N=807)

Data Source: Bureau of Infectious Disease and Laboratory Sciences, data are current as of 11/4/2021 and subject to change

- Black (non-Hispanic) and Hispanic/Latino individuals represented 7% and 13% of men in Massachusetts, compared to 11% and 28%, respectively, of infectious syphilis cases among men reporting sex with men in 2020.
- In 2020,\(^2\) infectious syphilis cases among men reporting sex with men were predominantly white (non-Hispanic) (50%), and age 30 years and above (69% 30+ year-olds).

\(^1\) Infectious syphilis includes diagnoses made in the primary, secondary, and early non-primary non-secondary stages of infection (latent asymptomatic syphilis where infection occurred in the past 12 months).

\(^2\) Please consider the impact of the COVID-19 pandemic on infectious disease screening, treatment, and surveillance in the interpretation of 2020 data.
Among individuals AMAB, the proportion of HIV infection diagnoses with male-to-male sex as the reported mode of exposure remained between 53% and 66% from 2010 to 2019. During the same time period, the proportion reported with no identified risk remained between 20% and 27%.

The proportion of cases among individuals AMAB attributed to injection drug use increased from 4% in 2014 to a peak of 16% in 2017 and declined to 9% in 2019. This was primarily due to an outbreak among persons who inject drugs in the northeast part of the state between 2016 and 2018.¹

After declining by 53% from 2010 (N=66) to 2014 (N=31), the number of reported cases with injection drug use (IDU) as the primary exposure mode peaked at 116 in 2017 and then decreased to 60 in 2019. The increase was primarily due to an outbreak among PWID identified in the northeastern cities of Lawrence and Lowell, involving 129 individuals diagnosed with HIV infection during January 1, 2015–June 30, 2018. Ninety-four (73%) were diagnosed with HIV infection between 20 and 39 years, 55 (43%) were assigned female at birth (AFAB), and 87 (67%) were white (non-Hispanic). Close to 90% of these individuals also had current or historical evidence of hepatitis C exposure. By June 4, 2019, the outbreak, including diagnoses since June 2018, had increased to 166 cases. The outbreak-associated cases accounted for 52% of HIV infection diagnoses among PWID in 2016 to 2017, and for the increase in HIV infection diagnoses in PWID statewide.1 Following an intensive and targeted public health response, the number of HIV infection diagnoses among PWID in the northeast has decreased.

However, in early 2019, a new cluster of HIV infection was identified in Boston among PWID who are experiencing or have experienced recent homelessness, renewing concerns about ongoing transmissions among PWID statewide. As of March 1, 2021, a total of 113 cases diagnosed since November 2018 have been investigated and identified as part of the Boston cluster. As it is an active cluster of concern, additional cases will continue to be investigated and added. Emerging trends among those newly diagnosed in the Boston cluster (N=33 cases diagnosed in 2019) include an increase in polysubstance and methamphetamine use.2


• Individuals with IDU exposure mode newly diagnosed with HIV infection in Massachusetts during 2017 to 2019 were predominantly white (non-Hispanic) (61%), between 30 and 50 years of age (38% 30–39 year-olds and 18% 40–49 year-olds), US born (88%), and male (62%).
Figure 37. Deaths from any cause among individuals reported with HIV by exposure mode, Massachusetts 2019 (N=298)

- The proportion of deaths from any cause among individuals with HIV with IDU exposure mode decreased from 48% in 2010 to 35% in 2019. At 35%, the proportion among IDU remained the largest among exposure modes in 2019, with an additional 5% reported with an exposure mode of MSM/IDU, compared to 11% and 3%, respectively, of new HIV diagnoses.

Data Source: Bureau of Infectious Disease and Laboratory Sciences, data are current as of 2/1/2021 and subject to change.
In 2020, black (non-Hispanic) and Hispanic/Latino individuals represented 7% and 12% of the total Massachusetts population and 16% and 28% of infectious syphilis cases (with known race/ethnicity), respectively.

During 2017 to 2019, black (non-Hispanic) and Hispanic/Latino individuals represented 30% and 28% of individuals diagnosed with HIV infection in Massachusetts, respectively.

• In 2020, black (non-Hispanic) and Hispanic/Latino individuals represented 7% and 12% of the total Massachusetts population and 16% and 28% of infectious syphilis cases (with known race/ethnicity), respectively.

• During 2017 to 2019, black (non-Hispanic) and Hispanic/Latino individuals represented 30% and 28% of individuals diagnosed with HIV infection in Massachusetts, respectively.


2 Infectious syphilis includes diagnoses made in the primary, secondary, and early non-primary non-secondary stages of infection (latent asymptomatic syphilis where infection occurred in the past 12 months).

3 Please consider the impact of the COVID-19 pandemic on infectious disease screening, treatment, and surveillance in the interpretation of 2020 data.
The greatest number of infectious syphilis cases was among white (non-Hispanic) individuals each year from 2011 to 2020.²

From 2011 to 2020, the greatest increase in the number of infectious syphilis cases was reported among Hispanic/Latino individuals (nearly tripled from 114 to 308), followed by white (non-Hispanic) (more than doubled from 226 to 539), and black (non-Hispanic) individuals (nearly doubled from 101 to 173).

In 2020 the age-adjusted infectious syphilis incidence rate among black (non-Hispanic) individuals (30.0 per 100,000) and Hispanic/Latino individuals (33.1 per 100,000) were both three times that of white (non-Hispanic) individuals (11.1 per 100,000).

1 Infectious syphilis includes diagnoses made in the primary, secondary, and early non-primary non-secondary stages of infection (latent asymptomatic syphilis where infection occurred in the past 12 months).

2 Please consider the impact of the COVID-19 pandemic on infectious disease screening, treatment, and surveillance in the interpretation of 2020 data.
In 2017–2019, the average annual age-adjusted HIV diagnosis rate per 100,000 population of individuals assigned male at birth (AMAB) was three times that of individuals assigned female at birth (AFAB). There were large disparities in age-adjusted HIV diagnosis rates by race/ethnicity:

- The average annual age-adjusted HIV diagnosis rates among black (non-Hispanic) individuals and Hispanic/Latino individuals were eight and four times that of white (non-Hispanic) individuals, respectively.
- The average annual age-adjusted HIV diagnosis rates for 2017 to 2019 among black (non-Hispanic) and Hispanic/Latina individuals AFAB were 14 and four times that of white (non-Hispanic) individuals AFAB, respectively.
- Among black (non-Hispanic) and Hispanic/Latino individuals AMAB, the average annual age-adjusted HIV diagnosis rates were five and four times greater than the rate among white (non-Hispanic) individuals AMAB, respectively.

