2019 Integrated HIV/AIDS, STD, and Viral Hepatitis Surveillance Report

Massachusetts Department of Public Health
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Requests for additional data

https://www.mass.gov/lists/infectious-disease-data-reports-and-requests

Slide set for 2019 Integrated Report

https://www.mass.gov/lists/std-data-and-reports

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LIST OF COMMONLY USED ACRONYMS

AI/AN	American Indian/Alaska Native
AIDS	Acquired Immunodeficiency Syndrome
API	Asian/Pacific Islander
BIDLS	Bureau of Infectious Disease and Laboratory Sciences
BRFSS	Behavioral Risk Factor Surveillance System
CDC	Centers for Disease Control and Prevention
CI	Confidence Interval
DOE	Department of Education
HAV	Hepatitis A Virus
HBV	Hepatitis B Virus
HCV	Hepatitis C Virus
HIV	Human Immunodeficiency Virus
HTSX	Heterosexual Sex
IDU	Injection Drug Use
MDPH	Massachusetts Department of Public Health
MSM	Men who have sex with Men
N	Number
NH	Non-Hispanic
NIR	No Identified Risk
PLWH	Persons living with HIV infection
Pres. HTSX	Presumed Heterosexual Sex
PWID	Persons who Inject Drugs
STD	Sexually Transmitted Disease
STI	Sexually Transmitted Infection

KEY HIGHLIGHTS

The 2019 Integrated HIV/AIDS, 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/AIDS
- 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 2019

Chlamydia, gonorrhea, and syphilis:

- Chlamydia continues to be the most frequently reported sexually transmitted infection (STI), with over 30,000 cases reported in 2019.
- The average age of confirmed chlamydia cases in Massachusetts increased from 23.2 years in 2010 to 25.8 years in 2019. This marks the second year (since 2018) that the average age has exceeded the Centers for Disease Control and Prevention (CDC) recommended female screening age range of 14 to 24 years.
- After a sharp 58% increase from 2016 (N=4,617) to 2017 (N=7,307), gonorrhea incidence remained relatively stable through 2019 (N=7,175), making it the second most frequently reported STI that year.
- The number of gonorrhea cases reported among males has been more than double the number reported among females since 2014. In 2019, there were 5,014 gonorrhea cases reported among males, compared to 2,105 among females.
- 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, making it the third most frequently reported STI that year. Although cases among females are rising, syphilis continues to disproportionally affect males, reflecting an ongoing epidemic among men who have sex with men.

HIV/AIDS:[1]

- The number of persons living with HIV infection (PLWH) in Massachusetts increased by 21% from 19,037 in 2009 to 23,073 in 2018.
- The number of new HIV infection diagnoses remained relatively stable at approximately 700 diagnoses per year from 2009 to 2013 (five-year average = 704), and then at approximately 640 diagnoses per year from 2014 to 2018 (five-year average = 641).

[1] Due to the extensive follow-up required to verify date of diagnosis, all HIV/AIDS data reflect HIV infection diagnosed through 2018.

KEY HIGHLIGHTS

- The number of deaths due to any cause among individuals reported with HIV/AIDS remained relatively stable from 2009 to 2018, with an average of 291 deaths per year (with a low of 263 in 2011 and a high of 319 in 2009).
- There are large disparities in age-adjusted HIV diagnosis rates for 2016 to 2018 by race/ethnicity: the rates among black (non-Hispanic) individuals (37.4 per 100,000) and Hispanic/Latino individuals (20.9 per 100,000) were seven and four times that of white (non-Hispanic) individuals (5.0 per 100,000), respectively. Disparities were most notable among females, with the average annual age-adjusted HIV diagnosis rates for 2016 to 2018 among black (non-Hispanic) and Hispanic/Latina females being 15 and five times that of white (non-Hispanic) females, respectively.
- Male-to-male sex (MSM) remained the predominant exposure mode among individuals diagnosed with HIV infection from 2009 to 2018. Those with no identified risk reported (NIR) comprised the second largest exposure mode group, consisting predominantly of males and individuals of black (non-Hispanic) and Hispanic/Latino race/ethnicity.
- After declining by 40% from 2009 (N=52) to 2014 (N=31), the number of reported cases with injection drug use (IDU) as the primary exposure mode peaked at 115 in 2017 and then decreased to 92 in 2018. The increase was primarily due to an outbreak among persons who inject drugs (PWID) in the northeast part of the state between 2016 and 2018.[1] Following an intensive and targeted public health response, the number of HIV infection diagnoses among PWID in the northeast has decreased. However, in late 2018, a new cluster of HIV infection was identified among homeless and recently incarcerated PWID living or receiving care in Boston and Worcester, renewing concerns about ongoing transmissions among PWID statewide.

Hepatitis A, B, and C:

- Beginning in April 2018, MDPH and local health departments had been investigating 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 was considered over. Weekly case counts decreased to a pre-outbreak baseline and continued to do so for several months.
- From 2010 to 2019, an average of 1,840 confirmed and probable chronic hepatitis B virus (HBV) infection cases were reported each year (with a low of 1,602 in 2013 and a high of 1,998 in 2017).
- The total number of confirmed and suspect acute HBV cases reported increased from 109 in 2010 to 181 in 2019.
- In 2018[2], 7,013 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 injecting drugs.

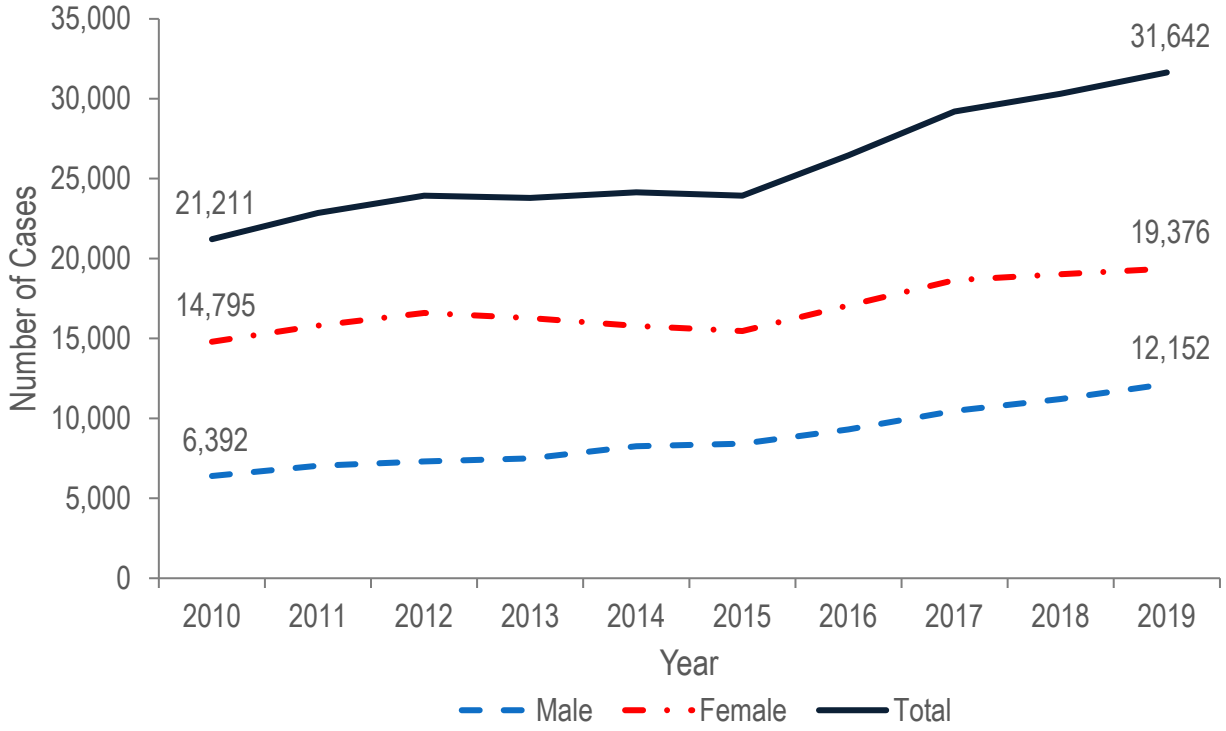
[1] For more information, see: Charles Alpren et al. "Opioid Use Fueling HIV Transmission in an Urban Setting: An Outbreak of HIV Infection Among People Who Inject Drugs—Massachusetts, 2015–2018", *American Journal of Public Health* 110, no. 1 (January 1, 2020): pp. 37-44. https://doi.org/10.2105/AJPH.2019.305366

[2] Due to increased COVID 19-related surveillance work, release of 2019 HCV data is slightly 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 BY GENDER

Chlamydia is the most commonly reported infectious disease in Massachusetts and nationally. Chlamydia is a bacterial sexually transmitted infection (STI) that can infect both males and females. 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 gender, Massachusetts 2010–2019

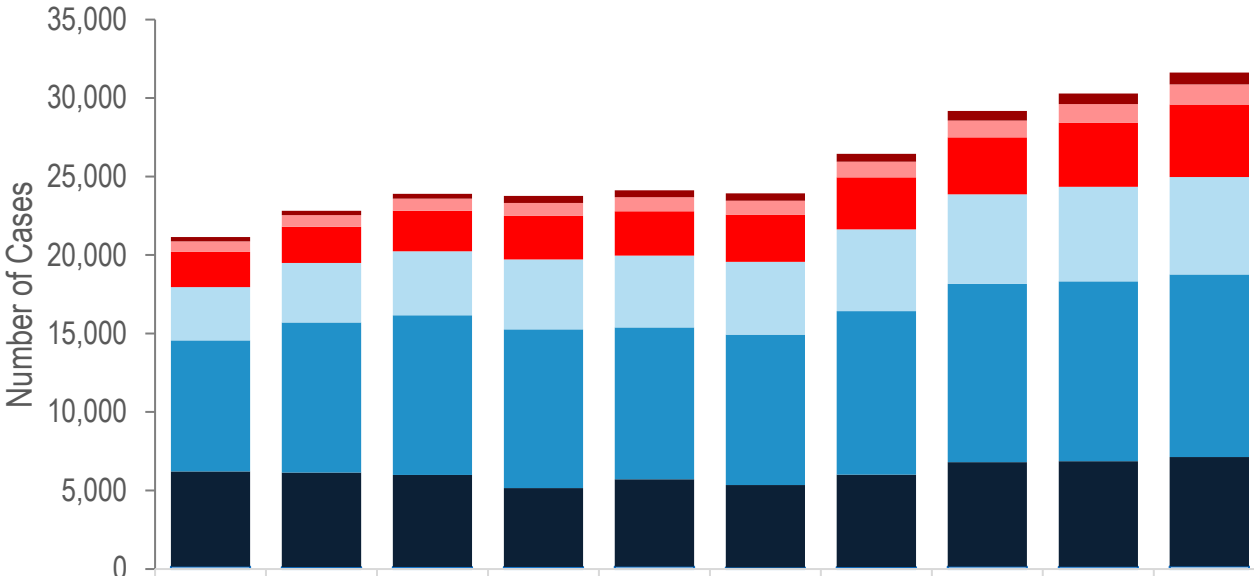


Note: Cases reported as transgender or missing gender (2010–2019: N=629) are not presented in this analysis due to small numbers

- 31,642 cases of chlamydia were reported in Massachusetts in 2019, making it the most frequently reported sexually transmitted infection (STI) in the Commonwealth.
- The total number of reported chlamydia cases increased by 49% from 21,211 in 2010 to 31,642 in 2019. A similar trend was observed in the most recent five years from 2015 to 2019 (cases increased 32% from 23,937 to 31,642).
- Each year from 2010 to 2019, approximately twice as many chlamydia cases were reported among females as among males. In 2019, the ratio of female-to-male chlamydia cases was 1.6 (1.6 = 19,376/12,152).

CHLAMYDIA BY AGE

Figure 2. Number of laboratory-confirmed chlamydia cases reported by age group (years), Massachusetts 2010–2019



	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
50+	270	278	303	449	439	463	498	613	674	760
40–49	675	740	775	828	897	894	1,000	1,075	1,186	1,283
30–39	2,244	2,309	2,579	2,772	2,824	3,006	3,314	3,629	4,080	4,620
25–29	3,391	3,791	4,078	4,449	4,580	4,637	5,204	5,708	6,029	6,200
20–24	8,355	9,556	10,176	10,120	9,668	9,579	10,422	11,352	11,458	11,638
15–19	6,059	6,027	5,860	5,024	5,571	5,251	5,888	6,656	6,723	6,973
<15	146	115	124	122	144	94	115	147	138	151

Year

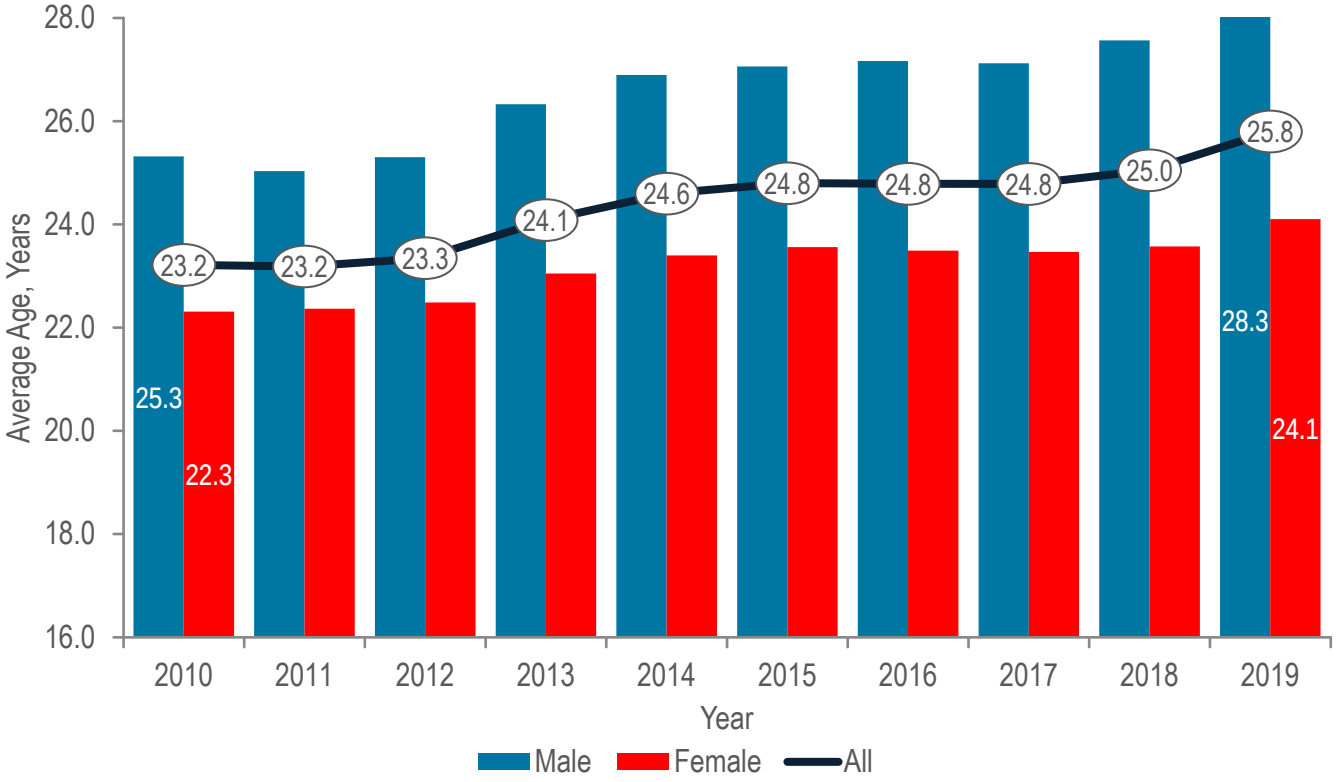
Note: Cases missing age (2010–2019: N=272) are not included in this figure

- Each year from 2010 to 2019, the largest number of chlamydia cases was reported among 20–24 year-olds, followed by 15–19 year-olds.
- From 2010 to 2019, the largest increase in the number of reported chlamydia cases was among individuals aged 50 years and above (nearly tripled from 270 to 760).

CHLAMYDIA BY AVERAGE AGE AND GENDER

The United States Preventive Services Task Force and the Centers for Disease Control and Prevention recommend screening for chlamydia in sexually active women age 24 years and younger, and older women at increased risk for infection.[1] Routine screening of men is currently recommended only in higher prevalence clinical settings such as adolescent clinics, correctional facilities, and STD clinics, and among men who report sex with men.

Figure 3. Average age of laboratory-confirmed chlamydia cases reported by gender, Massachusetts 2010–2019



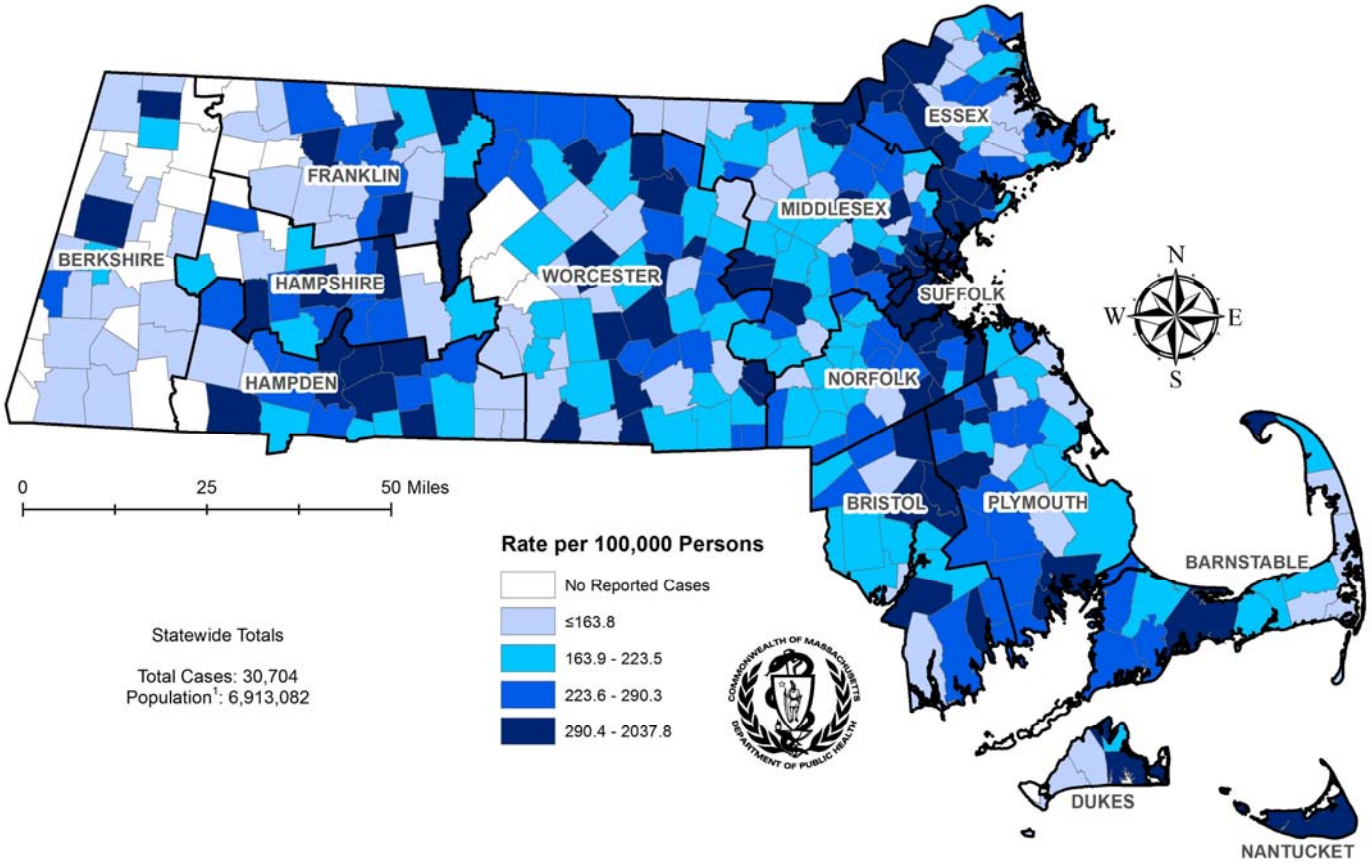
Note: Cases with no age reported (2010–2019: N=272) are not are not included in this figure

- The overall average age of laboratory-confirmed chlamydia cases in Massachusetts increased from 23.2 years in 2010 to 25.8 years in 2019.
- The overall increase in average age appeared to be driven mostly by male chlamydia cases. From 2010 to 2019, the proportion of chlamydia cases among males increased from 30% to 38% (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 2010 to 2019, the average age of chlamydia cases reported among males increased by 3.0 years compared to an increase of 1.8 years among females.