Data Source: Bureau of Infectious Disease and Laboratory Sciences, data are current as of 2/1/2021 and subject to change.

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1 As of 1/1/2020, BIDLS calculates rates per 100,000 population using denominators estimated by the University of Massachusetts Donahue Institute using a modified Hamilton-Perry model (Strate S, et al. Small Area Population Estimates for 2011 through 2020, report published Oct 2016). Note that rates and trends calculated using previous methods cannot be compared to these. All rates are age-adjusted using the 2000 US standard population.
In 2020, 16.4% of reported chlamydia cases were among females (N=15,742), 36% were among males (N=9,003), and less than one percent (N=39) was among transgender individuals.

In 2020, 34% of reported gonorrhea cases were among females (N=2,544), 65% were among males (N=4,778), and one percent (N=41) was among transgender individuals.

Please consider the impact of the COVID-19 pandemic on infectious disease screening, treatment, and surveillance in the interpretation of 2020 data.
Despite close follow-up of cases of syphilis in pregnant patients and their partners, breakthrough cases of congenital syphilis have increased in Massachusetts. Two syphilitic stillbirths and a symptomatic congenital syphilis case were reported to MDPH as of June 30, 2020, with additional cases expected throughout the year. In 2020, MDPH released a recommendation for universal syphilis screening early in the 3rd trimester (around 27–28 weeks gestation), in addition to routine syphilis screening performed at the first prenatal visit. For more information see, Congenital Syphilis Clinical Alert, June 30, 2020, available at https://www.mass.gov/doc/congenital-syphilis-clinical-alert-6-30-2020/download

**Figure 42.** Number of confirmed and probable congenital syphilis cases reported by year of birth and rate of infectious syphilis per 100,000 among females of child-bearing age (15–44 years), Massachusetts 2011–2020

- Trends in congenital syphilis typically mirror trends in infectious syphilis among females of child-bearing age. In Massachusetts, as the rate of infectious syphilis among females of child-bearing age increased to 7.5 per 100,000 in 2020, so too did the number of probable cases of congenital syphilis²,³ (N=10).

- A similar trend was observed nationally where the number of congenital syphilis cases reached 1,870 in 2019, with a rate of 48.5 cases per 100,000 live births, the highest rate reported since 1994.⁴

1 On January 1, 2015, the congenital case definition was updated to better define treatment and laboratory parameters for classifying cases. From 2015 through 2018 no confirmed cases of congenital syphilis have been reported (2015 and 2016 cases presented here are probable).
2 A condition caused by infection in utero with *Treponema pallidum*. A wide spectrum of severity exists, from inapparent infection to severe cases that are clinically apparent at birth. For more information see http://www.cdc.gov/std/stats/congenitalsyphilisdef-rev-jan-2015.pdf
3 Please consider the impact of the COVID-19 pandemic on infectious disease screening, treatment, and surveillance in the interpretation of 2020 data.
Individuals assigned female at birth (AFAB) and newly diagnosed with HIV infection in Massachusetts during 2017–2019 were predominantly black (non-Hispanic) (47%), between 30 and 50 years of age (30% 30–39 year-olds and 21% 40–49 year-olds), with an exposure mode of presumed heterosexual sex (24%). While presumed heterosexual sex was the leading reported exposure mode, a larger percentage of new HIV diagnoses were reported with no identified risk (NIR) (34%).

Among individuals AFAB, the proportion of HIV infection diagnoses with IDU exposure mode increased from 7% (N=12/164) in 2014 to 25% (N=40/161) in 2017, then decreased to 17% (N=24/141) in 2019.

Data Source: Bureau of Infectious Disease and Laboratory Sciences, data are current as of 2/1/2021 and subject to change
## Strengths and Limitations of Data

<table>
<thead>
<tr>
<th>Description</th>
<th>HIV</th>
<th>STD</th>
<th>Viral Hepatitis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HIV, STD, and Viral Hepatitis data are:</strong></td>
<td>New HIV diagnoses include only individuals who were first diagnosed in Massachusetts.</td>
<td>Includes individuals first reported as living in MA.</td>
<td>Includes individuals first reported as living in MA.</td>
</tr>
<tr>
<td>• Collected by MDPH Bureau of Infectious Disease and Laboratory Sciences</td>
<td>HIV prevalence data include all individuals who were reported as residing in Massachusetts regardless of where they were first diagnosed.</td>
<td>All clinical laboratories in MA report electronically resulting in more complete and timely reporting of disease.</td>
<td>All clinical laboratories in MA report electronically resulting in more complete and timely reporting of disease.</td>
</tr>
<tr>
<td>• Reported statewide</td>
<td>Data are estimated to be 99% complete.</td>
<td>Most infectious syphilis cases agree to interview, resulting in reasonably complete race/ethnicity and sex of sex partner data.</td>
<td></td>
</tr>
</tbody>
</table>

## Strengths

- Completeness of race/ethnicity data is high.
- All clinical laboratories in MA report electronically resulting in more complete and timely reporting of disease.
- Data are estimated to be 99% complete.
- Race/ethnicity data are incomplete for gonorrhea (missing for 37% of 2020 cases) and chlamydia (missing for 51% of 2020 cases).
- Sex of sex partner is not routinely collected for gonorrhea and chlamydia cases.
- Bias is introduced for some STDs, such as chlamydia infection, where screening of asymptomatic persons occurs more frequently among women than among men.

## Limitations

- Due to follow up conducted to verify accurate date of diagnosis, annual incidence data are released a year after the close of the year. For example, 2019 HIV diagnoses through December 31, 2019 were released on January 1, 2021.
- Race/ethnicity data are incomplete for gonorrhea (missing for 37% of 2020 cases) and chlamydia (missing for 51% of 2020 cases).
- Sex of sex partner is not routinely collected for gonorrhea and chlamydia cases.
- Bias is introduced for some STDs, such as chlamydia infection, where screening of asymptomatic persons occurs more frequently among women than among men.
- Race/ethnicity data are incomplete.
- Risk history data are not collected on chronic HBV cases.

### Massachusetts Youth Risk Behavior Survey

<table>
<thead>
<tr>
<th>Description</th>
<th>Strengths</th>
<th>Limitations</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Massachusetts Youth Risk Behavior Survey (MYRBS) is conducted every two years through a collaborative effort between the Massachusetts Department of Elementary and Secondary Education (DESE) and Department of Public Health (DPH) to monitor health indicators, behaviors, and risk factors contributing to the leading causes of morbidity, mortality, and social and academic problems among adolescents. For more information, see <a href="https://www.mass.gov/lists/massachusetts-youth-health-survey-myhs">https://www.mass.gov/lists/massachusetts-youth-health-survey-myhs</a></td>
<td>A two-stage sampling method is used to produce representative samples of students in grades 9 – 12. Response rates are high.</td>
<td>All data collected for the MYRBS and the MYHS are based on self-report from students. Self-reported data may be subject to error for several reasons, including inaccurate recall of events.</td>
</tr>
</tbody>
</table>

| | | |
Hepatitis A outbreak surveillance data are current as of May 29, 2020, hepatitis B surveillance data are current as of October 14, 2021, hepatitis C data are as of November 19, 2021, HIV data are as of February 1, 2021, and STD data are as of November 4, 2021. All data are subject to change.

I. HIV Primary Exposure Mode Definitions

The HIV primary exposure mode indicates the most probable exposure associated with HIV infection. Assignment of primary exposure mode is done in accordance with Centers for Disease Control and Prevention (CDC) guidelines when multiple exposure modes are reported. Although the reported primary exposure mode is the most likely mode of transmission, there is always the possibility that it is not the actual mode of transmission. Following is a description of the exposure mode categories:

- **MSM (Male-to-Male Sex):** Includes all individuals assigned male at birth who report any sexual contact with other individuals that identify as male. Please note that in accordance with CDC guidelines, this category is defined by an individual’s assigned sex at birth and not an individual’s current gender identity.
  - **Sex with Men:** This exposure mode category is used by the Bureau of Infectious Disease and Laboratory Sciences (BIDLS) to categorize sexual risk in transgender women reporting sex with men only. For the purposes of official reporting in the MA HIV Surveillance System and to CDC, exposure mode for transgender women is based on sex assigned at birth, and therefore would be reported as male-to-male sex.

- **IDU (Injection Drug Use):** Cases among persons who report injection drug use.

- **MSM/IDU:** Includes all individuals assigned male at birth who report both injection drug use and any sexual contact with other individuals that identify as male.
  - **Sex with Men/IDU:** This exposure mode category is used by BIDLS to categorize sexual risk in transgender women reporting both sex with men and injection drug use. For the purposes of official reporting in the MA HIV Surveillance System and to CDC, exposure mode for transgender women is based on sex assigned at birth, and therefore would be reported as MSM/IDU.

- **Heterosexual Sex:** Cases among persons who report heterosexual sex with a person diagnosed with, or at increased risk for, HIV infection (e.g., a PWID). The sub-categories for this mode of transmission are listed below.
  - Heterosexual Sex w/ a person who injects drugs
  - Heterosexual Sex w/ a person diagnosed w/ HIV infection or AIDS
  - Heterosexual Sex w/ a bisexual male
  - Other Heterosexual Sex: Includes all other sub-categories of heterosexual risk, such as heterosexual contact with a person infected through a blood transfusion.

- **Other:** Cases among persons with other known exposure modes, including receipt of clotting factor, receipt of transfusion or transplant, and person-to-child transmission through pregnancy, childbirth, or breastfeeding (perinatal transmission).
INTERPRETING HIV, STD, AND VIRAL HEPATITIS DATA

• **Presumed Heterosexual**: The presumed heterosexual risk category is used by BIDLS exclusively for individuals assigned female at birth to identify HIV exposure mode when sex with individuals that identify as male was the only reported risk factor, there was no evidence of current or past injection drug use (IDU), and behavioral risk and HIV status information about sexual partners that identify as male was unknown. The rationale for the application of the presumed heterosexual risk category to individuals assigned female at birth only has been addressed in the MDPH Office of HIV report “Intersecting Risks: HIV Infection among Heterosexual Women and Men in Massachusetts” (2010).

• **NIR (No Identified Risk)**: Cases among persons with no reported history of exposure to HIV through any of the listed exposure categories. Follow-up is conducted to determine exposure for those cases that are initially reported without an exposure mode identified. Includes cases among individuals assigned male at birth who were previously categorized in Massachusetts as Presumed Heterosexual.

II. References to Newly Diagnosed HIV Infections
Due to the extensive follow up required to verify accurate date of diagnosis, all HIV data reflect HIV infections diagnosed through 2019. Newly diagnosed HIV infections/cases include all persons diagnosed with HIV from 2017 to 2019, including those who were concurrently or subsequently diagnosed with AIDS. All HIV data are presented by the year of diagnosis, not the year of report.

III. Race/Ethnicity of STD and HIV Cases
Race/ethnicity references to white residents and black residents represent persons who are white (non-Hispanic) and black (non-Hispanic), respectively. All references to Hispanic/Latino for race/ethnicity represent persons of Hispanic/Latino heritage regardless of race.

IV. STD Case Reports and Analyses
All information on STD cases reflects year of report. As of 1/1/2020, BIDLS calculates rates per 100,000 population using denominators estimated by the University of Massachusetts Donahue Institute using a modified Hamilton-Perry model. 2019 population estimates were used for single-year rates; for pooled year rates (i.e., 2017-2019), the 2019 population estimates were multiplied by three. For more information, see: Strate S, et al. Small Area Population Estimates for 2011 through 2020, report published Oct 2016, and http://www.donahue.umassp.edu/business-groups/economic-public-policy-research/massachusetts-population-estimates-program. When the proportion of STD cases with unknown values is greater than or equal to 30%, incidence trends are not presented by that variable. For instance, race/ethnicity is unknown for 50% of confirmed chlamydia cases and 34% of confirmed gonorrhea cases reported from 2011 to 2020. Therefore, the number of confirmed chlamydia and gonorrhea cases by race/ethnicity are not presented in this report.

V. Cell suppression methodology:
Values less than five are suppressed for denominator populations less than 50,000 or for unknown values. Additional values may be suppressed to prevent back calculation. Values less than five are not suppressed for compound categories (categories containing two or more subcategories, such as other/undetermined) because the exact population value of each subcategory cannot be determined.
**HIV infection**

Clinical description: HIV (human immunodeficiency virus) is a retrovirus with two serologically and geographically distinct species: HIV-1 and HIV-2. It is spread via person-to-person transmission through: sexual contact, the use of HIV-contaminated needles and syringes, vertical transmission from mother to infant, or the transfusion of contaminated blood or its components. HIV attacks the body's immune system, making the individual more likely to acquire infections or develop infection-related cancers. These opportunistic infections or cancers take advantage of the "opportunity" of a weakened immune system and may be one signal that the person has an AIDS diagnosis (acquired immunodeficiency syndrome), the advanced stage of HIV infection.