[1] *Source: Final Recommendation Statement: Chlamydia and Gonorrhea: Screening*. U.S. Preventive Services Task Force. May 2019. https://www.uspreventiveservicestaskforce.org/Page/Document/RecommendationStatementFinal/chlamydia-and-gonorrhea-screening

CHLAMYDIA BY CITY/TOWN

Figure 4. Incidence rate of confirmed chlamydia cases per 100,000 population[1] reported by city/town, Massachusetts, 2019



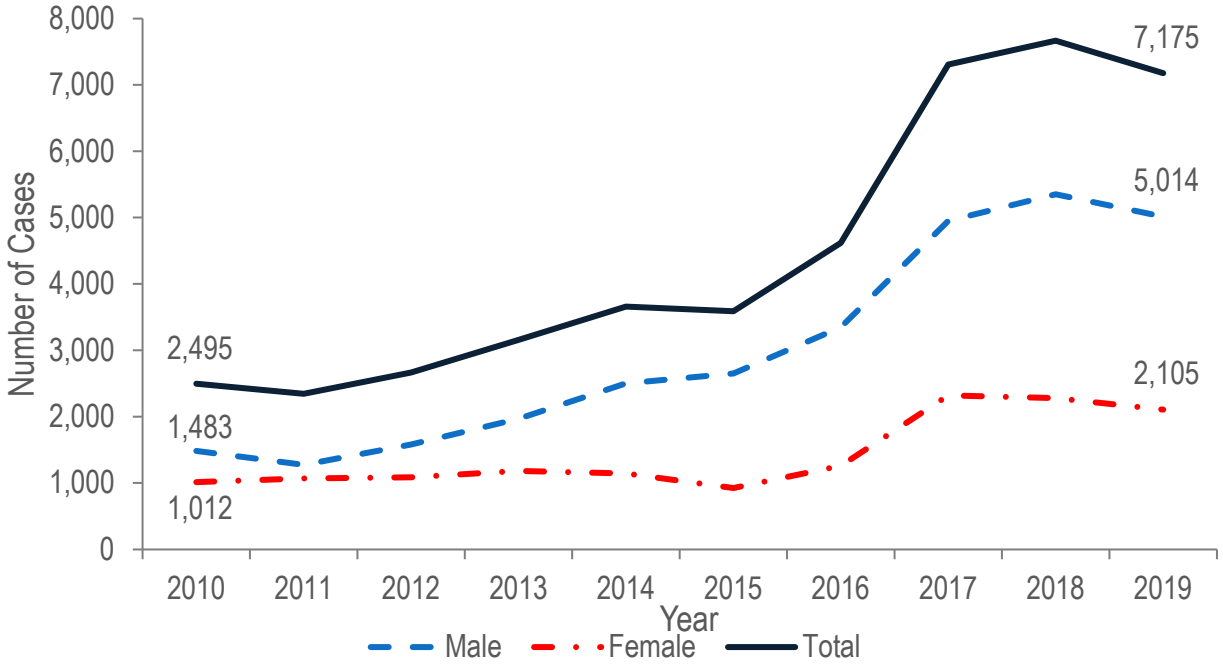
- In 2019, the statewide chlamydia incidence rate of 444.1 per 100,000 population was lower than the 2018 national rate of 539.9 per 100,000.
    - Massachusetts ranked the twelfth lowest in chlamydia incidence rate among the 50 states.[2]
- Chlamydia cases continue to be reported throughout in Massachusetts, with concentrations in urban areas.[3]
- The five cities[4] with the highest chlamydia incidence rates in 2019 were Provincetown (2,037.7 per 100,000),[5] Lawrence (1,337.6 per 100,000), Brockton (1,223.8 per 100,000), Springfield (1,064.9 per 100,000), and Chelsea (981.4 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] Centers for Disease Control and Prevention. *Sexually Transmitted Disease Surveillance 2018*. Atlanta: U.S. Department of Health and Human Services; 2019. DOI: 10.15620/cdc.79370. Please note, 2018 national rates are presented because 2019 national rates were not yet available at the time of this publication.
[3] 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.
[4] Among cities that reported at least 12 confirmed chlamydia cases in 2019.
[5] The chlamydia incidence rate for Provincetown is high because of small population size (2,650), as opposed to the number of cases (54).

GONORRHEA BY GENDER

Gonorrhea is a common bacterial STI that infects both males and females. It can be spread through vaginal, anal, or oral sexual contact with an infected partner and from mother to child 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. Currently, there are no known ceftriaxone-resistant gonorrhea cases 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 gender, Massachusetts 2010–2019

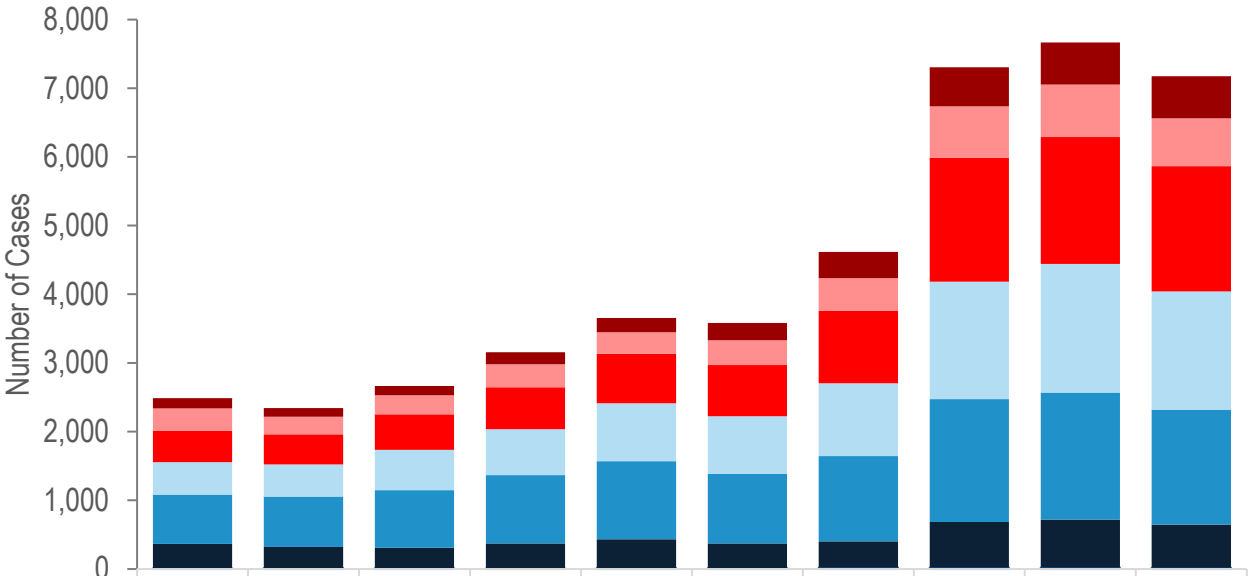


Note: Cases reported as transgender or missing gender (2010–2019: N=175) are not presented in this analysis due to small numbers

- After a sharp 58% increase from 2016 (N=4,617) to 2017 (N=7,307), gonorrhea incidence remained relatively stable through 2019 (N=7,175), making it the second most commonly reported infectious disease in Massachusetts that year.
- Between 2010 and 2019, the number of gonorrhea cases reported among males increased by 3.3 times (from 1,483 to 5,014, respectively). A similar trend was observed in the most recent five years from 2015 to 2019 (cases among males increased 89% from 2,650 to 5,014). The number of gonorrhea cases among males in 2019 was more than double the number among females (2,105).
- The number of gonorrhea cases reported among females increased by 2.1 times from 1,012 in 2010 to 2,105 in 2019.

GONORRHEA BY AGE

Figure 6. Number of laboratory-confirmed gonorrhea cases reported by age group (years), Massachusetts 2010–2019



	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
50+	149	124	136	174	206	250	383	569	612	612
40–49	324	256	276	336	316	362	476	747	765	697
30–39	459	438	517	610	718	746	1,055	1,807	1,847	1,825
25–29	473	469	588	669	845	841	1,059	1,710	1,875	1,721
20–24	718	734	839	994	1,136	1,011	1,242	1,789	1,850	1,674
15–19	355	308	299	367	420	359	383	664	699	629
<15	8	12	9	5	12	12	18	19	18	16

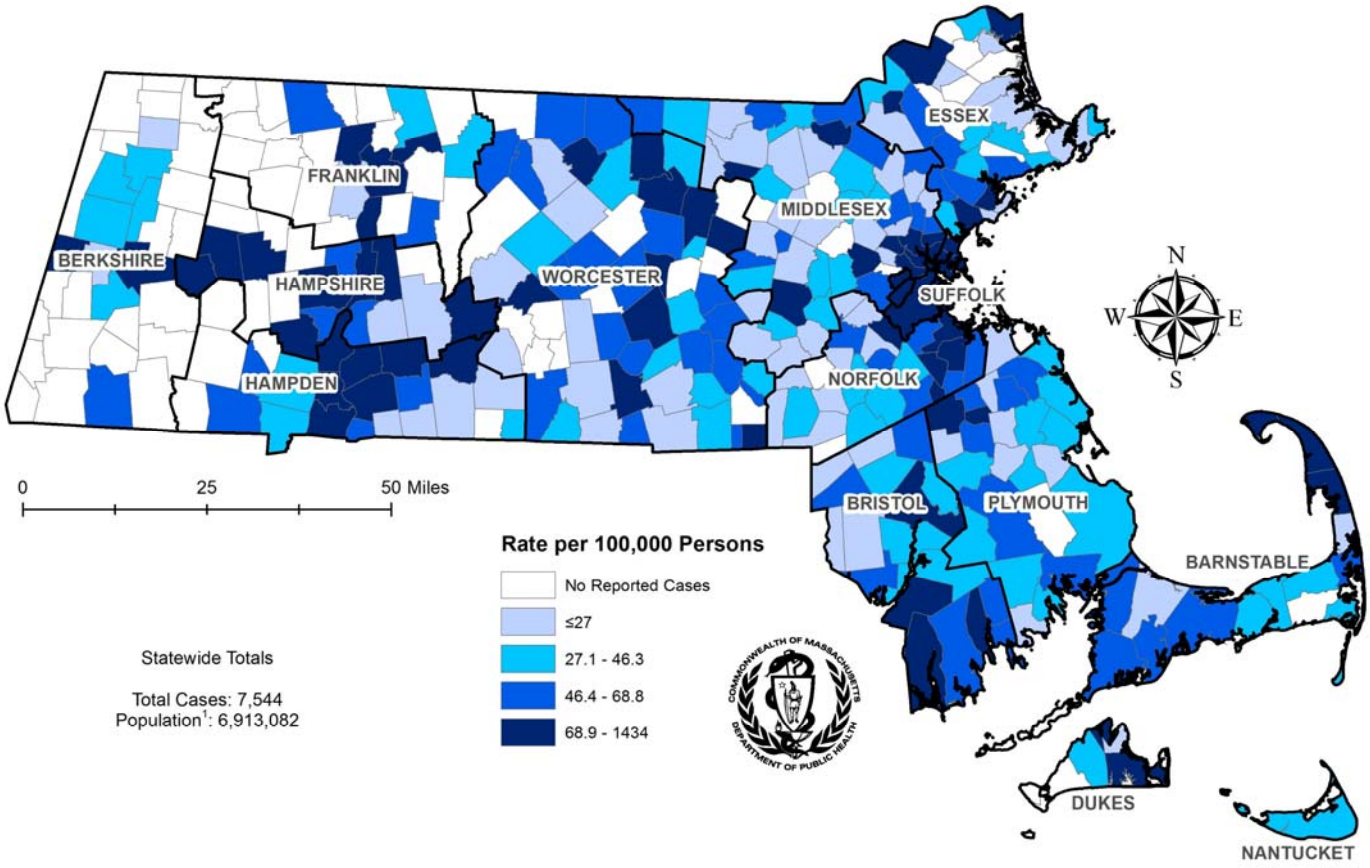
Year

Note: Cases missing age (2010–2019: N=30) are not included in this figure

- Each year from 2010 to 2019, about half of gonorrhea cases were reported among individuals aged 20–24 or 25–29 years.
- From 2010 to 2019, the largest increases in the number of reported gonorrhea cases were among individuals aged 50 years and above (more than quadrupled from 149 to 612), and individuals aged 30–39 years (nearly quadrupled from 459 to 1,825).

GONORRHEA BY CITY/TOWN

Figure 7. Incidence rate of confirmed gonorrhea cases per 100,000 population[1] reported by city/town, Massachusetts, 2019



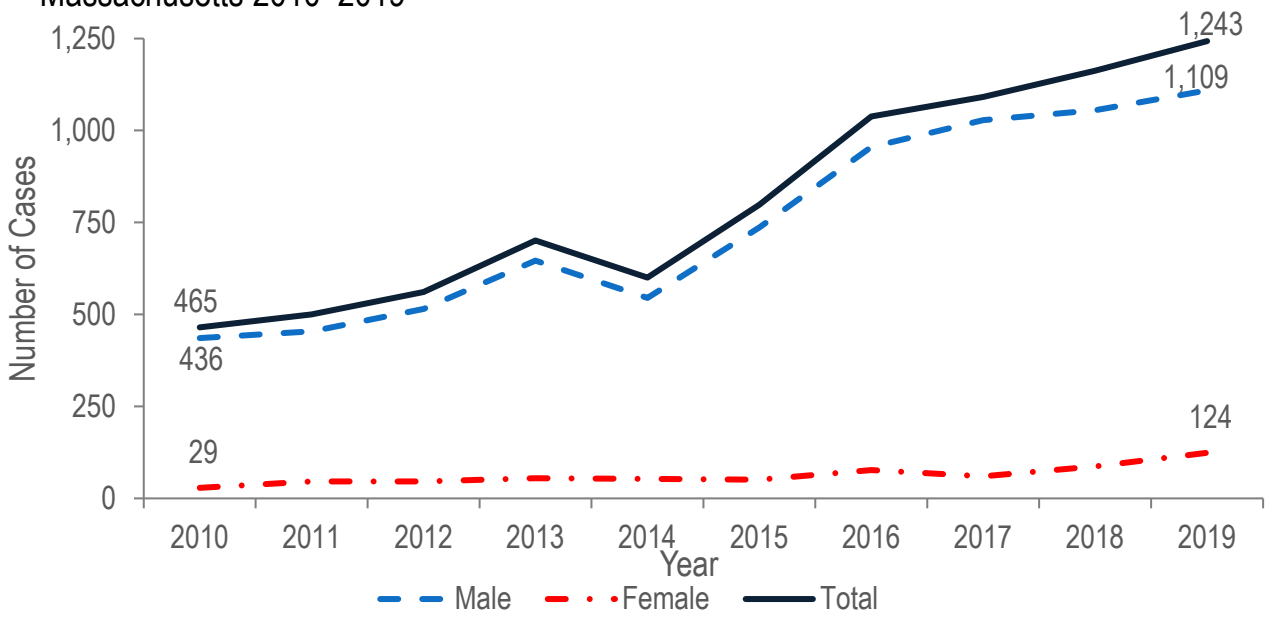
- In 2019, the statewide gonorrhea incidence rate of 109.1 per 100,000 was lower than the 2018 national rate of 179.1 per 100,000.
    - Massachusetts ranked the 11th lowest in gonorrhea incidence rate among the 50 states.[2]
- Gonorrhea cases continued to be clustered in urban areas[3] in Massachusetts in 2019.
- The five cities[4] with the highest gonorrhea incidence rates in 2019 were Provincetown (1,434.0 per 100,000),[5] Springfield (382.5 per 100,000), Boston (312.8 per 100,000), Brockton (278.7 per 100,000), and Fitchburg (262.5 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] Centers for Disease Control and Prevention. *Sexually Transmitted Disease Surveillance 2018*. Atlanta: U.S. Department of Health and Human Services; 2019. DOI: 10.15620/cdc.79370. Please note, 2018 national rates are presented because 2019 national rates were not yet available at the time of this publication.
[3] 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.
[4] Among cities that reported at least 12 confirmed gonorrhea cases in 2019.
[5] The gonorrhea incidence rate for Provincetown is high because of small population size (2,650), as opposed to the number of cases (38).

SYPHILIS BY GENDER

Syphilis is a sexually transmitted infection that can be spread through sexual contact with an infected person in the primary or secondary stages of syphilis infection. 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 latent syphilis are thought to be infectious for the first year after infection. Syphilis infection can also be transmitted from mother to child during pregnancy and birth. Syphilis transmission to an unborn baby is a serious complication of syphilis infection among pregnant individuals. In 2019, there were nine probable cases of congenital syphilis diagnosed in Massachusetts. 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[1] cases reported by gender, Massachusetts 2010–2019



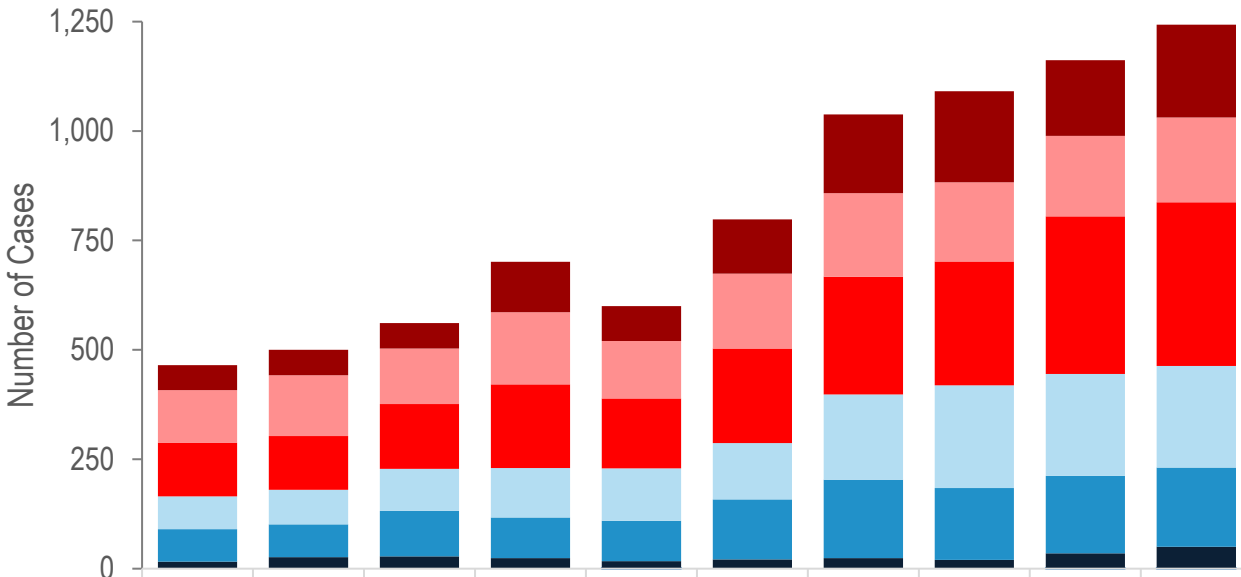
Note: Cases reported as transgender or missing gender (2010–2019: N=52) are not presented in this analysis due to small numbers

- The total number of reported confirmed and probable infectious syphilis cases increased by 2.7 times from 2010 (N=465) to 2019 (N=1,243). A similar trend was observed in the most recent five years from 2015 to 2019 (cases increased 56% from 798 to 1,243).
- Between 2010 and 2019, the proportion of syphilis cases among males remained between 89% and 94% each year. In 2018, there were nine times as many syphilis cases reported among males (N=1,109) as among females (N=124).