**Case Classification**

Confirmed: Positive HIV-1, Positive HIV-2, or Positive (Undifferentiated) HIV result from a differentiating immunoassay, Western Blot, IFA, or culture; Positive/Detected Qualitative HIV NAT (DNA or RNA); Quantitative HIV NAT (detectable viral load assay) or physician verified diagnosis.

**Sexually transmitted diseases (STD)**

**Chlamydia trachomatis Infection (Effective 1/10)**

**Clinical description**

Infection with *Chlamydia trachomatis* may result in urethritis, epididymitis, cervicitis, acute salpingitis, or other syndromes when sexually transmitted; however, the infection is often asymptomatic in women. Perinatal infections may result in inclusion conjunctivitis and pneumonia in newborns. Other syndromes caused by *C. trachomatis* include lymphogranuloma venereum (see Lymphogranuloma Venereum) and trachoma.

**Laboratory criteria for diagnosis**

Isolation of *C. trachomatis* by culture or

Demonstration of *C. trachomatis* in a clinical specimen by detection of antigen or nucleic acid

**Case classification**

Confirmed: a case that is laboratory confirmed.

**Gonorrhea (Effective 1/14)**

**Clinical description**

A sexually transmitted infection commonly manifested by urethritis, cervicitis, proctitis, salpingitis, or pharyngitis. Infection may be asymptomatic.
**Laboratory criteria for diagnosis**

Observation of gram-negative intracellular diplococci in a urethral smear obtained from a male or an endocervical smear obtained from a female, or

Isolation of typical gram-negative, oxidase-positive diplococci by culture (presumptive *Neisseria gonorrhoeae*) from a clinical specimen, or

Demonstration of *N. gonorrhoeae* in a clinical specimen by detection of antigen or nucleic acid

**Case classification**

*Probable:* demonstration of gram-negative intracellular diplococci in a urethral smear obtained from a male or an endocervical smear obtained from a female.

*Confirmed:* a person with laboratory isolation of typical gram-negative, oxidase-positive diplococci by culture (presumptive *N. gonorrhoeae*) from a clinical specimen, or demonstration of *N. gonorrhoeae* in a clinical specimen by detection of antigen or detection of nucleic acid via nucleic acid amplification (e.g., polymerase chain reaction [PCR]) or hybridization with a nucleic acid probe.

**Syphilis**

Syphilis is a complex sexually transmitted disease that has a highly variable clinical course. Adherence to the following surveillance case definitions will facilitate understanding the epidemiology of this disease across the US.

**Syphilis, primary (2014)**

**Clinical description**

A stage of infection with *Treponema pallidum* characterized by one or more ulcerative lesions (e.g. chancre), which might differ considerably in clinical appearance.

**Laboratory criteria for diagnosis**

Demonstration of *T. pallidum* in clinical specimens by darkfield microscopy, or by PCR or equivalent direct molecular methods.

**Case classification**

*Probable:* a case that meets the clinical description of primary syphilis with a reactive serologic test (nontreponemal: Venereal Disease Research Laboratory [VDRL], rapid plasma reagin [RPR], or equivalent serologic methods; treponemal: fluorescent treponemal antibody absorbed [FTA-ABS], *T. pallidum* particle agglutination [TP-PA], enzyme immunoassay [EIA], chemiluminescence immunoassay [CIA], or equivalent serologic methods). These treponemal tests supersede older testing technologies, including microhemagglutination assay for antibody to *T. pallidum* [MHA-TP].

*Confirmed:* a case that meets the clinical description of primary syphilis that is laboratory confirmed.
Syphilis, primary (2018)

Clinical description
A stage of infection with *Treponema pallidum* characterized by one or more ulcerative lesions (e.g. chancre), which might differ considerably in clinical appearance.

Laboratory criteria for diagnosis
Confirmatory:
- Demonstration of *T. pallidum* by darkfield microscopy in a clinical specimen that was not obtained from the oropharynx and is not potentially contaminated by stool, OR
- Demonstration of *T. pallidum* by polymerase chain reaction (PCR) or equivalent direct molecular methods in any clinical specimen.

Supportive:
- A reactive nontreponemal serologic test (Venereal Disease Research Laboratory [VDRL], rapid plasma reagin [RPR], or equivalent serologic methods), OR
- A reactive treponemal serologic test (*T. pallidum* particle agglutination [TP-PA], enzyme immunoassay [EIA], chemiluminescence immunoassay [CIA], or equivalent serologic methods).*

* These treponemal tests supersede older testing technologies, including microhemagglutination assay for antibody to *T. pallidum* [MHA-TP].

Case classification
Probable: A case that meets the clinical description of primary syphilis and the supportive laboratory criteria.
Confirmed: A case that meets the clinical description of primary syphilis and the confirmatory laboratory criteria.

Syphilis, secondary (2014)

Clinical description
A stage of infection caused by *T. pallidum* characterized by localized or diffuse mucocutaneous lesions (e.g., rash – such as non-pruritic macular, maculopapular, popular, or pustular lesions), often with generalized lymphadenopathy. Other symptoms can include mucous patches, condyloma lata, and alopecia. The primary ulcerative lesion may still be present. Because of the wide array of symptoms possibly indicating secondary syphilis, serologic tests for syphilis and a thorough sexual history and physical examination are crucial to determining if a case should be classified as secondary syphilis.

Laboratory criteria for diagnosis
Demonstration of *T. pallidum* in clinical specimens by darkfield microscopy, or by PCR or equivalent direct molecular methods.
Case classification

Probable: a case that meets the clinical description of secondary syphilis with a nontreponemal (VDRL, RPR, or equivalent serologic methods) titer ≥4 and a reactive treponemal test (FTA-ABS, TP-PA, EIA, CIA, or equivalent serologic methods).

Confirmed: a case that meets the clinical description of secondary syphilis (with at least one sign or symptom) that is laboratory confirmed.

Syphilis, secondary (2018)

Clinical description

A stage of infection caused by *T. pallidum* characterized by localized or diffuse mucocutaneous lesions (e.g., rash – such as non-pruritic macular, maculopapular, papular, or pustular lesions), often with generalized lymphadenopathy. Other signs can include mucous patches, condyloma lata, and alopecia. The primary ulcerative lesion may still be present.*

*Because of the wide array of symptoms and signs possibly indicating secondary syphilis, serologic tests for syphilis and a physical examination are crucial to determining if a case should be classified as secondary syphilis.

Laboratory criteria for diagnosis

Confirmatory:

- Demonstration of *T. pallidum* by darkfield microscopy in a clinical specimen that was not obtained from the oropharynx and is not potentially contaminated by stool, OR
- Demonstration of *T. pallidum* by polymerase chain reaction (PCR) or equivalent direct molecular methods in any clinical specimen.

Supportive:

- A reactive nontreponemal serologic test (Venereal Disease Research Laboratory [VDRL], rapid plasma reagin [RPR], or equivalent serologic methods), AND
- A reactive treponemal serologic test (*T. pallidum* particle agglutination [TP-PA], enzyme immunoassay [EIA], chemiluminescence immunoassay [CIA], or equivalent serologic methods).

Case classification

Probable: A case that meets the clinical description of secondary syphilis and the supportive laboratory criteria.

Confirmed: A case that meets the clinical description of secondary syphilis and the confirmatory laboratory criteria.
Syphilis, early latent (2014)

*Clinical description*

A subcategory of latent syphilis (a stage of infection caused by *T. pallidum* in which organisms persist in the body of the infected person without causing symptoms or signs) when initial infection has occurred within the previous 12 months.

*Case classification*

*Probable:* A person with no clinical signs or symptoms of syphilis who has one of the following:

- No past diagnosis of syphilis, and a reactive nontreponemal test (e.g., VDRL, RPR, or equivalent serologic methods), and a reactive treponemal test (e.g., FTA-ABS, TP-PA, EIA, CIA, or equivalent serologic methods), or
- A current nontreponemal test titer demonstrating fourfold or greater increase from the last nontreponemal test titer

AND evidence of having acquired the infection within the previous 12 months based on one or more of the following criteria:

- Documented seroconversion or fourfold or greater increase in titer of a nontreponemal test during the previous 12 months
- Documented seroconversion of a treponemal test during the previous 12 months
- A history of symptoms consistent with primary or secondary syphilis during the previous 12 months
- A history of sexual exposure to a partner within the previous 12 months who had primary, secondary, or early latent syphilis (documented independently as duration <12 months)
- Only sexual contact was within the last 12 months (sexual debut).

There is no confirmed case classification for early latent syphilis.

Syphilis, early non-primary non-secondary (2018)

*Clinical description*

A stage of infection caused by *T. pallidum* in which initial infection has occurred within the previous 12 months, but there are no signs or symptoms of primary or secondary syphilis.

*Laboratory criteria for diagnosis*

Supportive:

- A current nontreponemal test titer demonstrating fourfold or greater increase from the last nontreponemal test titer, unless there is evidence that this increase was not sustained for >2 weeks.
Case classification

Probable

- A person with no clinical signs or symptoms of primary or secondary syphilis who has one of the following:
  - No prior history of syphilis, AND a current reactive nontreponemal test (e.g., VDRL, RPR, or equivalent serologic methods), AND a current reactive treponemal test (e.g., TP-PA, EIA, CIA, or equivalent serologic methods), OR
- A prior history of syphilis and meets the supportive laboratory criteria.

AND evidence of having acquired the infection within the previous 12 months based on one or more of the following criteria:

- Documented seroconversion or fourfold or greater increase in titer of a nontreponemal test during the previous 12 months, unless there is evidence that this increase was not sustained for >2 weeks
- Documented seroconversion of a treponemal test during the previous 12 months
- A history of symptoms consistent with primary or secondary syphilis during the previous 12 months
- Meets epidemiologic criteria

Epidemiological Criteria:

- A history of sexual exposure to a partner within the previous 12 months who had primary, secondary, or early non-primary non-secondary syphilis (documented independently as duration <12 months).
- Only sexual contact (sexual debut) was within the previous 12 months.

Syphilis, late latent (2014)

Clinical description

A subcategory of latent syphilis (a stage of infection caused by T. pallidum in which organisms persist in the body of the infected person without causing symptoms or signs) when initial infection has occurred >12 months previously.

Case classification

Probable: a person with no clinical signs or symptoms of syphilis who has one of the following:

- No past diagnosis of syphilis, and a reactive nontreponemal test (e.g., VDRL, RPR, or equivalent serologic methods), and a reactive treponemal test (e.g., FTA-ABS, TP-PA, EIA, CIA, or equivalent serologic methods), or
- A past history of syphilis therapy and a current nontreponemal test titer demonstrating fourfold or greater increase from the last nontreponemal test titer.

AND who has no evidence of having acquired the disease within the preceding 12 months (see Syphilis, early latent).

There is no confirmed case classification for late latent syphilis.
**Syphilis, unknown duration or late (2018)**

**Clinical description**

A stage of infection caused by *T. pallidum* in which initial infection has occurred >12 months previously or in which there is insufficient evidence to conclude that infection was acquired during the previous 12 months.

**Case classification**

**Probable**

A person with no clinical signs or symptoms of primary or secondary syphilis who meets one of the following sets of criteria:

- No prior history of syphilis, and a current reactive nontreponemal test (e.g., VDRL, RPR, or equivalent serologic methods), and a current reactive treponemal test (e.g., TP-PA, EIA, CIA, or equivalent serologic methods), OR
- A prior history of syphilis, and a current nontreponemal test titer demonstrating fourfold or greater increase from the last nontreponemal test titer, unless there is evidence that this increase was not sustained for >2 weeks, OR
- Clinical signs or symptoms and laboratory results that meet the likely or verified criteria for neurologic, ocular, otic, or late clinical manifestations syphilis (see below)

AND who has no evidence of having acquired the disease within the preceding 12 months (see Syphilis, early non-primary non-secondary)

**Comments**

Although cases of syphilis of unknown duration are grouped together with late syphilis for the purposes of surveillance, the conservative clinical and public health responses to these cases will differ when there is uncertainty about the duration of infection. When faced with uncertainty, clinicians should act conservatively and treat unknown duration syphilis as if it were late infection, with three doses of benzathine penicillin. In contrast, the most conservative approach for STD control programs would be to manage cases of syphilis of unknown duration as early non-primary non-secondary infections and search for partners who may have been recently infected. Because this would not be feasible for most STD control programs, programs should consider prioritizing cases of syphilis of unknown duration with higher nontreponemal titers (e.g., 1:32 or higher) for investigation and partner services. Although nontreponemal titers cannot reliably distinguish between early infection (<12 months duration) and late infection (>12 months duration), nontreponemal titers usually are higher early in the course of syphilis infection.