[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).

SYPHILIS BY AGE

Figure 9. Number of confirmed and probable infectious syphilis[1] cases reported by age group (years), Massachusetts 2010–2019



	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
50+	57	58	58	115	80	124	180	208	173	212
40–49	120	139	127	165	131	171	191	181	184	194
30–39	123	123	148	191	160	216	269	283	360	374
25–29	75	79	96	113	120	129	195	235	233	232
20–24	74	75	104	93	92	137	179	164	177	181
15–19	16	26	28	24	16	21	24	20	34	49
<15	0	0	0	0	1	0	0	0	1	1

Year

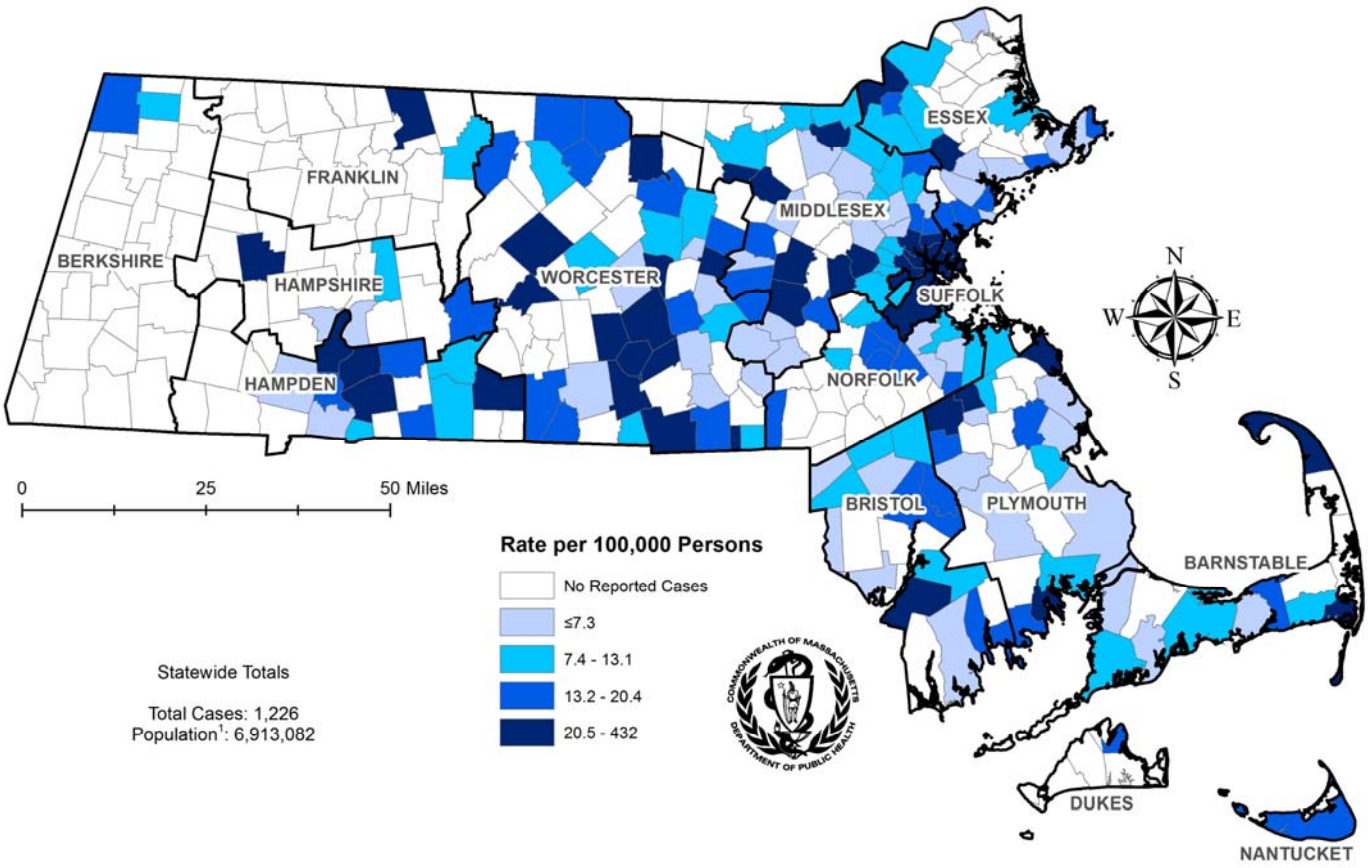
Note: All syphilis cases from 2010 to 2019 were reported with age, none were excluded from this figure

- From 2010 to 2019, 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 57 to 212).
- Each year from 2010 to 2019, except for 2011, the largest number of reported confirmed and probable infectious syphilis cases was among 30–39 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).

SYPHILIS BY CITY/TOWN

Figure 10. Incidence rate of confirmed and probable infectious syphilis[1] cases per 100,000 population[2] reported by city/town, Massachusetts, 2019



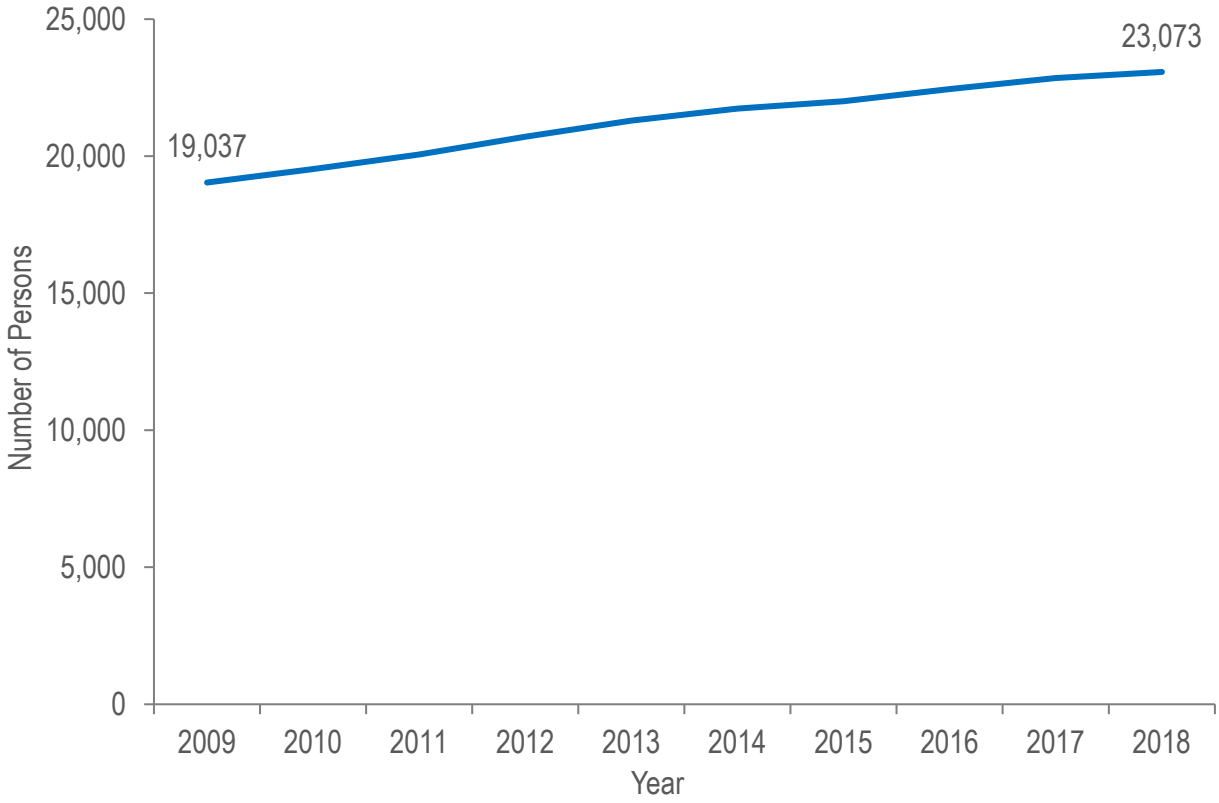
- The statewide infectious syphilis incidence rate increased over the past ten years to a high of 17.7 per 100,000 in 2018.
    - Massachusetts ranked the 24th highest in primary and secondary syphilis incidence rate among the 50 states.[3]
- The five cities[4] with the highest infectious syphilis incidence rates were Boston (46.3 per 100,000), Everett (46.0 per 100,000), Chelsea (45.3 per 100,000), Springfield (42.6 per 100,000), and Framingham (39.2 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] 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] Centers for Disease Control and Prevention. *Sexually Transmitted Disease Surveillance 2018*. Atlanta: U.S. Department of Health and Human Services; 2019. DOI: 10.15620/cdc.79370. Please note, 2018 national rates are presented because 2019 national rates were not yet available at the time of this publication.
[4] Among cities that reported at least 12 confirmed syphilis cases in 2019.

HIV PREVALENCE

Human immunodeficiency virus (HIV) is transmitted through exposure to blood, semen, vaginal secretions, or breast milk, most commonly through unprotected sex or through sharing injecting 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.[1]

Figure 11. Number of persons living with HIV infection, Massachusetts, 2009–2018

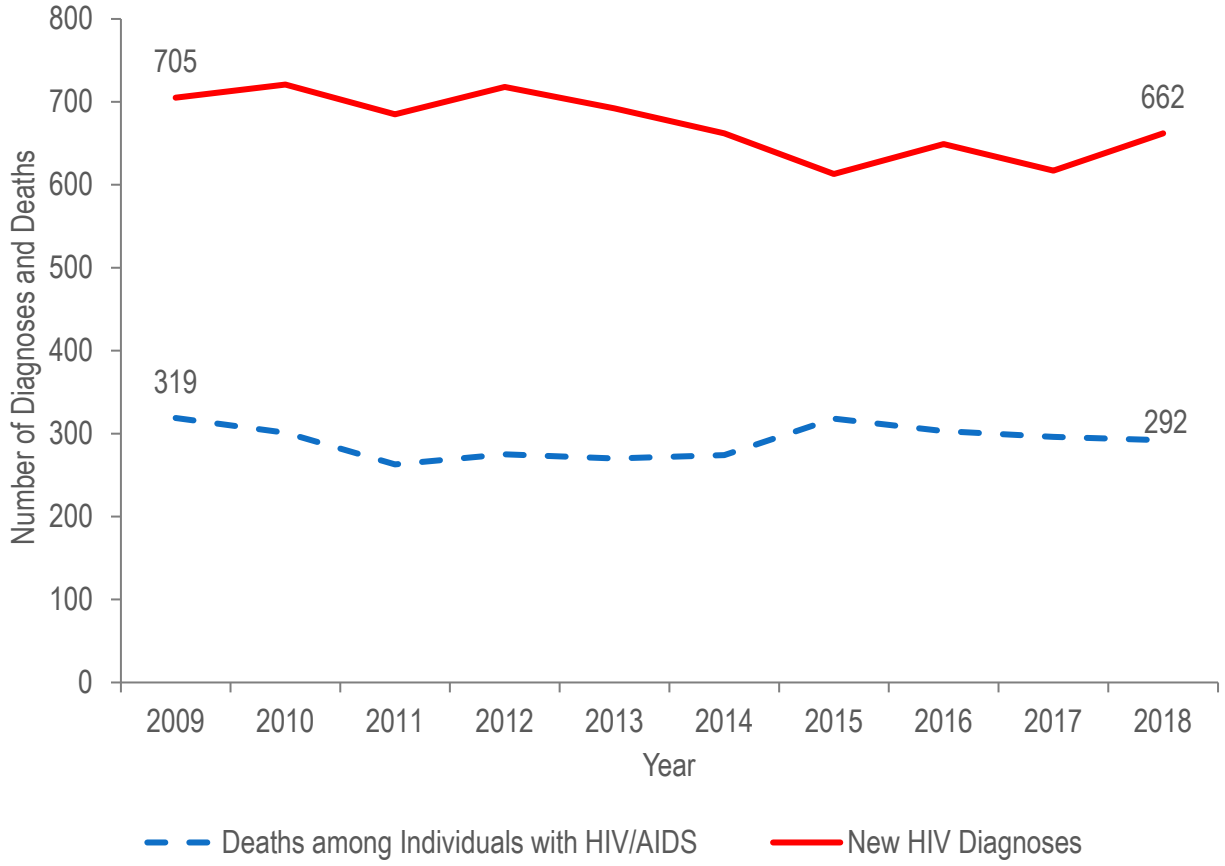


- The number of persons living with HIV infection (PLWH) in Massachusetts increased by 21% from 19,037 in 2009 to 23,073 in 2018.

[1] For more information, see Centers for Disease Control and Prevention. *Diagnose and Treat to Save Lives: Decreasing Deaths Among People with HIV*. Atlanta: U.S. Department of Health and Human Services; 2020, available at: https://www.cdc.gov/hiv/statistics/deaths/index.html

HIV DIAGNOSES AND DEATHS AMONG PERSONS REPORTED WITH HIV/AIDS

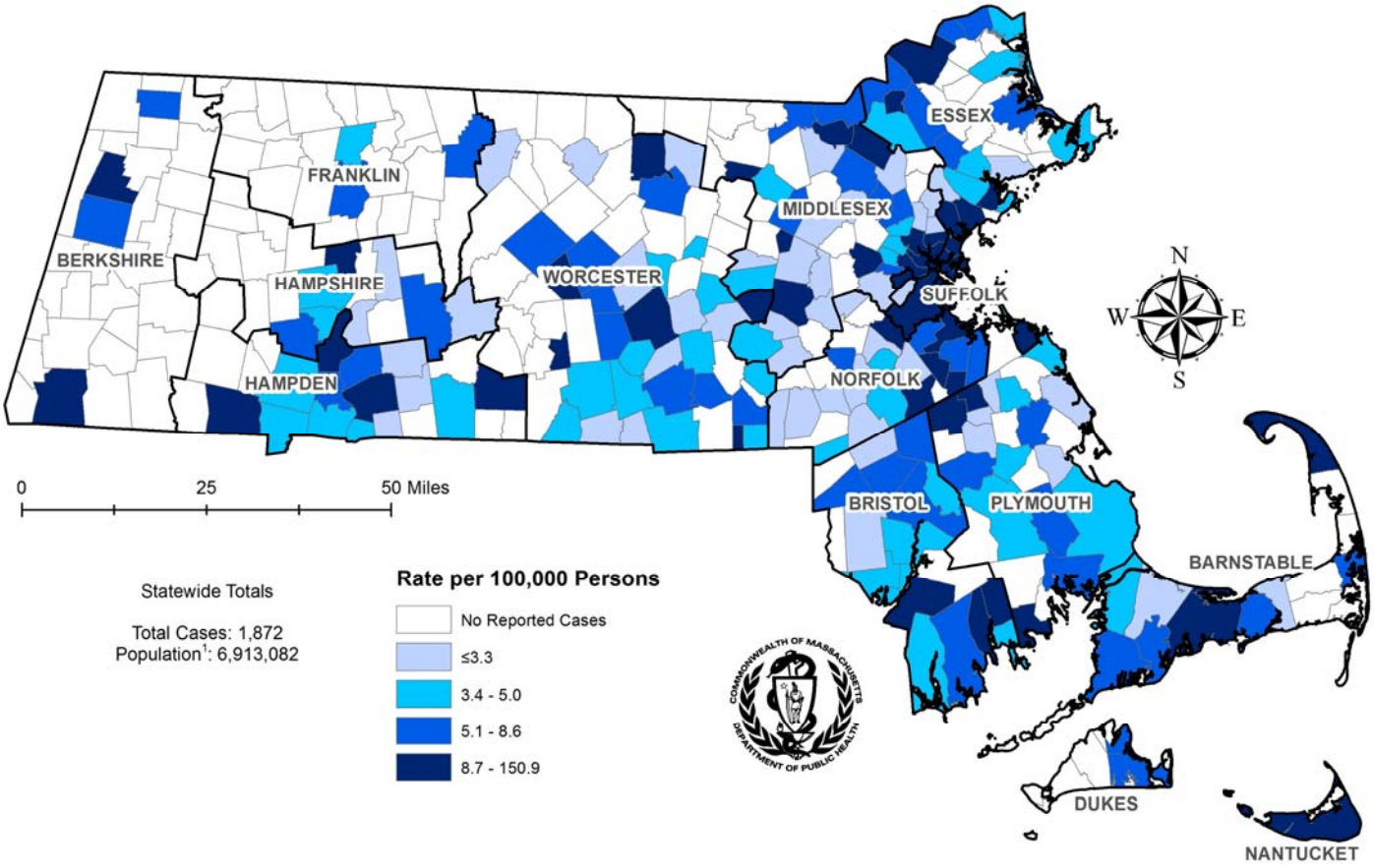
Figure 12. Number of HIV infection diagnoses and deaths among persons with HIV/AIDS, Massachusetts, 2009–2018



- The number of new HIV infection diagnoses remained relatively stable at approximately 700 diagnoses per year from 2009 to 2013 (five-year average = 704), and then at approximately 640 diagnoses per year from 2014 to 2018 (five-year average = 641).
- The number of deaths due to any cause among individuals reported with HIV/AIDS remained relatively stable from 2009 to 2018, with an average of 291 deaths per year (with a low of 263 in 2011 and a high of 319 in 2009).

HIV BY CITY/TOWN

Figure 13. Average annual rate of HIV diagnosis per 100,000 population[1] by city/town, Massachusetts 2016–2018

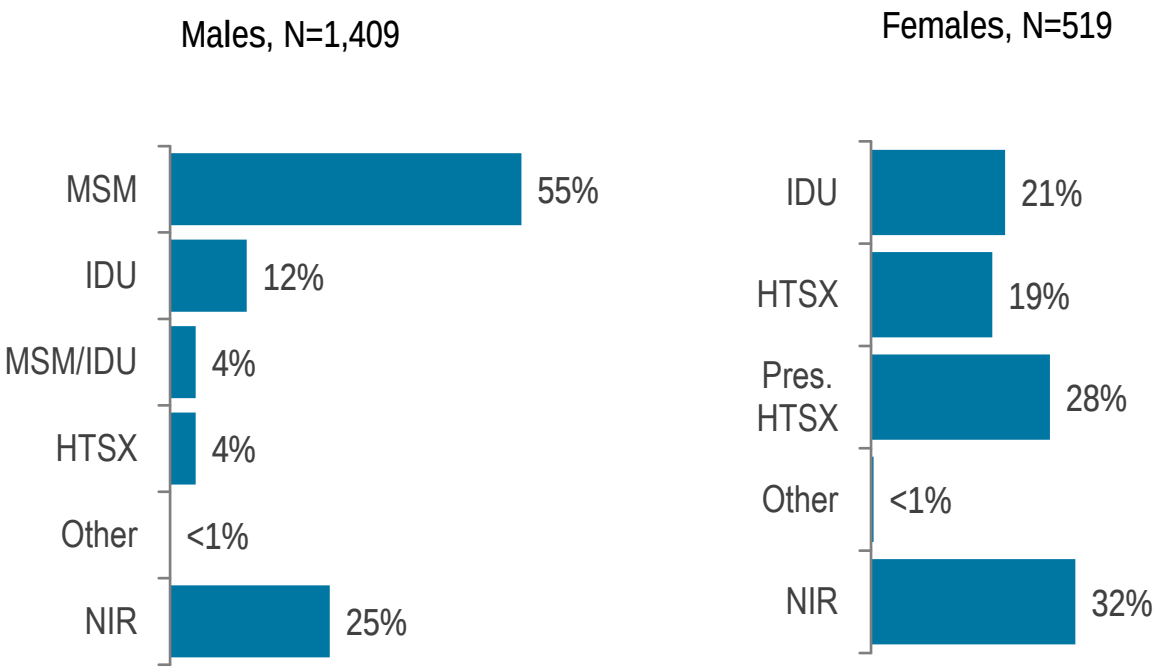


- The cities and towns[2] with the highest average annual rate of HIV infection diagnosis during 2016 to 2018 included Provincetown (150.9 per 100,000),[3] Brockton (33.6 per 100,000), Lawrence (29.7 per 100,000), Lowell (28.5 per 100,000) and Springfield (21.8 per 100,000).