**Syphilis, Congenital (2015)**

**Clinical description**

A condition caused by infection in utero with *T. pallidum*. A wide spectrum of severity exists, from inapparent infection to severe cases that are clinically apparent at birth. An infant or child (aged less than 2 years) may have signs such as hepatosplenomegaly, rash, condyloma lata, snuffles, jaundice (nonviral hepatitis),
pseudoparalysis, anemia, or edema (nephrotic syndrome and/or malnutrition). An older child may have stigmata (e.g., interstitial keratitis, nerve deafness, anterior bowing of shins, frontal bossing, mulberry molars, Hutchinson teeth, saddle nose, rhagades, or Clutton joints).

**Laboratory criteria for diagnosis**

- Demonstration of *T. pallidum* by darkfield microscopy of lesions, body fluids, or neonatal nasal discharge, or
- PCR or other equivalent direct molecular methods of lesions, placenta, umbilical cord, or autopsy material, or
- Immunohistochemistry (IHC), or special stains (e.g., silver staining) of specimens from lesions, neonatal nasal discharge, placenta, umbilical cord, or autopsy material.

**Case classification**

**Probable:** a condition affecting an infant whose mother had untreated or inadequately treated* syphilis at delivery, regardless of signs in the infant, or an infant or child who has a reactive non-treponemal test for syphilis (VDRL, RPR, or equivalent serologic methods) AND any one of the following:

- Any evidence of congenital syphilis on physical examination (see Clinical description)
- Any evidence of congenital syphilis on radiographs of long bones
- A reactive CSF VDRL test
- In a nontraumatic lumbar puncture, an elevated CSF leukocyte (white blood cell [WBC]) count or protein (without other cause):

* Adequate treatment is defined as completion of a penicillin-based regimen, in accordance with CDC treatment guidelines, appropriate for stage of infection, initiated 30 or more days before delivery.

Suggested parameters for abnormal CSF WBC and protein values:

- During the first 30 days of life, a CSF WBC count of >15 WBC/mm3 or a CSF protein >120 mg/dL.
- After the first 30 days of life, a CSF WBC count of >5 WBC/mm3 or a CSF protein >40 mg/dL, regardless of CSF serology.
- The treating clinician should be consulted to interpret the CSF values for the specific patient.

**Confirmed:** a case that is laboratory confirmed.

**Syphilis, Congenital (2018)**

**Clinical Description**

A condition caused by infection in utero with *Treponema pallidum*. A wide spectrum of severity exists, from inapparent infection to severe cases that are clinically apparent at birth. An infant or child (aged less than 2 years) may have signs such as hepatosplenomegaly, rash, condyloma lata, snuffles, jaundice (nonviral hepatitis), pseudoparalysis, anemia, or edema (nephrotic syndrome and/or malnutrition). An older child may have stigmata (e.g., interstitial keratitis, nerve deafness, anterior bowing of shins, frontal bossing, mulberry molars, Hutchinson teeth, saddle nose, rhagades, or Clutton joints).
**Laboratory Criteria for Diagnosis**

Demonstration of *Treponema pallidum* by:

- Darkfield microscopy of lesions, body fluids, or neonatal nasal discharge, **OR**
- Polymerase chain reaction (PCR) or other equivalent direct molecular methods of lesions, neonatal nasal discharge, placenta, umbilical cord, or autopsy material, **OR**
- Immunohistochemistry (IHC), or special stains (e.g., silver staining) of specimens from lesions, placenta, umbilical cord, or autopsy material.

**Case Classification**

**Probable**

A condition affecting an infant whose mother had untreated or inadequately treated* syphilis at delivery, regardless of signs in the infant, **OR** an infant or child who has a reactive non-treponemal test for syphilis (Venereal Disease Research Laboratory [VDRL], rapid plasma reagin [RPR], **OR** equivalent serologic methods) **AND** any one of the following:

- Any evidence of congenital syphilis on physical examination (see Clinical description)
- Any evidence of congenital syphilis on radiographs of long bones
- A reactive cerebrospinal fluid (CSF) venereal disease research laboratory test (VDRL) test
- In a non-traumatic lumbar puncture, an elevated CSF leukocyte (white blood cell, WBC) count or protein (without other cause):
  - Suggested parameters for abnormal CSF WBC and protein values:
    1. During the first 30 days of life, a CSF WBC count of >15 WBC/mm3 or a CSF protein >120 mg/dl is abnormal.
    2. After the first 30 days of life, a CSF WBC count of >5 WBC/mm3 or a CSF protein >40 mg/dl, regardless of CSF serology.

The treating clinician should be consulted to interpret the CSF values for the specific patient.

*Adequate treatment is defined as completion of a penicillin-based regimen, in accordance with CDC treatment guidelines, appropriate for stage of infection, initiated 30 or more days before delivery.

**Confirmed**

A case that is laboratory confirmed.
Comments

Congenital and acquired syphilis may be difficult to distinguish when a child is seropositive after infancy. Signs of congenital syphilis may not be obvious, and stigmata may not yet have developed. Abnormal values for CSF VDRL, WBC count, and protein may be found in either congenital or acquired syphilis. Findings on radiographs of long bones may help because radiographic changes in the metaphysis and epiphysis are considered classic signs of congenitally acquired syphilis. While maternal antibodies can complicate interpretation of serologic tests in an infant, reactive tests past 18 months of age are considered to reflect the status of the child. The decision may ultimately be based on maternal history and clinical judgment. In a young child, the possibility of sexual abuse should be considered as a cause of acquired rather than congenital syphilis, depending on the clinical picture. For reporting purposes, congenital syphilis includes cases of congenitally acquired syphilis among infants and children as well as syphilitic stillbirths.

Viral Hepatitis

Hepatitis is inflammation of the liver. It can impair vital liver functions such as processing nutrients, filtering the blood and fighting infection. Viral hepatitis is inflammation of the liver caused by infection with a virus. In Massachusetts, the most common types of viral hepatitis are hepatitis A, hepatitis B and hepatitis C. Non-viral hepatitis can also result from heavy alcohol use, toxins, some medications, and certain medical conditions.

Hepatitis A, Acute (2019)

Clinical Criteria - An acute illness with a discrete onset of any sign or symptom consistent with acute viral hepatitis (e.g., fever, headache, malaise, anorexia, nausea, vomiting, diarrhea, abdominal pain, or dark urine)

AND

a) jaundice or elevated total bilirubin levels ≥ 3.0 mg/dL, OR
b) elevated serum alanine aminotransferase (ALT) levels >200 IU/L,

AND

c) the absence of a more likely diagnosis

Laboratory Criteria for Diagnosis

Confirmatory laboratory evidence:

- Immunoglobulin M (IgM) antibody to hepatitis A virus (anti-HAV) positive,

OR

- Nucleic acid amplification test (NAAT; such as Polymerase Chain Reaction [PCR] or genotyping) for hepatitis A virus RNA positive

Epidemiologic Linkage

Contact (e.g., household or sexual) with a laboratory-confirmed hepatitis A case 15-50 days prior to onset of symptoms.
Criteria to Distinguish a New Case from an Existing Case

Hepatitis A is usually self-limiting and does not result in chronic infection. However, up to 10% of persons with hepatitis A may experience a relapse during the 6 months after acute illnesses. Cases of relapsing hepatitis A should not be enumerated as new cases. In addition, a case should not be counted as a hepatitis A case if there is an alternate, more likely diagnosis.

Case Classification

Confirmed:

- A case that meets the clinical criteria and is IgM anti-HAV positive §, OR
- A case that has hepatitis A virus RNA detected by NAAT (such as PCR or genotyping), OR
- A case that meets the clinical criteria and occurs in a person who had contact (e.g., household or sexual) with a laboratory-confirmed hepatitis A case 15-50 days prior to onset of symptoms. § And not otherwise ruled out by IgM anti-HAV or NAAT for hepatitis A virus testing performed in a public health laboratory.

Chronic HBV (2012)

Confirmed:

IgM antibodies to hepatitis B core antigen (IgM anti-HBc) negative

AND

A positive result on one of the following tests: hepatitis B surface antigen (HBsAg), hepatitis B e antigen (HBeAg), or nucleic acid test for hepatitis B virus DNA (including qualitative, quantitative and genotype testing),

OR

HBsAg positive or nucleic acid test for hepatitis B virus DNA (including qualitative, quantitative and genotype testing), or HBeAg positive two times at least 6 months apart (Any combination of these tests performed 6 months apart is acceptable.)

Probable:

A case with a single HBsAg positive or HBV DNA positive (including qualitative, quantitative and genotype testing), or HBeAg positive lab result when no IgM anti-HBc results are available

Acute HBV infection (2012)

Clinical Presentation: An acute illness with a discrete onset of symptoms consistent with acute viral hepatitis (e.g., fever, headache, malaise, anorexia, nausea, vomiting, diarrhea, and abdominal pain) and either a) jaundice or b) elevated serum alanine aminotransferase levels > 100 IU/L
Confirmed:

Clinically compatible case* not known to have chronic hepatitis B and

HBsAg positive

AND

IgM antibody to hepatitis B core antigen (IgM anti–HBc) positive, if done *

A documented negative hepatitis B surface antigen (HBsAg) laboratory test result within 6 months prior to a positive test (either HBsAg, Hepatitis B “e” antigen (HBeAg), or hepatitis B virus nucleic acid testing (HBV NAT) including genotype) result does NOT require an acute clinical presentation to meet the surveillance case definition.

Suspect:

Positive IgM antibody to hepatitis B core antigen (IgM anti-HBc) that does not meet the clinical definition

Note that the year into which a case is categorized is based upon the case’s “Event Date”, which is assigned by the following case characteristics, in decreasing order of specificity, dependent on availability of information: symptom onset date, specimen collection date, diagnosis date, or case report date

**Hepatitis C, Acute (2012)**

**Clinical description** – An acute illness with a discrete onset of any sign or symptom consistent with acute viral hepatitis (e.g. fever, headache, malaise, anorexia, nausea, vomiting, diarrhea, and abdominal pain), and either a) jaundice, or b) elevated ALT levels >400 IU/L. A documented negative HCV antibody laboratory test result followed within 6 months by a positive test result does not require an acute clinical presentation to meet the surveillance case definition.

**Laboratory criteria for diagnosis** – One or more of the following three criteria (except in persons less than 18 months of age, for whom only the third criterion would meet the case classification criteria):

- Anti-HCV screening-test-positive with a signal to cut-off ratio predictive of a true positive as determined for the particular assay as defined by CDC, or
- HCV recombinant immunoblot assay positive, or
- NAT for HCV RNA positive (including qualitative, quantitative, or genotype testing) and, if done meets the following two criteria:
  - Absence of IgM antibody to hepatitis A virus
  - Absence of IgM antibody to hepatitis B core antigen

**Confirmed** – A case that meets the clinical case definition, is laboratory confirmed, and is not known to have chronic hepatitis C.

**Hepatitis C, Past or Present (2012)**

**Laboratory criteria for diagnosis** – One or more of the following three criteria (except in persons less than 18 months of age, for whom only the third criterion would meet the case classification criteria):
HIV, STD, AND VIRAL HEPATITIS CASE CLASSIFICATIONS

• Anti-HCV screening-test-positive with a signal to cut-off ratio predictive of a true positive as determined for the particular assay as defined by CDC, or

• HCV recombinant immunoblot assay positive, or

• NAT for HCV RNA positive (including qualitative, quantitative, or genotype testing)

**Probable** – A case that does not meet the case definition for acute hepatitis C, is anti-HCV positive (repeat reactive) by EIA, and has ALT values above the upper limit of normal, but the anti-HCV EIA result has not been verified by an additional more specific assay or the signal to cut-off ratio is unknown.

**Confirmed** – A case that is laboratory confirmed and does not meet the case definition for acute hepatitis C.

**Hepatitis C, Acute (2016)**

**Clinical criteria** – An illness with discrete onset of any sign or symptom consistent with viral hepatitis (e.g. fever, headache, malaise, anorexia, nausea, vomiting, diarrhea, and abdominal pain) and a) jaundice or b) a peak elevated serum ALT level >200 IU/L during the period of acute illness.

**Laboratory criteria for diagnosis**

• A positive test for antibodies to HCV

• HCV detection test: NAT for HCV RNA positive, including qualitative, quantitative, or genotype testing

• A positive test indicating presence of HCV antigen when and if a test for HCV antigen is approved by FDA and available

**Probable** – A case that meets clinical criteria and has a positive anti-HCV antibody test, but has no reports of a positive HCV NAT or positive HCV antigen tests and does not have test seroconversion within 12 months or has no report of test conversion.

**Confirmed** – A case that meets clinical criteria and has a positive HCV NAT or HCV antigen, or a documented negative HCV antibody, HCV antigen or NAT laboratory test result followed within 12 months by a positive result of any of these tests (test conversion).