[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] Among cities that reported at least 12 HIV infections during 2016-2018.
[3] The rate of HIV infection diagnosis for Provincetown is high because of small population size (2,650), as opposed to the number of cases (12).

HIV BY EXPOSURE MODE AND SEX ASSIGNED AT BIRTH[1]

Figure 14. Percentage of HIV infection diagnoses by sex assigned at birth and exposure mode, Massachusetts, 2016–2018

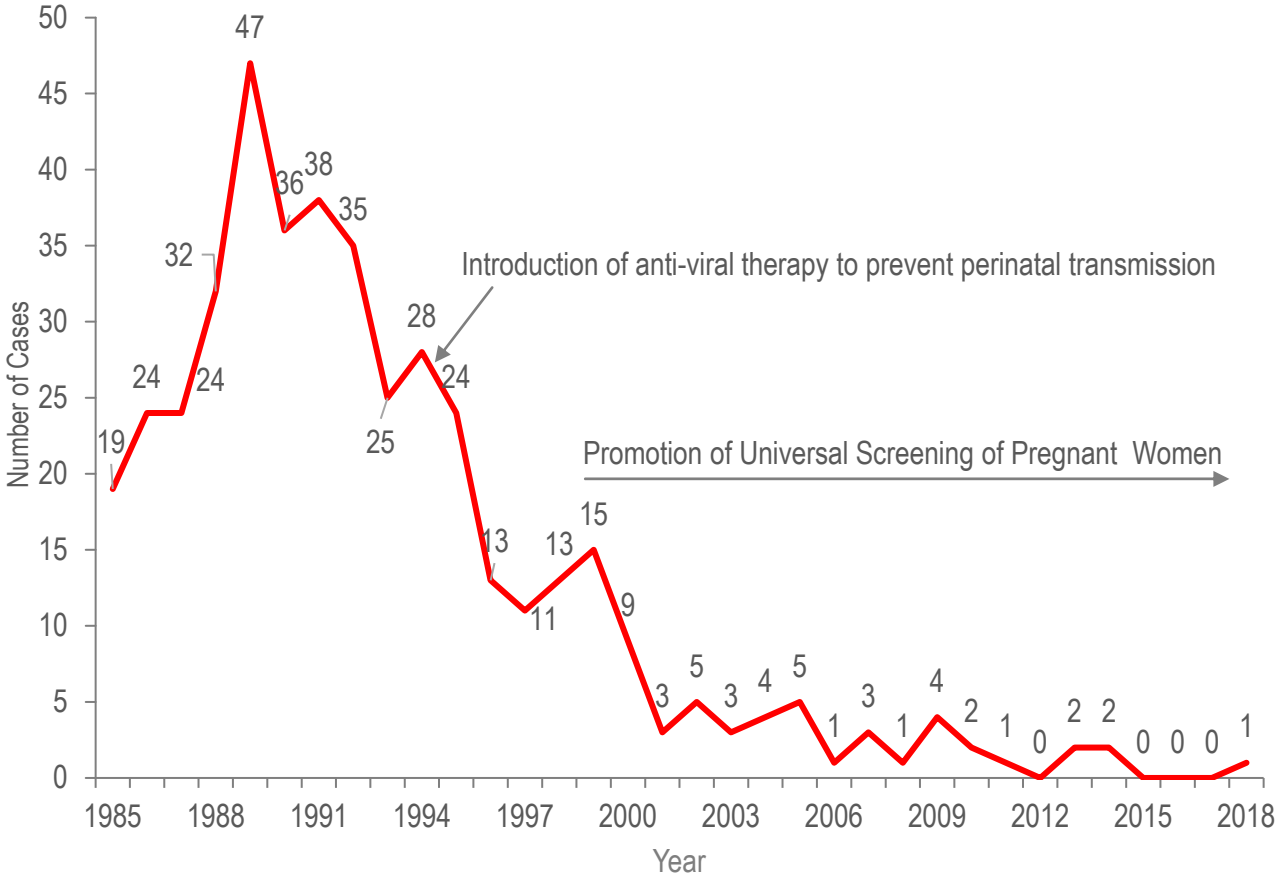


- From 2016 to 2018, of the 1,928 HIV infections newly diagnosed in Massachusetts, 1,409 (73%) were among individuals who were assigned male sex at birth and 519 (27%) were among individuals who were assigned female sex at birth. Among the 1,928 HIV infections, 19 (1%) were transgender,[2] and 1,909 (99%) were cisgender.[3]
- From 2016 to 2018, the most frequently reported exposure mode among males was male-to-male sex (55%) and among females was presumed heterosexual sex (28%). A substantial proportion of diagnoses among both males and females were reported with No Identified Risk (25% and 32%, respectively).
- Among males, the proportion of HIV infection diagnoses with injection drug use (IDU) exposure mode increased from a ten-year low of 4% (N=19/498) in 2014 to 16% (N=75/457) in 2017, and then decreased to 11% (N=54/472) in 2018.
- Among females, the proportion of HIV infection diagnoses with IDU exposure mode increased from a ten-year low of 7% (N=12/164) in 2014 to 25% (N=40/160) in 2017, and then decreased to 20% (N=38/190) in 2018.

[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.

MOTHER-TO-CHILD TRANSMISSION OF HIV

Figure 15. Number of reported cases of mother-to-child transmission of HIV infection, by year of birth, Massachusetts, 1985–2018



- Since the mid-1990's, there has been a dramatic reduction in mother-to-child transmission of HIV infection related to high rates of antiretroviral treatment of HIV+ women and promotion of HIV screening during pregnancy.
- There was only one case identified in the past four years (in 2018).

VIRAL HEPATITIS – HEPATITIS A

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 through consumption of contaminated food or water. Hepatitis A is a self-limited disease that does not result in chronic infection.

Since April 2018, the Massachusetts Department of Public Health (MDPH) and local health departments have been investigating 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 is considered over. Weekly case counts have decreased to a pre-outbreak baseline, and that trend has been sustained 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.[1]

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

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

- 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.

[1] Nelson NP, Weng MK, Hofmeister MG, et al. Prevention of Hepatitis A Virus Infection in the United States: Recommendations of the Advisory Committee on Immunization Practices, 2020. MMWR Recomm Rep 2020;69(No. RR-5):1–38. DOI: http://dx.doi.org/10.15585/mmwr.rr6905a1

[2] Native Hawaiian/Pacific Islander

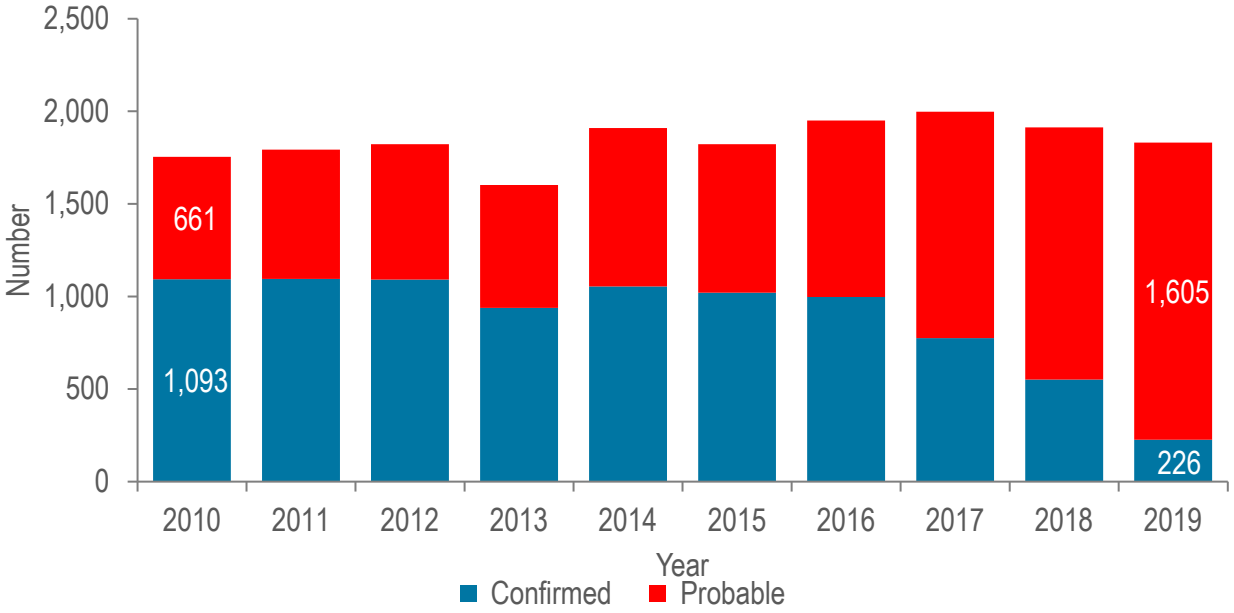
[3] Includes confirmed and probable cases.

VIRAL HEPATITIS - HEPATITIS B

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 can not 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 16. Number of confirmed and probable chronic hepatitis B cases reported by year, Massachusetts, 2010–2019

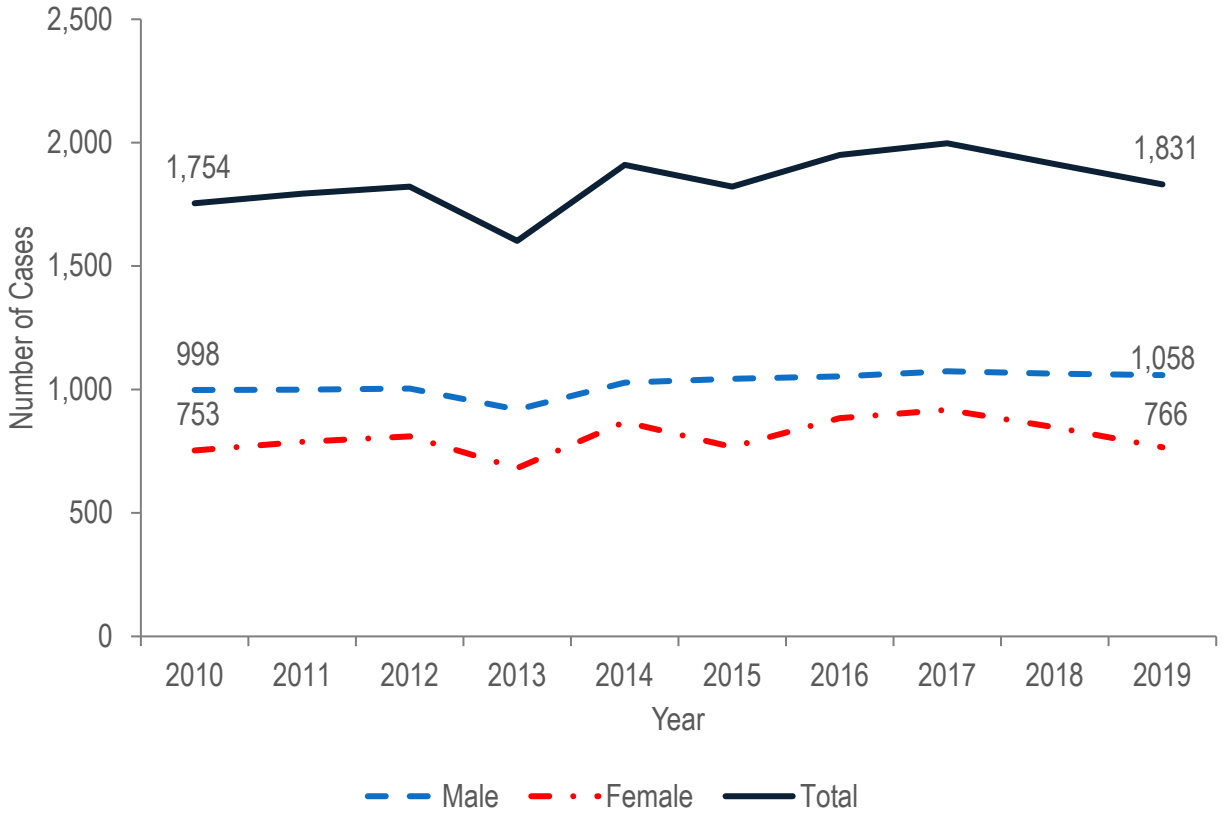


- From 2010 to 2019, an average of 1,840 confirmed and probable chronic hepatitis B virus (HBV) infection cases were reported each year (with a low of 1,602 in 2013 and a high of 1,998 in 2017).
- The surveillance case definition for chronic HBV requires two positive tests; for certain test types, these two tests must be conducted 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, 2019, some cases currently reported as probable may be converted to confirmed in future reports as additional information is obtained.

*Case definitions and classifications can be found in the Technical Notes beginning on page 53.

HEPATITIS B BY GENDER

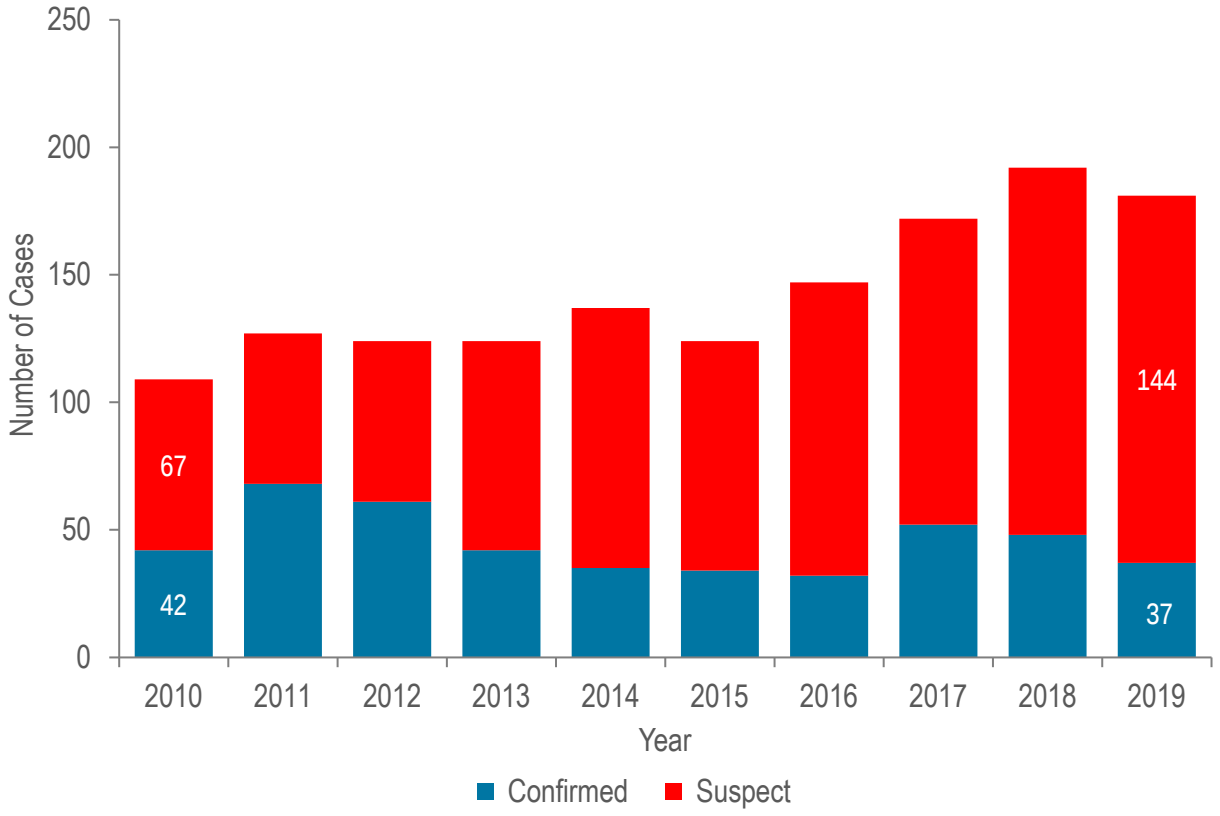
Figure 17. Number of confirmed and probable chronic hepatitis B cases reported by gender, Massachusetts 2010–2019



Note: Cases reported as transgender or missing gender (2010–2019: N=72) are not presented in this analysis due to small numbers

- In 2019, 1,058 (58%) newly reported confirmed and probable chronic HBV infection cases were reported among males, and 766 (42%) were reported among females.
- 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.

Figure 18. Number of confirmed and suspect acute hepatitis B cases reported by year, Massachusetts, 2010–2019



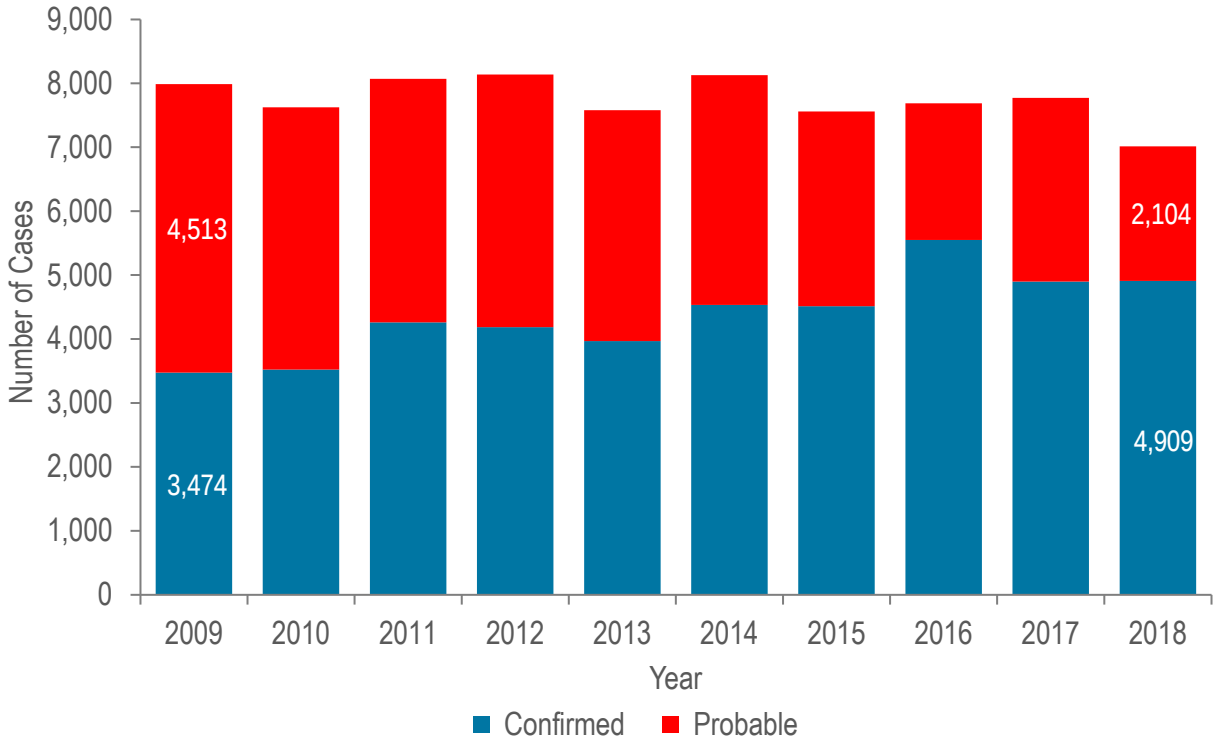
- In 2019, there were 37 confirmed acute and 144 suspect acute HBV cases for a total of 181 acute cases.
- The total number of confirmed and suspect acute HBV cases reported increased from 109 in 2010 to 181 in 2019.
- Injection drug use (IDU) is a significant, and increasingly important, risk factor for acquisition of acute HBV infection.

*Case definitions and classifications can be found in the Technical Notes beginning on page 53.

VIRAL HEPATITIS – HEPATITIS C

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 19. Number of confirmed and probable hepatitis C cases reported by year, Massachusetts, 2009–2018

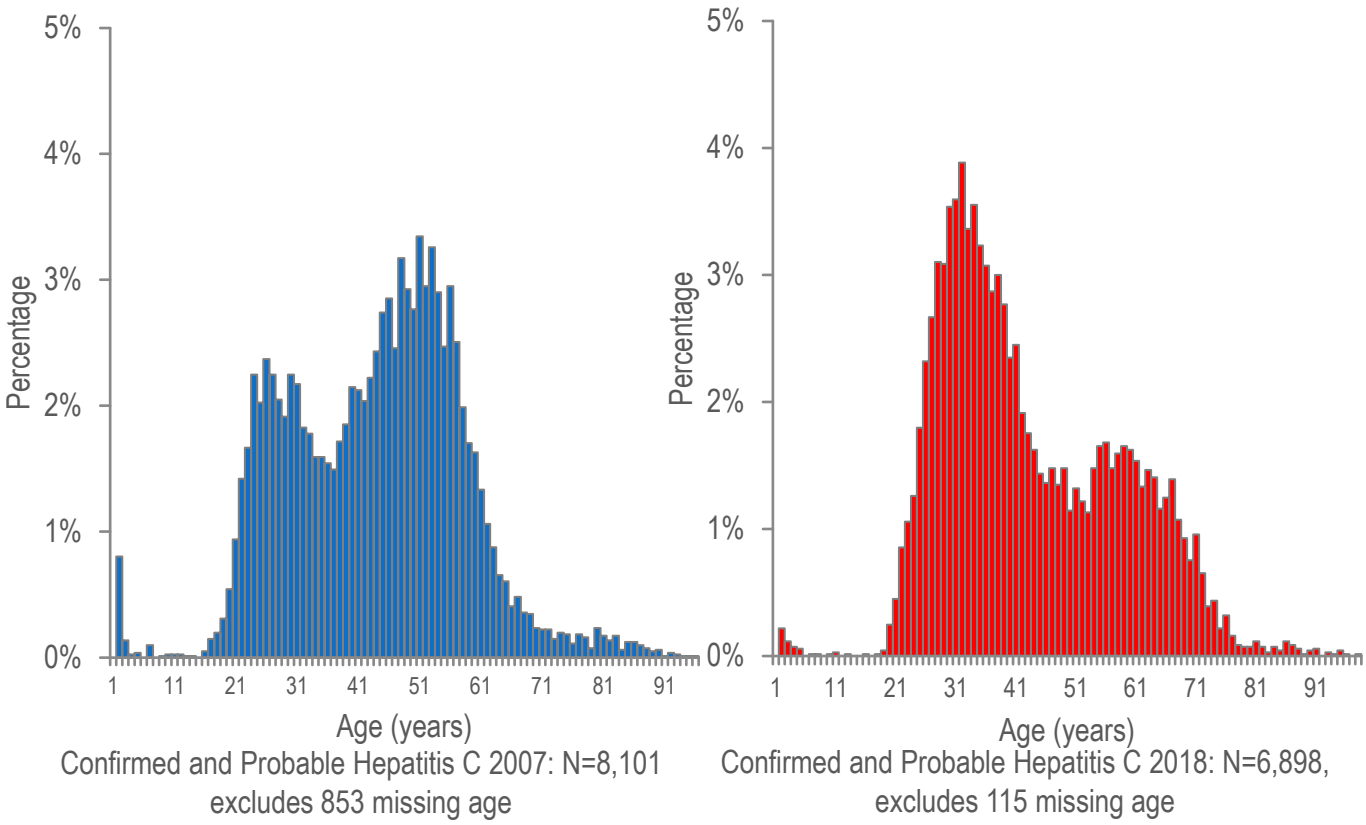


- Hepatitis C (HCV) was the third most commonly reported infectious disease, with 7,013 confirmed and probable hepatitis C cases reported in 2018.*
  - Most reported cases are chronically infected and MDPH currently estimates that there are over 250,000 people living with HCV infection in Massachusetts.

* 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/

HEPATITIS C BY AGE

Figure 20. Distribution of confirmed and probable hepatitis C cases by age: 2007 versus 2018



- In 2007, reported cases of hepatitis C were distributed in a curve with two age peaks, with the lower peak at age 25 years and the higher peak at age 50 years.
- In 2018, the reported cases were again distributed in a bi-modal curve, but with the higher peak at age 31 years and the lower peak at age 55 years.

HEPATITIS C BY AGE AND GENDER

Figure 21. Number of confirmed and probable hepatitis C cases reported by age and gender, Massachusetts, 2018

- Fifty-five percent (N=791/1,449) of confirmed and probable hepatitis C infection cases in those less than 30 years of age were male, and 45% (N= 658/1,449) were female.
  - 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-three percent (N=3,432/5,449) of confirmed and probable hepatitis C infection cases in those 30 years of age and older were male, and 37% (N=2,017/5,449) were female.

CO-INFECTIONS - HIV/SYPHILIS

Table 2. Percentage of 2019 confirmed and probable infectious syphilis[1] cases co-infected with HIV, by gender, race/ethnicity, and age

	Syphilis Cases (N=1,243)	HIV/Syphilis Co-infections (N=394)	% of Syphilis Cases Co-infected with HIV
Gender:			
Male	1,109	388	35%
Female	122	3	2%
Transgender	12	3	25%
Race/Ethnicity:			
White NH	512	165	32%
Black NH	200	75	38%
Hispanic/Latino	346	109	32%
Other	125	34	27%
Unreported	60	11	18%
Age:			
0-19	50	2	4%
20-29	413	83	20%
30-39	374	132	35%
40-49	194	72	37%
50-59	176	89	51%
60+	36	16	44%

- In 2019, among 1,243 reported cases of infectious syphilis, 32% (N=394/1,243) were co-infected with HIV.
- Among infectious syphilis cases reported in 2019, higher rates of HIV co-infection were observed in males, transgender individuals, black (non-Hispanic) individuals, and individuals aged 30 years and above.
- Eighty percent (N=882/1,109) of infectious syphilis cases among males reported same sex contact (MSM). Of those who reported MSM, 39% (N=344/882) were co-infected with HIV, compared to 19% (N=44/227) 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).

CO-INFECTIONS - HIV/ GONORRHEA

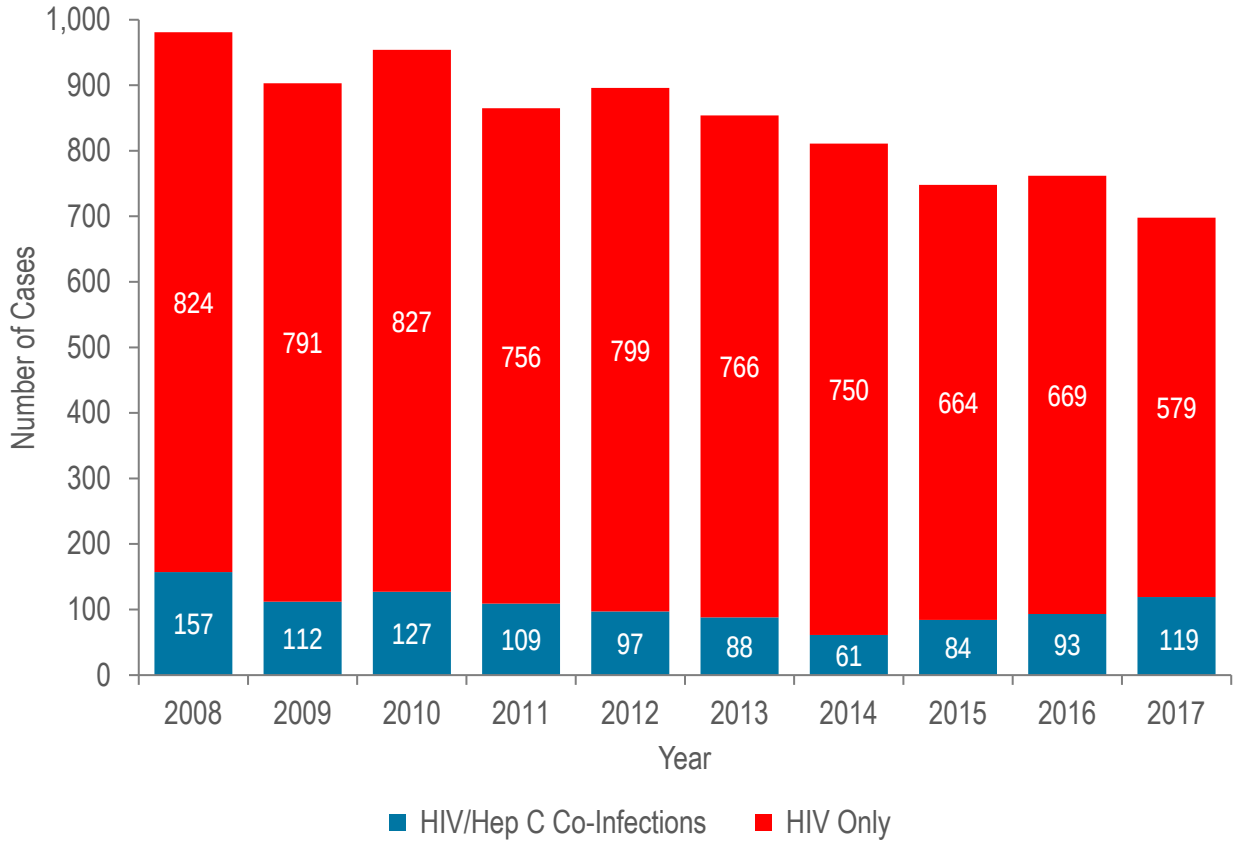
Table 3. Percentage of 2019 laboratory-confirmed gonorrhea cases co-infected with HIV, by gender, race/ethnicity, and age

	Gonorrhea Cases (N=7,175)	HIV/Gonorrhea Co-infections (N=620)	% of Gonorrhea Cases Co-infected with HIV
Gender:			
Male	5,014	596	12%
Female	2,105	20	1%
Transgender	45	4	9%
Race/Ethnicity:			
White NH	1,999	207	10%
Black NH	1,336	127	10%
Hispanic/Latino	983	96	10%
Other	573	45	8%
Unreported	2,281	145	6%
Age:			
0-19	645	3	<1%
20-29	3,395	177	5%
30-39	1,825	199	11%
40-49	697	120	17%
50-59	468	96	21%
60+	144	25	17%
Unreported	1	0	0%

- In 2019, among 7,175 reported cases of gonorrhea, 9% (N=620/7,175) were ever co-infected with HIV.
- Among laboratory-confirmed gonorrhea cases reported in 2019, higher rates of HIV co-infection were observed in males, transgender individuals, and individuals aged 50-59 years. Co-infection rates were similar across categories of race/ethnicity.

CO-INFECTIONS – HIV/HEPATITIS C

Figure 22. Number of individuals diagnosed with HIV infection only, and co-diagnosed with HIV infection and hepatitis C 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.*

* Total number of annual HIV diagnoses 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.

CO-INFECTIONS - HIV/HEPATITIS C

Table 4. Individuals diagnosed with HIV infection and co-infected with hepatitis C virus (HCV) by selected demographics, 2013–2017

	2013		2014		2015		2016		2017	
	N	%	N	%	N	%	N	%	N	%
Sex at Birth:										
Male	55	63%	47	77%	60	71%	58	62%	78	66%
Female	33	38%	14	23%	24	29%	35	38%	41	34%
Race/Ethnicity:										
White NH	40	45%	31	51%	44	52%	54	58%	73	61%
Black NH	15	17%	12	20%	15	18%	14	15%	7	6%
Hispanic/Latino	31	35%	16	26%	24	29%	25	27%	39	33%
Asian/Pacific Islander	2	2%	1	2%	1	1%	0	0%	0	0%
Other/Unknown	0	0%	1	2%	0	0%	0	0%	0	0%
Age:										
13-19	0	0%	0	0%	0	0%	0	0%	1	1%
20-29	11	13%	9	15%	16	19%	20	22%	44	37%
30-39	22	25%	21	34%	16	19%	37	40%	46	39%
40-49	31	35%	12	20%	28	33%	14	15%	19	16%
50+	24	27%	19	31%	24	29%	22	24%	9	8%
Exposure Mode:										
MSM	17	19%	20	33%	10	12%	6	6%	3	3%
IDU	38	43%	21	34%	56	67%	62	67%	100	84%
MSM/IDU	5	6%	8	13%	8	10%	6	6%	13	11%
HTSX	8	9%	1	2%	3	4%	2	2%	2	2%
Pres. HTSX	6	7%	3	5%	0	0%	3	3%	0	0%
NIR	14	16%	8	13%	7	8%	14	15%	1	1%
Total:	88	100%	61	100%	84	100%	93	100%	119	100%

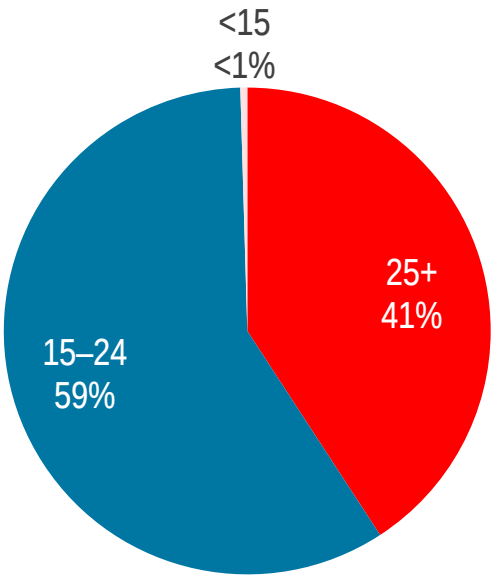
MSM=Male-to-Male Sex, IDU=Injection Drug Use, HTSX=Heterosexual Sex, Pres.=Presumed, NIR=No Identified Risk

- 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.

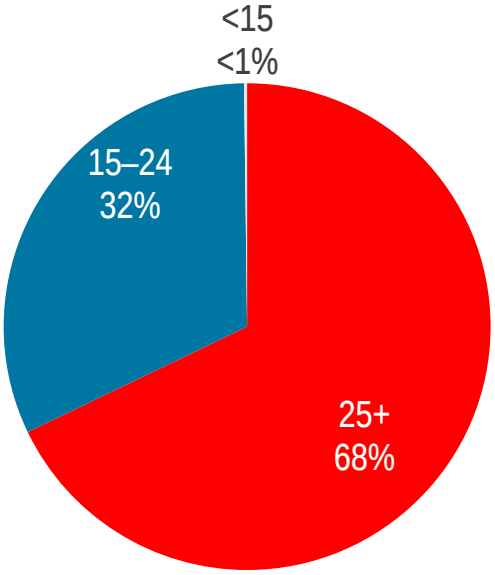
SPECIFIC POPULATIONS – ADOLESCENTS AND YOUNG ADULTS, STD DIAGNOSES BY AGE

Figure 23. Distribution of confirmed chlamydia and gonorrhea cases reported by age group (years), Massachusetts, 2019

2019 Chlamydia, N = 31,625
Excludes 17 missing age



2019 Gonorrhea, N = 7,175
Excludes 1 missing age

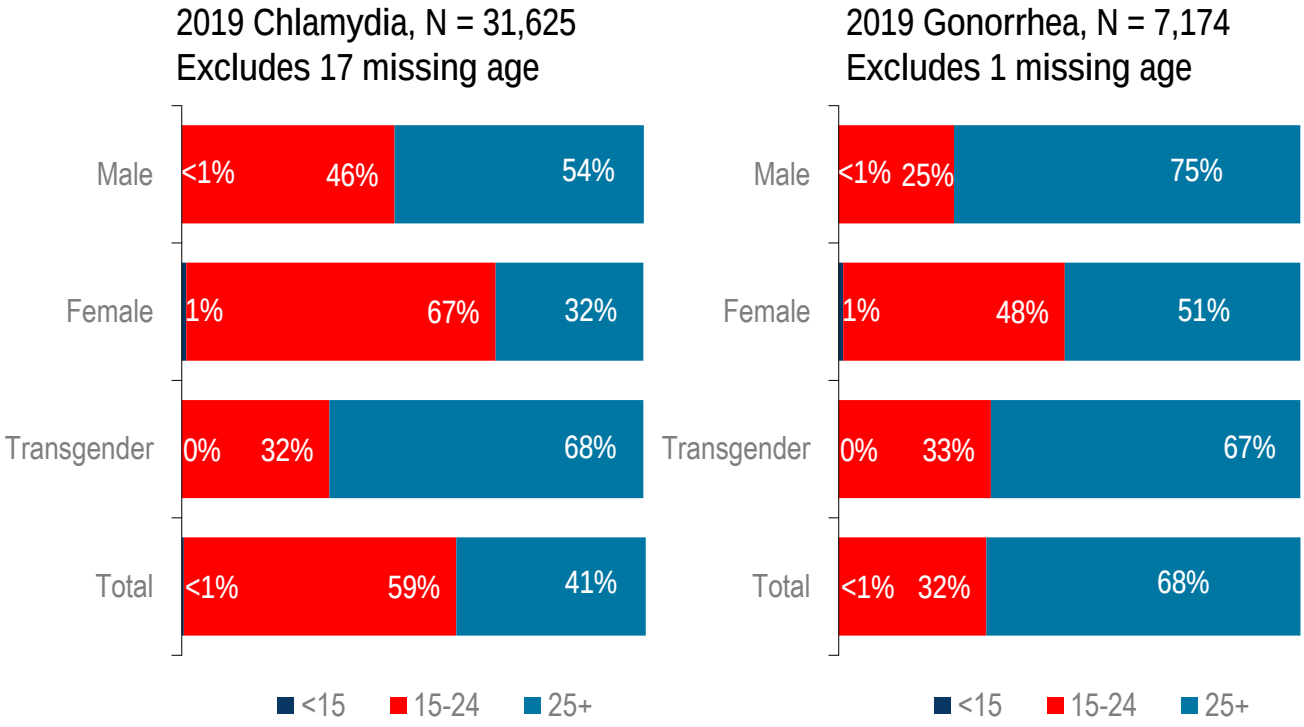


- In 2019, in Massachusetts, 59% of chlamydia cases and 32% of gonorrhea cases were reported among adolescents and young adults aged 15–24 years.
  - Nationally in 2018, 62% of chlamydia cases and 43% of gonorrhea cases were reported among adolescents and young adults aged 15–24 years.[1]

[1] Centers for Disease Control and Prevention. *Sexually Transmitted Disease Surveillance 2018*. Atlanta: U.S. Department of Health and Human Services; 2019. Please note, 2018 national rates are presented because 2019 national rates were not yet available at the time of this publication.