**Hepatitis C, Chronic (2016)**

**Laboratory criteria for diagnosis**

• A positive test for antibodies to HCV

• HCV detection test: NAT for HCV RNA positive, including qualitative, quantitative, or genotype testing

• A positive test indicating presence of HCV antigen when and if a test for HCV antigen is approved by FDA and available

**Probable** – A case that does not meet clinical criteria or has no report of clinical criteria, and does not have test conversion within 12 months or has no report of test conversion, and has a positive anti-HCV antibody test, but no report of a positive HCV NAT or positive HCV antigen test.

**Confirmed** – A case that does not meet clinical criteria or has no report of clinical criteria, and does not have test conversion within 12 months or has no report of test conversion, and has a positive HCV NAT or HCV antigen test.
<table>
<thead>
<tr>
<th>Topic</th>
<th>Contact</th>
<th>E-Mail</th>
<th>Phone</th>
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</thead>
<tbody>
<tr>
<td><strong>Division of STD Prevention, HIV/AIDS Surveillance, and Ratelle STD/HIV Prevention Training Center</strong></td>
<td>Katharine Hsu (Medical Director) Janine Dyer (Deputy Director)</td>
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<td>617-983-6948 617-983-6964</td>
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<tr>
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<td>617-983-6941</td>
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<td>617-983-6570</td>
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<td><strong>STD Clinical Services</strong></td>
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<td>617-983-6948 617-983-6959</td>
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<tr>
<td><strong>STD Disease Intervention Field Services and Partner Notification</strong></td>
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<td>617-983-6943</td>
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<td><strong>Office of HIV/AIDS</strong></td>
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<td><a href="mailto:Dawn.Fukuda@mass.gov">Dawn.Fukuda@mass.gov</a></td>
<td>617-624-5303</td>
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<tr>
<td><strong>Health Promotion and Disease Prevention Services</strong></td>
<td>Linda Goldman (Director of Health Promotion and Infectious Disease Prevention)</td>
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<td>617-624-5347</td>
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<tr>
<td><strong>Behavioral Health and Community Engagement</strong></td>
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<td>617-624-5316</td>
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<tr>
<td><strong>Viral Hepatitis Program</strong></td>
<td>Lindsay Bouton (Programmatic epidemiologist for hepatitis A and B)</td>
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<td>617-983-6800</td>
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<tr>
<td><strong>Viral Hepatitis Surveillance and Epidemiology</strong></td>
<td>Anthony Osinski (Programmatic epidemiologist for hepatitis C)</td>
<td><a href="mailto:Anthony.Osinski@mass.gov">Anthony.Osinski@mass.gov</a></td>
<td>617-983-6800</td>
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<tr>
<td><strong>Viral Hepatitis Surveillance and Epidemiology</strong></td>
<td>Susan Soliva (Surveillance epidemiologist for viral hepatitis)</td>
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<td>617-983-6801</td>
</tr>
</tbody>
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Training
Professional training to community based organizations, local public health departments, and medical providers can be requested and is free of charge.

### HIV, STD, AND VIRAL HEPATITIS RESOURCES

<table>
<thead>
<tr>
<th>Type of Training</th>
<th>Contact Information and Website</th>
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</thead>
<tbody>
<tr>
<td>STD Education, STD Partner Notification, and STD Reporting</td>
<td>617-983-6940&lt;br&gt;<a href="http://www.mass.gov/dph/cdc/std">www.mass.gov/dph/cdc/std</a></td>
</tr>
<tr>
<td>HIV Reporting and Surveillance Projects</td>
<td>617-983-6560&lt;br&gt;<a href="http://www.mass.gov/dph/cdc/aids">www.mass.gov/dph/cdc/aids</a></td>
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<tr>
<td>HIV Provider Trainings</td>
<td>617-624-5338&lt;br&gt;<a href="http://www.mass.gov/dph/aids">www.mass.gov/dph/aids</a></td>
</tr>
<tr>
<td>STD Diagnosis, Treatment, and Management</td>
<td>617-983-6945&lt;br&gt;<a href="http://www.RatellePTC.org">www.RatellePTC.org</a></td>
</tr>
</tbody>
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### Material and Clinical Toolkits
Health education materials and clinical toolkits can be requested free of charge.

<table>
<thead>
<tr>
<th>Type of Material</th>
<th>Contact Information and Website</th>
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<tbody>
<tr>
<td>Massachusetts HIV Epidemiologic Profile</td>
<td>617-983-6560&lt;br&gt;<a href="https://www.mass.gov/lists/hivaids-epidemiologic-profiles">https://www.mass.gov/lists/hivaids-epidemiologic-profiles</a></td>
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<tr>
<td>STD, and HIV Posters and Brochures</td>
<td>617-983-6800&lt;br&gt;<a href="https://massclearinghouse.ehs.state.ma.us/">https://massclearinghouse.ehs.state.ma.us/</a></td>
</tr>
<tr>
<td>STD Diagnosis, Treatment, and Management Toolkits</td>
<td>617-983-9645&lt;br&gt;<a href="http://www.RatellePTC.org">www.RatellePTC.org</a></td>
</tr>
<tr>
<td>Partner Services Program Information</td>
<td>617-983-6999&lt;br&gt;<a href="https://www.mass.gov/partner-services-program-psp#:~:text=Partner%20services%20provided%20by%20the%20MDPH%20helps%20people%20diagnosed%20with%20testing%20and%20medical%20care">https://www.mass.gov/partner-services-program-psp#:~:text=Partner%20services%20provided%20by%20the%20MDPH%20helps%20people%20diagnosed%20with%20testing%20and%20medical%20care</a></td>
</tr>
</tbody>
</table>

### MDPH and MDPH Funded Websites

- **Office of HIV/AIDS**: [www.mass.gov/dph/aids](http://www.mass.gov/dph/aids)
- **Sylvie Ratelle STD/HIV Prevention Training Center**: [www.RatellePTC.org](http://www.RatellePTC.org)
- **Division of STD Prevention**: [www.mass.gov/dph/cdc/std](http://www.mass.gov/dph/cdc/std)

### National Websites

- **Centers for Disease Control and Prevention**
  - Division of STD Prevention: [www.cdc.gov/std](http://www.cdc.gov/std)
  - Division of HIV Prevention: [www.cdc.gov/hiv](http://www.cdc.gov/hiv)
  - Division of Viral Hepatitis: [www.cdc.gov/hepatitis](http://www.cdc.gov/hepatitis)
  - National Network of STD/HIV Prevention Training Centers: [www.nnptc.org](http://www.nnptc.org)