SPECIFIC POPULATIONS – ADOLESCENTS AND YOUNG ADULTS, STD DIAGNOSES BY AGE

Figure 23. Distribution of confirmed chlamydia and gonorrhea cases reported by age group (years) and gender, Massachusetts, 2019

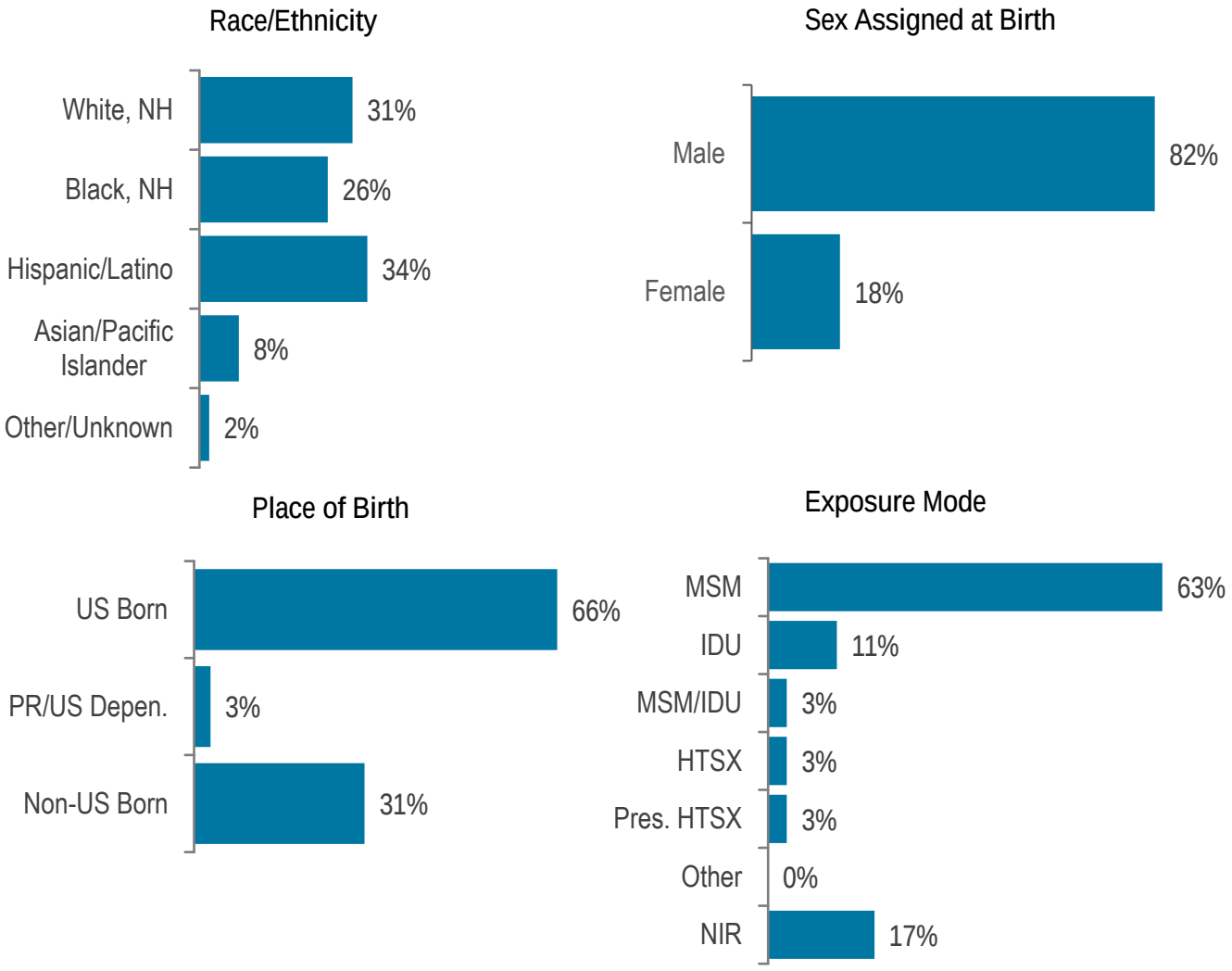


- In 2019, in Massachusetts, 46% of chlamydia cases reported among males, 67% among females, 32% among transgender individuals, and 59% of total cases were reported among adolescents and young adults aged 15–24 years.
  - Nationally in 2018, 50% of chlamydia cases reported among males, 68% among females, and 62% of total cases were reported among adolescents and young adults aged 15–24 years.[1]
- In 2019, in Massachusetts, 25% of gonorrhea cases reported among males,48% among females, 33% among transgender individuals, and 32% of total cases were reported among adolescents and young adults aged 15–24 years.
  - Nationally in 2018, 34% of gonorrhea cases reported among males, 55% among females, and 43% of total cases were reported among adolescents and young adults aged 15–24 years.[1]

[1] Centers for Disease Control and Prevention. *Sexually Transmitted Disease Surveillance 2018*. Atlanta: U.S. Department of Health and Human Services; 2019. Please note, 2018 national data are presented because 2019 national data were not yet available at the time of this publication.

HIV DIAGNOSES BY RACE/ETHNICITY AND EXPOSURE MODE

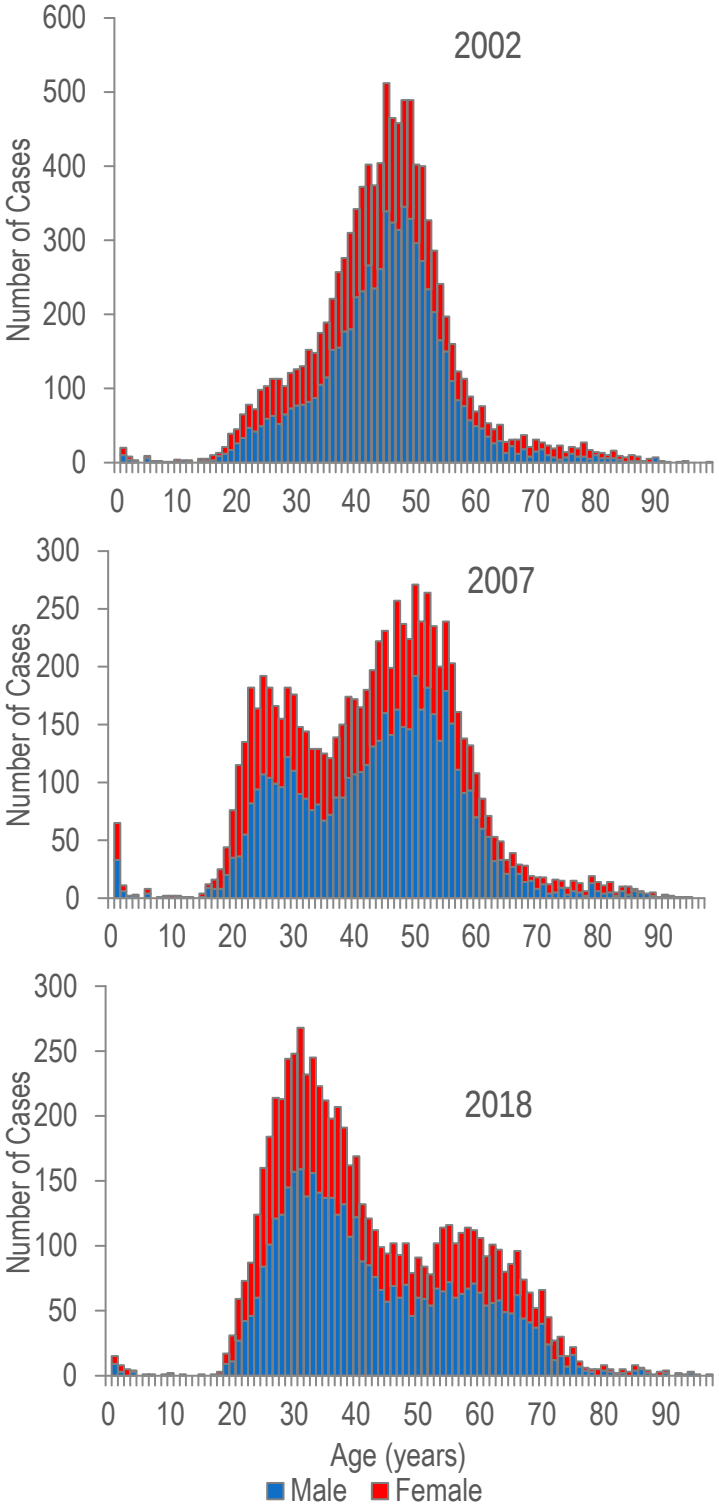
Figure 24. Distribution of HIV infection diagnoses in adolescents and young adults (aged 15–24 years) by race/ethnicity, exposure mode, place of birth, and sex assigned at birth, Massachusetts, 2016–2018, N=267



- During 2016 to 2018, 14% (N=267/1,928) 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 2016–2018 were predominantly Hispanic/Latino (34%) or white (non-Hispanic) (31%), male (82%), and US born (66%), with an exposure mode of MSM (63%).

HEPATITIS C BY AGE AND GENDER

Figure 25. Number of confirmed and probable hepatitis C cases reported by age and gender, Massachusetts, 2002, 2007, 2018*



- The age distribution of hepatitis C virus (HCV) cases reported in Massachusetts changed between 2002 and 2018 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 45 years.
- In 2007, reported cases of hepatitis C were distributed in a curve with two age peaks, with the lower peak at age 25 years and the higher peak at age 50 years.
- In 2018, 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 2018 (21%, N=1,449/6,898) and 2007 (22%, N=1,748/8,101) compared to 2002 (10%, N=999/10,460).
- 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=10,460 (excludes 187 with missing age and/or gender), 2007 N=8,101 (excludes 853 with missing age and/or gender), 2018 N=6,898 (excludes 115 with missing age and/or gender).

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

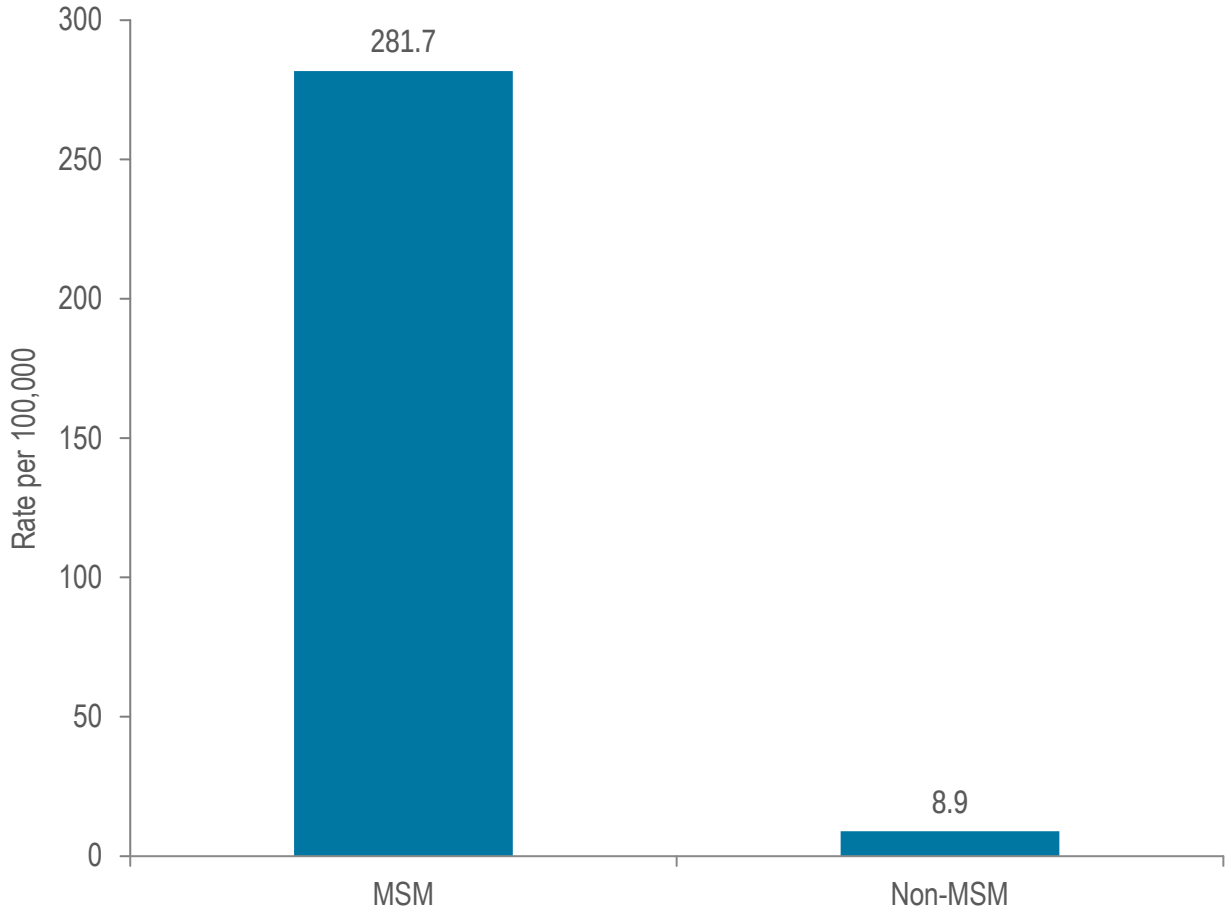
	Percentage who reported:				
	2011	2013	2015	2017	2019
	% (95% CI) n[1]	% (95% CI) n	% (95% CI) n	% (95% CI) n	% (95% CI) n
Ever having sexual intercourse	42.0% (37.5–46.6) n=2,513	38.1% (34.3–42.0) n=2,516	36.4% (32.4–40.6) n=2,779	35.3% (31.8–39.1) n=2,889	36.9% (32.8–41.3) n=1,946
Having sexual intercourse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

[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
Centers for Disease Control and Prevention (CDC). 2019 High School Youth Risk Behavior Survey Data. Available at http://nccd.cdc.gov/youthonline/. Accessed on [9/2/2020] CDC, Accessed at Youth Online, https://nccd.cdc.gov/Youthonline/App/Default.aspx

- 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.

SPECIFIC POPULATIONS – MEN WHO HAVE SEX WITH MEN (MSM)

Figure 26. Estimated[1] average annual HIV diagnosis rate per 100,000 population: MSM compared to non-MSM (males) ages 18–64 years: Massachusetts, 2016–2018

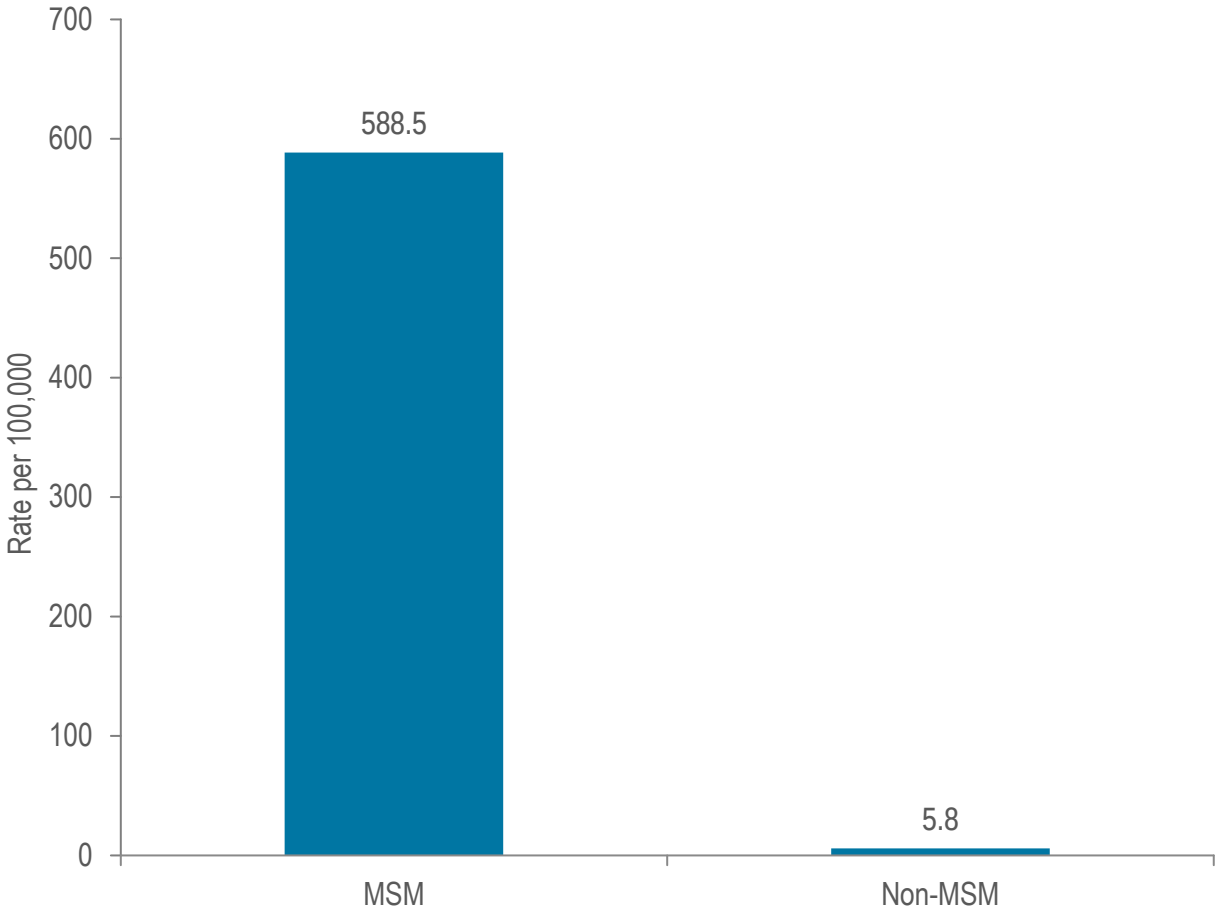


[1] Multiple source estimation method for MSM rate (2016-2018 BRFSS, University of Massachusetts Donahue Institute 2017 population estimates using a modified Hamilton-Perry model (Strate S, et al. Small Area Population Estimates for 2011 through 2020, report published Oct 2016), and MDPH Bureau of Infectious Disease and Laboratory Sciences, data as of 1/1/2020)

- At 281.7 per 100,000 population, the estimated average annual rate of HIV diagnosis from 2016 to 2018 among MSM (ages 18-64) was 32 times the rate of infection in men who do not report sex with men (8.9 per 100,000).

MSM – SYPHILIS RATE PER 100,000

Figure 27. Estimated[1] infectious syphilis[2] rate per 100,000 population: MSM compared to non-MSM (men only) ages 18–64 years: Massachusetts, 2019

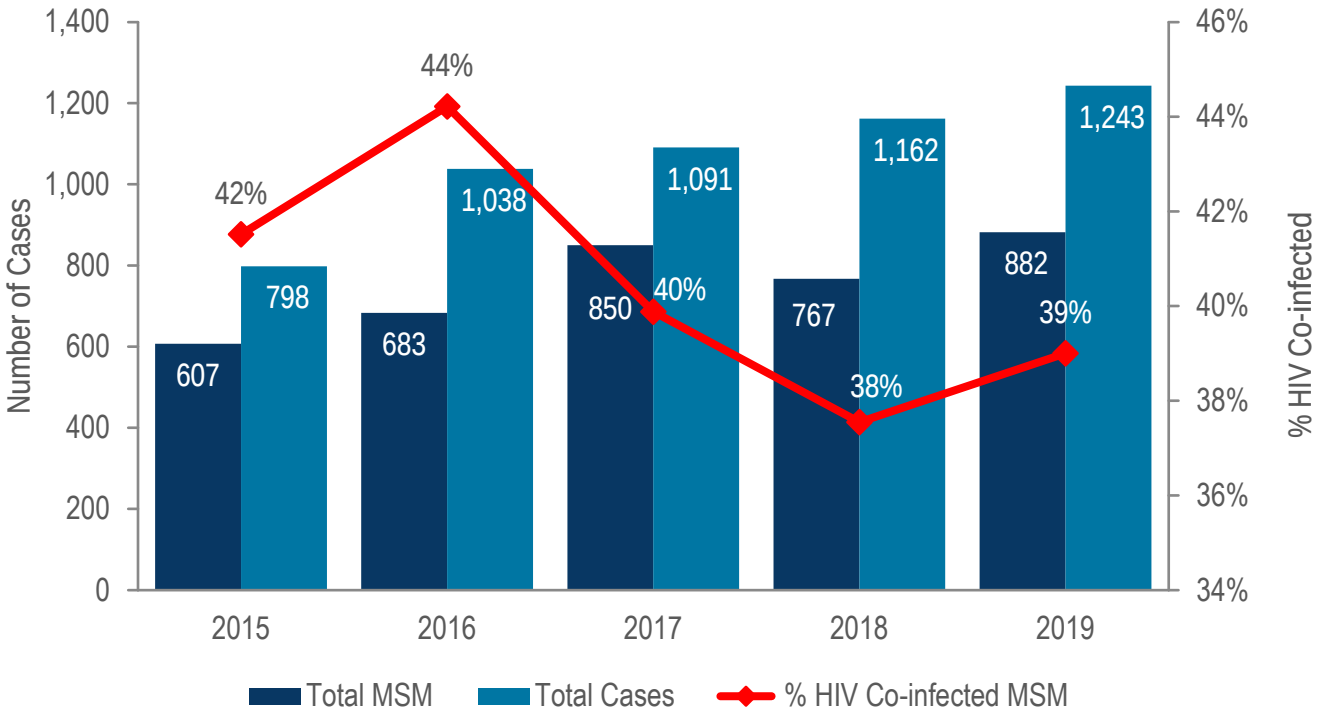


[1] Multiple source estimation method for MSM rate (2019 BRFSS, University of Massachusetts Donahue Institute 2017 population estimates using a modified Hamilton-Perry model (Strate S, et al. Small Area Population Estimates for 2011 through 2020, report published Oct 2016), and MDPH Bureau of Infectious Disease and Laboratory Sciences, data as of 7/10/2020)
[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).

- At 588.5 per 100,000 population, the estimated infectious syphilis rate in 2019 among MSM (ages 18-64) was 102 times the rate of infection in men who do not report sex with men (5.8 per 100,000).

MSM – SYPHILIS/HIV CO-INFECTION

Figure 28. Number of confirmed and probable infectious syphilis[1] cases among MSM and the percent of cases among MSM known to be co-infected with HIV 2015–2019

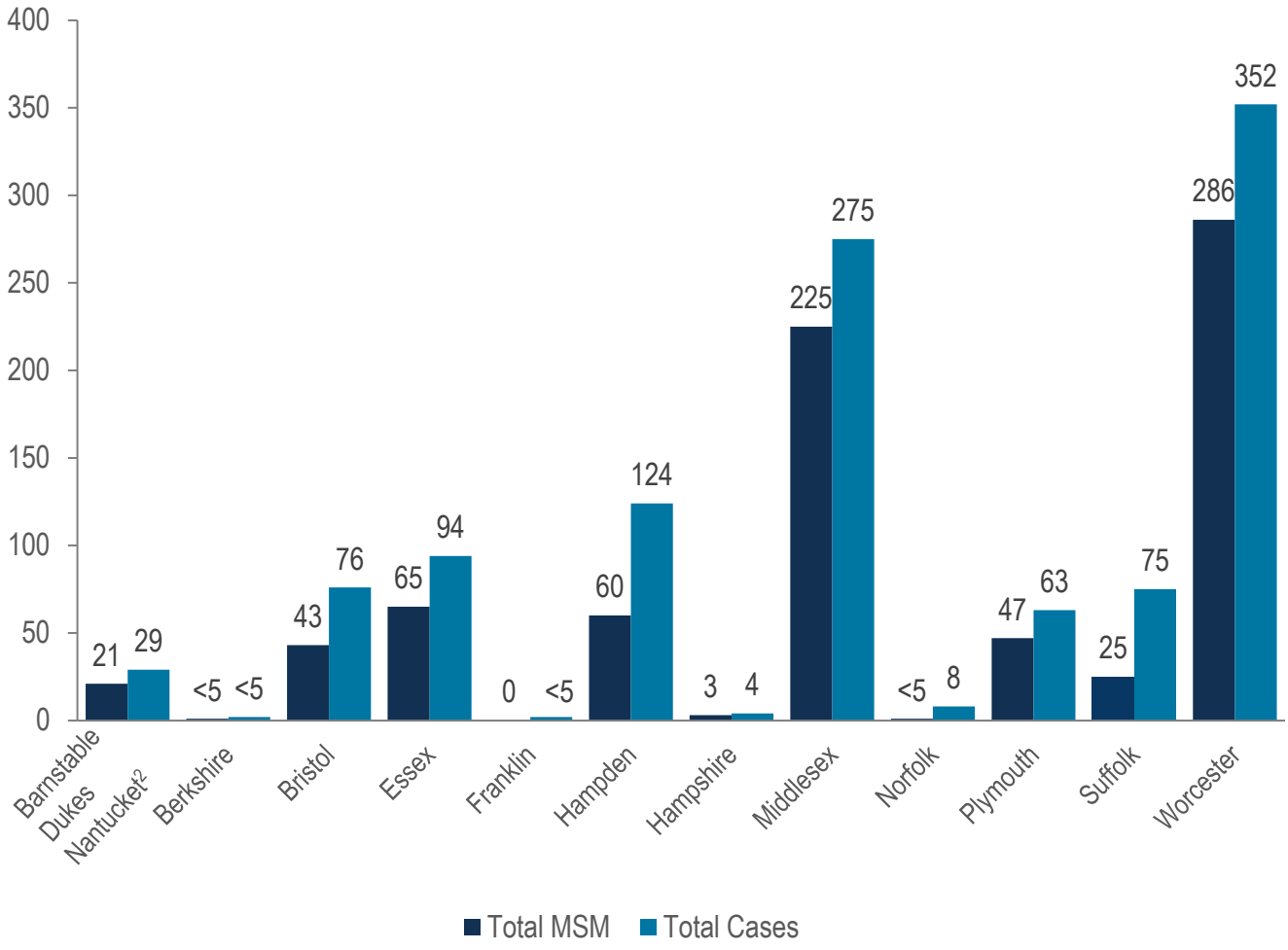


- The incidence of syphilis in Massachusetts increased by 56% in the past five years; gay/bisexual men and other men who have sex with men (MSM) represent the majority of cases (71% in 2019).
- In 2019, 39% (N=344/882) of infectious syphilis cases among men reporting sex with men also self-reported co-infection with HIV.[2]

[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 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 25 of this report.

MSM - SYPHILIS BY COUNTY

Figure 29. Total number of confirmed and probable infectious syphilis[1] cases and number among MSM by county, 2019



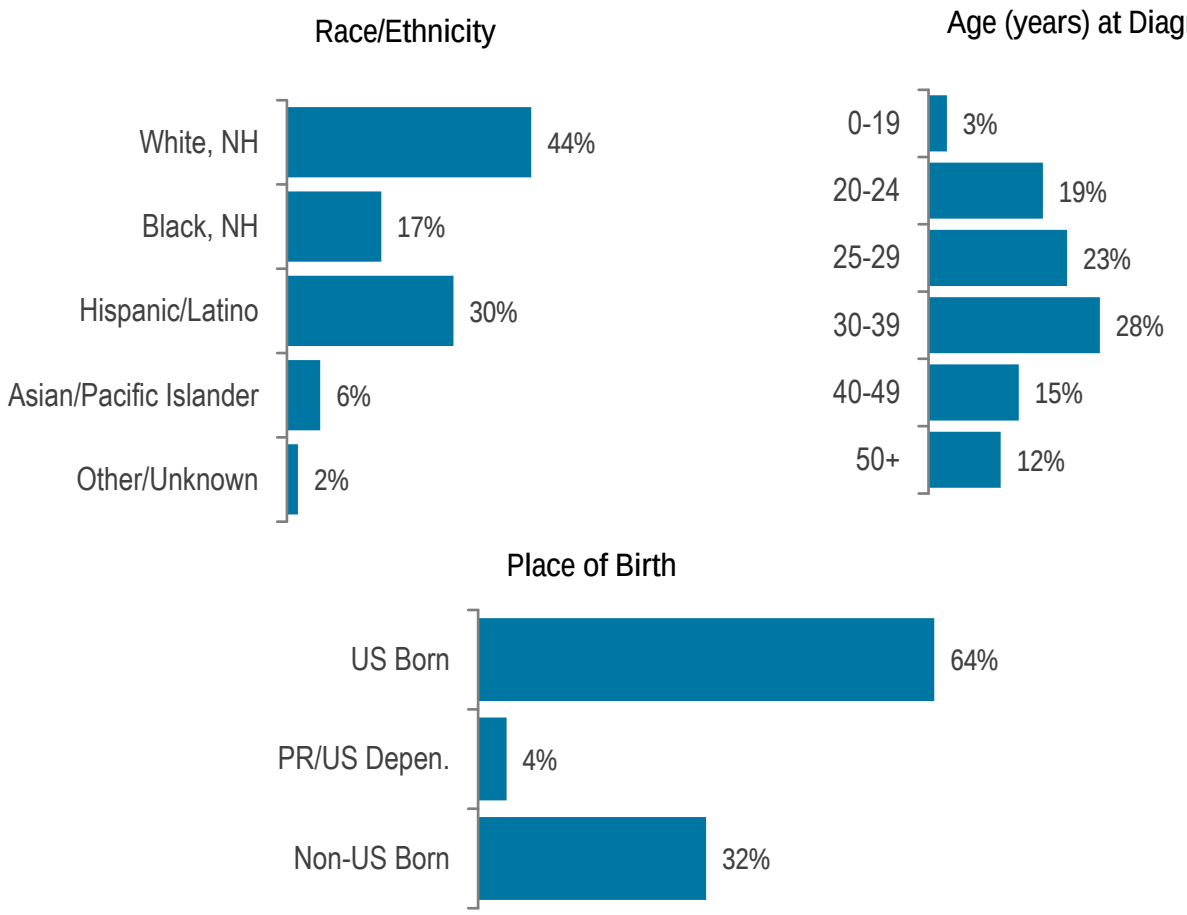
Note: Total MSM N=777 and excludes 105 cases with no reported county of residence. Total cases N=1,104 and excludes 139 cases with no reported county of residence.

- In 2019, the largest proportion of infectious syphilis cases in MSM was reported in Worcester County (37%), followed by Middlesex County (29%).

[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.

MSM – RECENT HIV DIAGNOSES

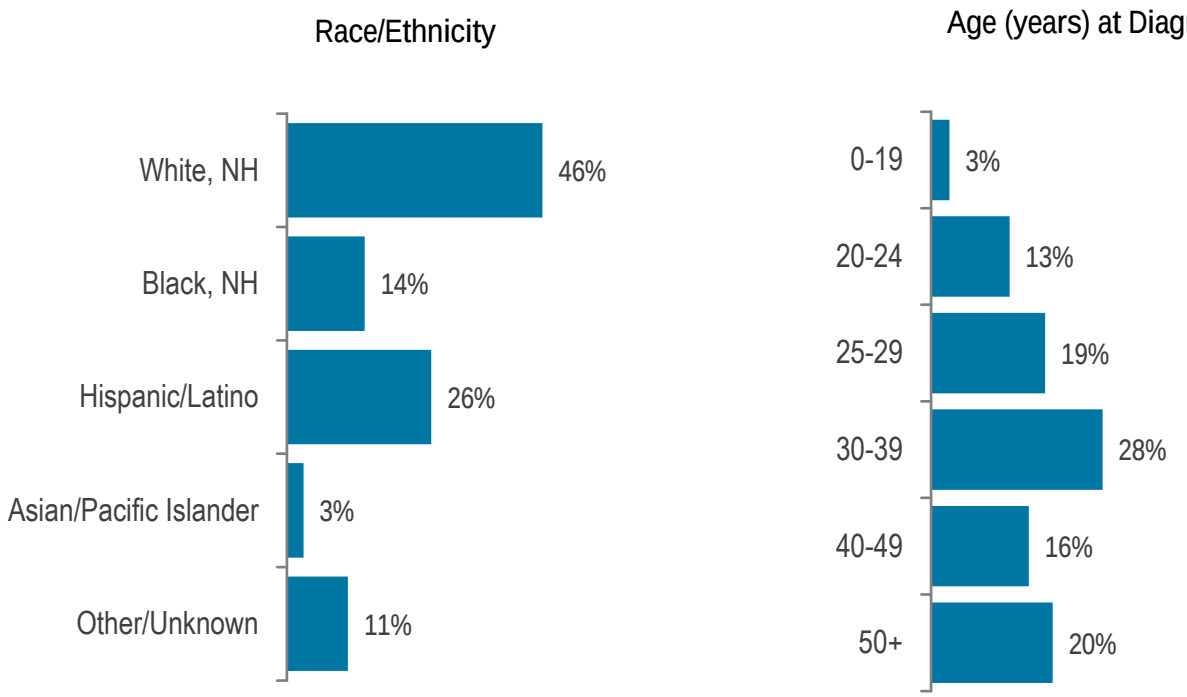
Figure 30. HIV infection diagnoses among men reporting sex with men, by race/ethnicity, age at diagnosis, and place of birth, Massachusetts 2016–2018 (N=774)



- Individuals with MSM exposure mode newly diagnosed with HIV infection in Massachusetts during 2016–2018 were predominantly young (42% 20–29 year-olds), white (non-Hispanic) (44%), and US born (64%).

MSM – SYPHILIS CASES

Figure 31. Confirmed and probable infectious syphilis[1] cases in 2019 (N=882) among men reporting sex with men, by race/ethnicity and age, Massachusetts

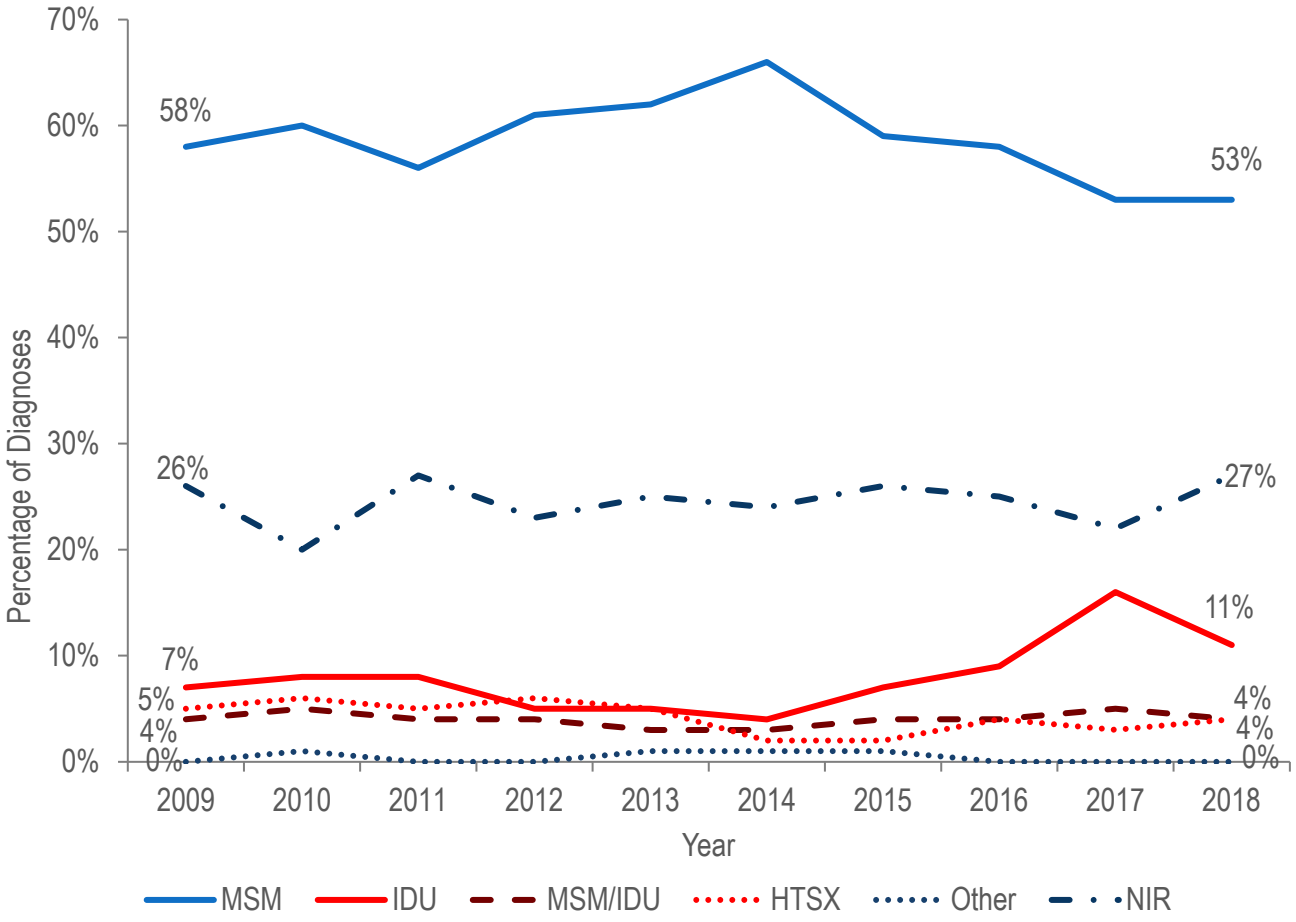


- In 2019, infectious syphilis cases among men reporting sex with men were predominantly white (non-Hispanic) (46%), and age 30 years and above (64% 30+ year-olds).

[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).

TRENDS IN HIV EXPOSURE MODE AMONG MALES

Figure 32. Percentage distribution of males diagnosed with HIV infection by exposure mode, Massachusetts, 2009–2018

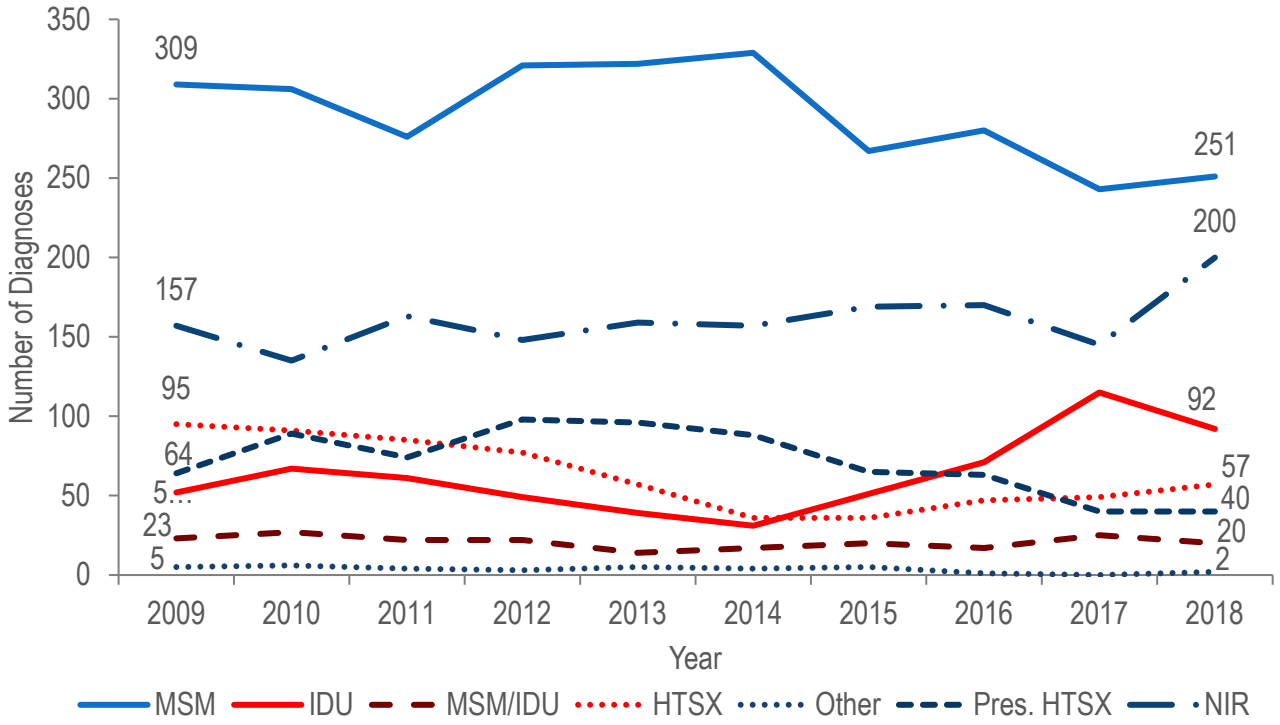


- Among males, the proportion of HIV infection diagnoses with male-to-male sex as the reported mode of exposure remained between 53% and 66% from 2009 to 2018. During the same time period, the proportion reported with no identified risk remained between 20% and 27%.
- The proportion of cases among males attributed to injection drug use increased from 4% in 2014 to 16% in 2017 and declined to 11% in 2018. This was primarily due to an outbreak among persons who inject drugs in the northeast part of the state between 2016 and 2018.*

*For more information see: Charles Alpren et al. "Opioid Use Fueling HIV Transmission in an Urban Setting: An Outbreak of HIV Infection Among People Who Inject Drugs—Massachusetts, 2015–2018", *American Journal of Public Health* 110, no. 1 (January 1, 2020): pp. 37-44.https://doi.org/10.2105/AJPH.2019.305366

SPECIFIC POPULATIONS – PERSONS WHO INJECT DRUGS

Figure 33. Individuals diagnosed with HIV infection by exposure mode, Massachusetts 2009–2018

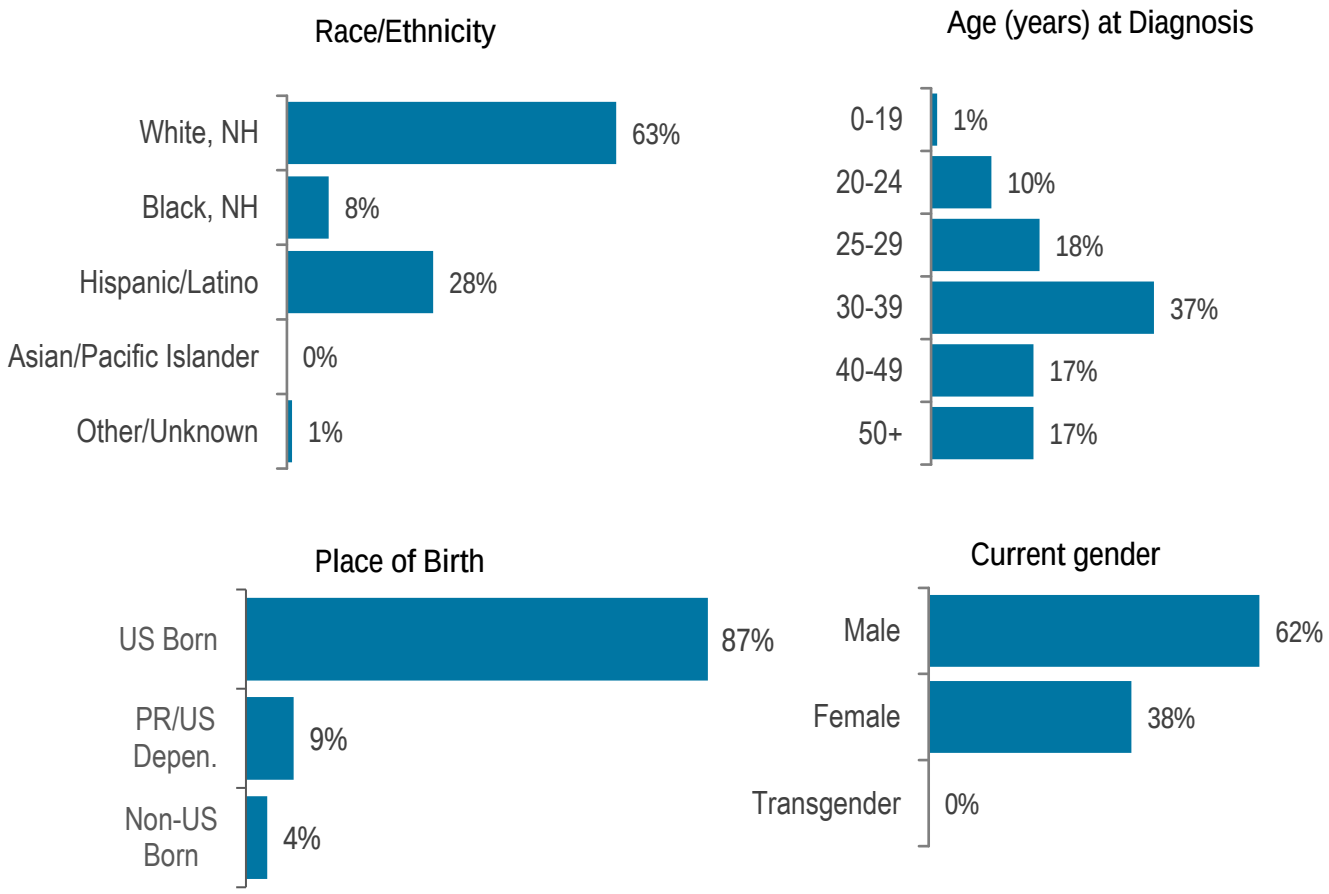


- After declining by 40% from 2009 (N=52) to 2014 (N=31), the number of reported cases with injection drug use (IDU) as the primary exposure mode peaked at 115 in 2017 and then decreased to 92 in 2018. The increase was primarily due to an outbreak among PWID identified in the northeastern cities of Lawrence 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 female, and 87 (67%) were white (non-Hispanic). Close to 90% of these individuals also had evidence of hepatitis C exposure at some point. 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.
- In late 2018, a new cluster of HIV infection was identified among homeless and recently incarcerated PWID living or receiving care in Boston and Worcester. As the cluster continues to grow, MDPH is working with local health departments, community stakeholders, and medical providers to investigate cases, and to provide medical follow up, linkage to care and partner services, as well as referral to other needed services, such as housing and substance use disorder treatment.

[1]For more information, see: Charles Alpren et al. "Opioid Use Fueling HIV Transmission in an Urban Setting: An Outbreak of HIV Infection Among People Who Inject Drugs—Massachusetts, 2015–2018", *American Journal of Public Health* 110, no. 1 (January 1, 2020): pp. 37-44. https://doi.org/10.2105/AJPH.2019.305366

PERSONS WHO INJECT DRUGS – RECENT HIV DIAGNOSES

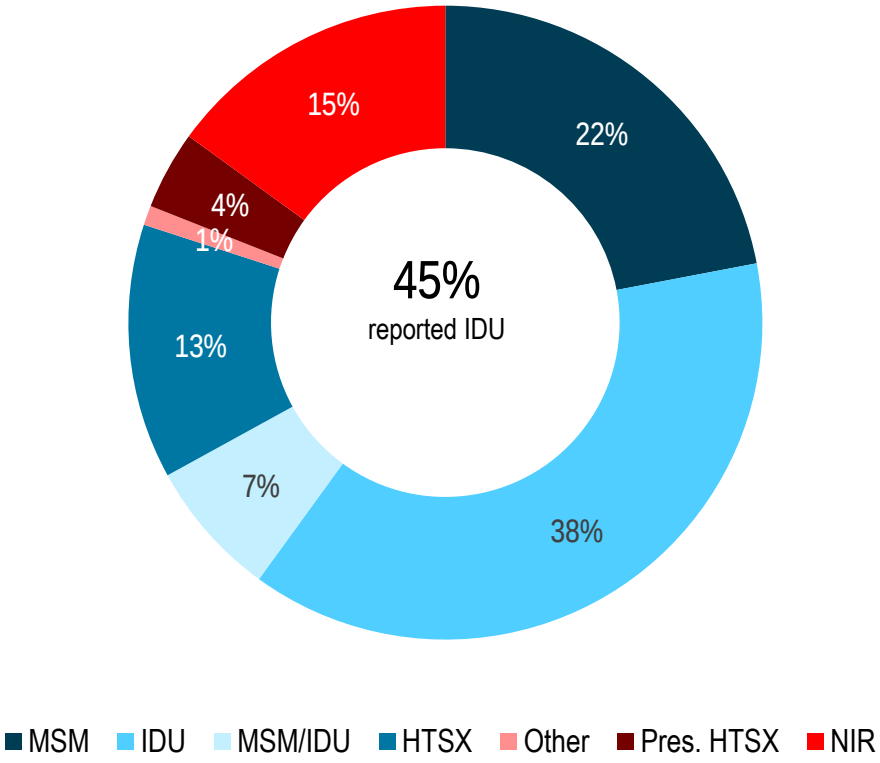
Figure 34. Percentage of individuals with IDU exposure mode diagnosed with HIV infection by race/ethnicity, age, place of birth and current gender, Massachusetts 2016–2018 (N=278)



- Individuals with IDU exposure mode newly diagnosed with HIV infection in Massachusetts during 2016–2018 were predominantly white (non-Hispanic) (63%), middle-aged (37% 30–39 year-olds and 17% 40–49 year-olds), US born (87%), and male (62%).

DEATHS AMONG INDIVIDUALS WITH HIV/AIDS BY EXPOSURE MODE

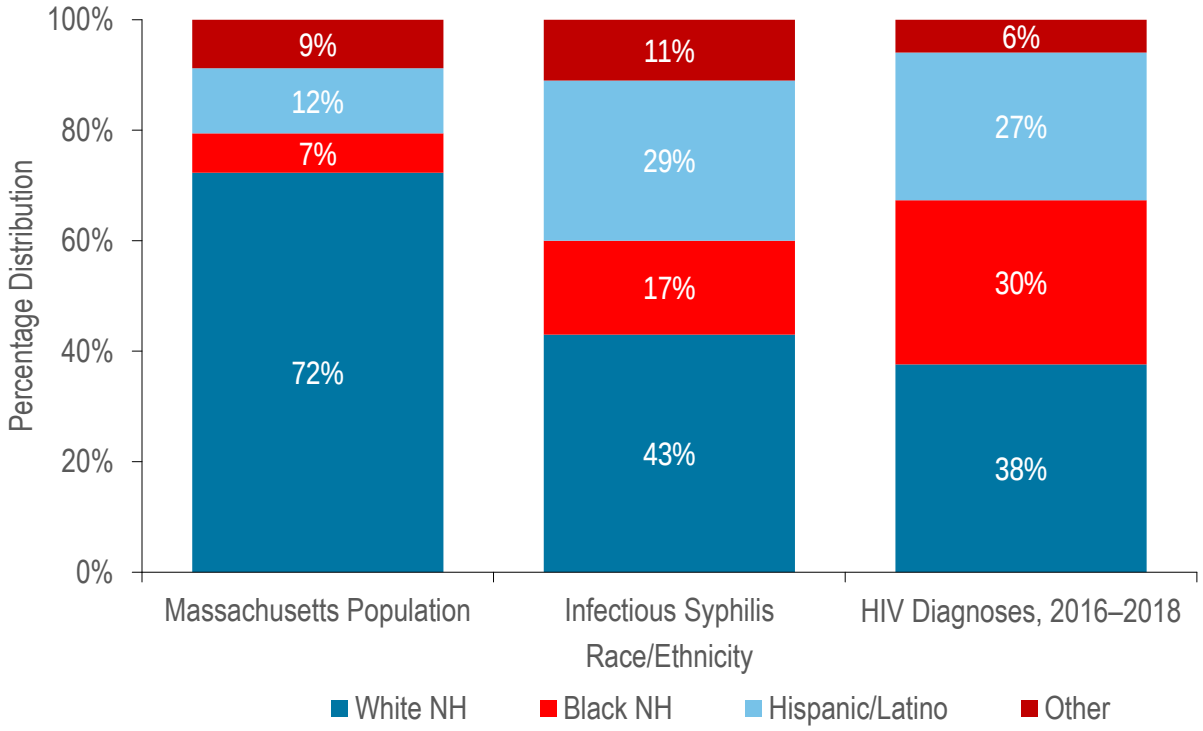
Figure 35. Deaths among individuals reported with HIV/AIDS by exposure mode, Massachusetts 2018 (N=292)



- The greatest proportion of deaths among individuals with HIV/AIDS was in those with an exposure mode of injection drug use (IDU). In 2018, 38% of deaths among individuals with HIV/AIDS were reported with a exposure mode of IDU and an additional 7% were reported with an exposure mode of MSM/IDU compared to 14% and 3%, respectively, of new HIV diagnoses.
- The distribution of deaths among individuals with HIV/AIDS by exposure mode remained relatively stable from 2009 to 2018.

SPECIFIC POPULATIONS – RACIAL/ETHNIC MINORITIES

Figure 36. Distribution of the general population[1] and of individuals diagnosed with confirmed and probable infectious syphilis[2] in 2019, and HIV infection during 2016–2018 by race/ethnicity, Massachusetts



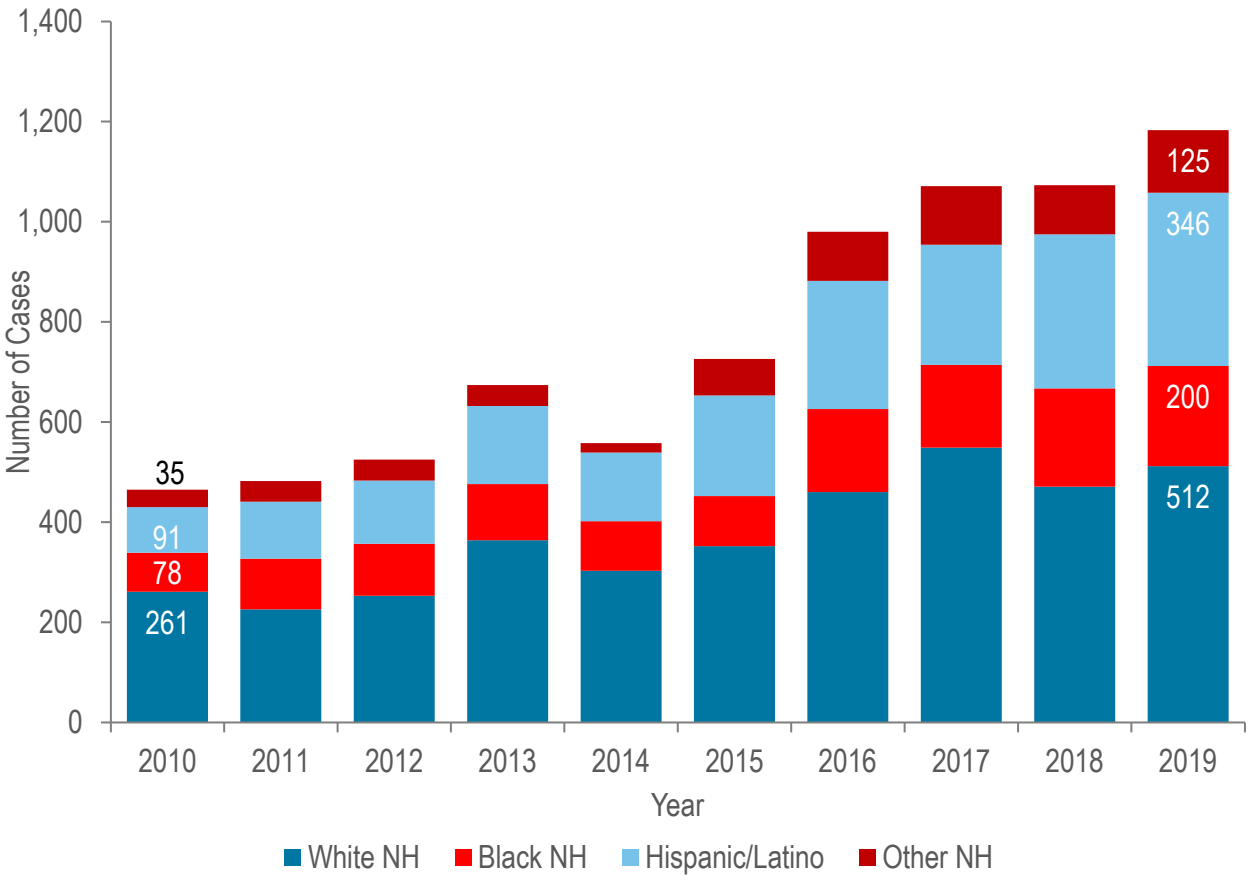
Confirmed and Probable Infectious Syphilis 2019, N=1,183 and excludes 60 (5%) cases missing race/ethnicity; HIV Diagnoses 2016-2018, N=1,928

- In 2019, black (non-Hispanic) and Hispanic/Latino individuals represented 7% and 12% of the total Massachusetts population, and 17% and 29% of infectious syphilis cases (with known race/ethnicity), respectively.
- During 2016 to 2018, black (non-Hispanic) and Hispanic/Latino individuals represented 30% and 27% of individuals diagnosed with HIV infection in Massachusetts, respectively.

[1] Population Data Source: 2017 population estimates, 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).
[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).

SYPHILIS BY RACE/ETHNICITY

Figure 37. Number of confirmed and probable infectious syphilis[1] cases reported by race/ethnicity, Massachusetts 2010–2019



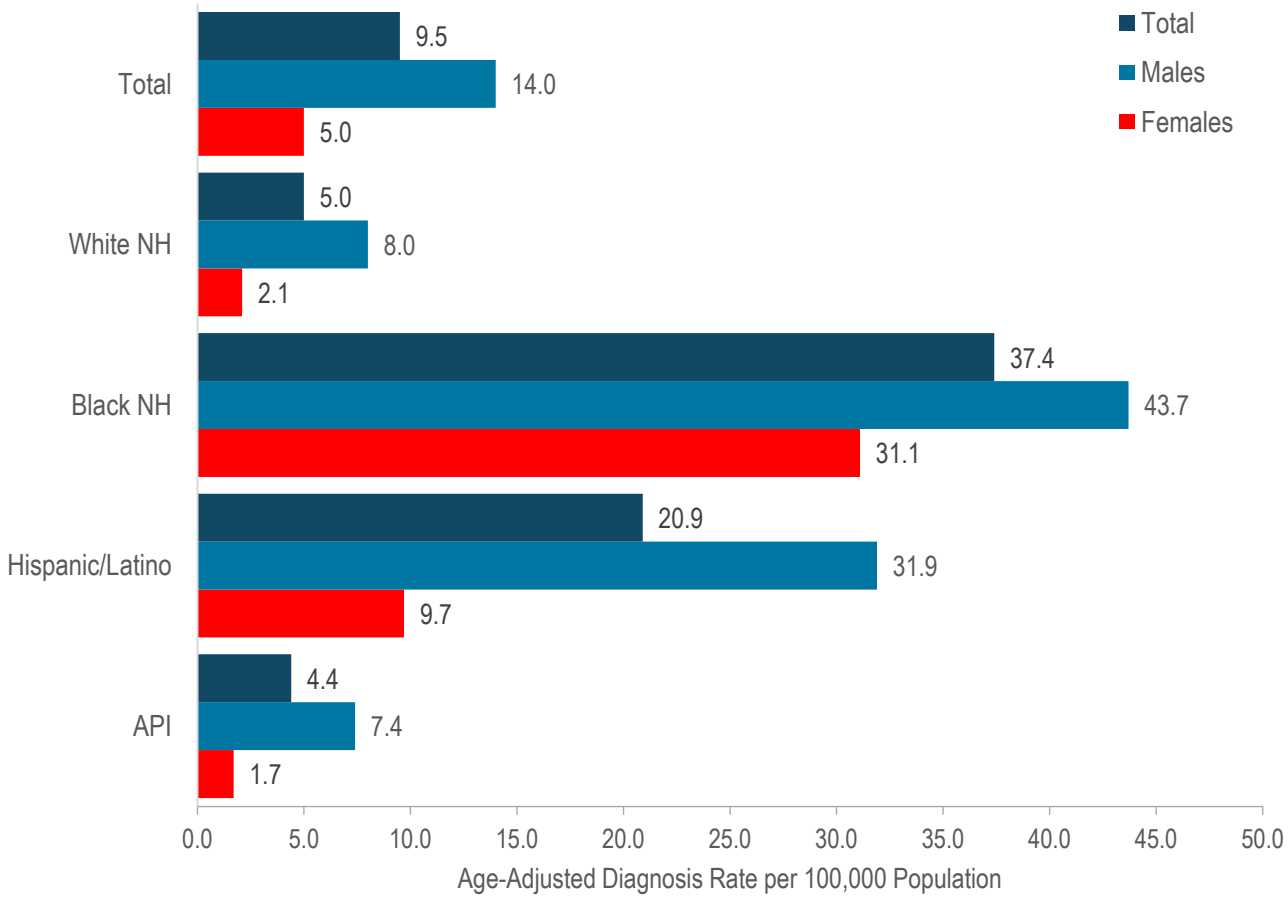
Confirmed and Probable Syphilis 2010-2019 Total N=7,737; 422 (5%) cases missing race/ethnicity are not included in this figure

- The greatest number of infectious syphilis cases was among white (non-Hispanic) individuals each year from 2010 to 2019.
- From 2010 to 2019, the greatest increase in the number of infectious syphilis cases was reported among Hispanic/Latino individuals (nearly quadrupled from 91 to 346), followed by black (non-Hispanic) (more than doubled from 78 to 200), and white (non-Hispanic) individuals (nearly doubled from 261 to 512).

[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).

HIV/AIDS BY RACE/ETHNICITY

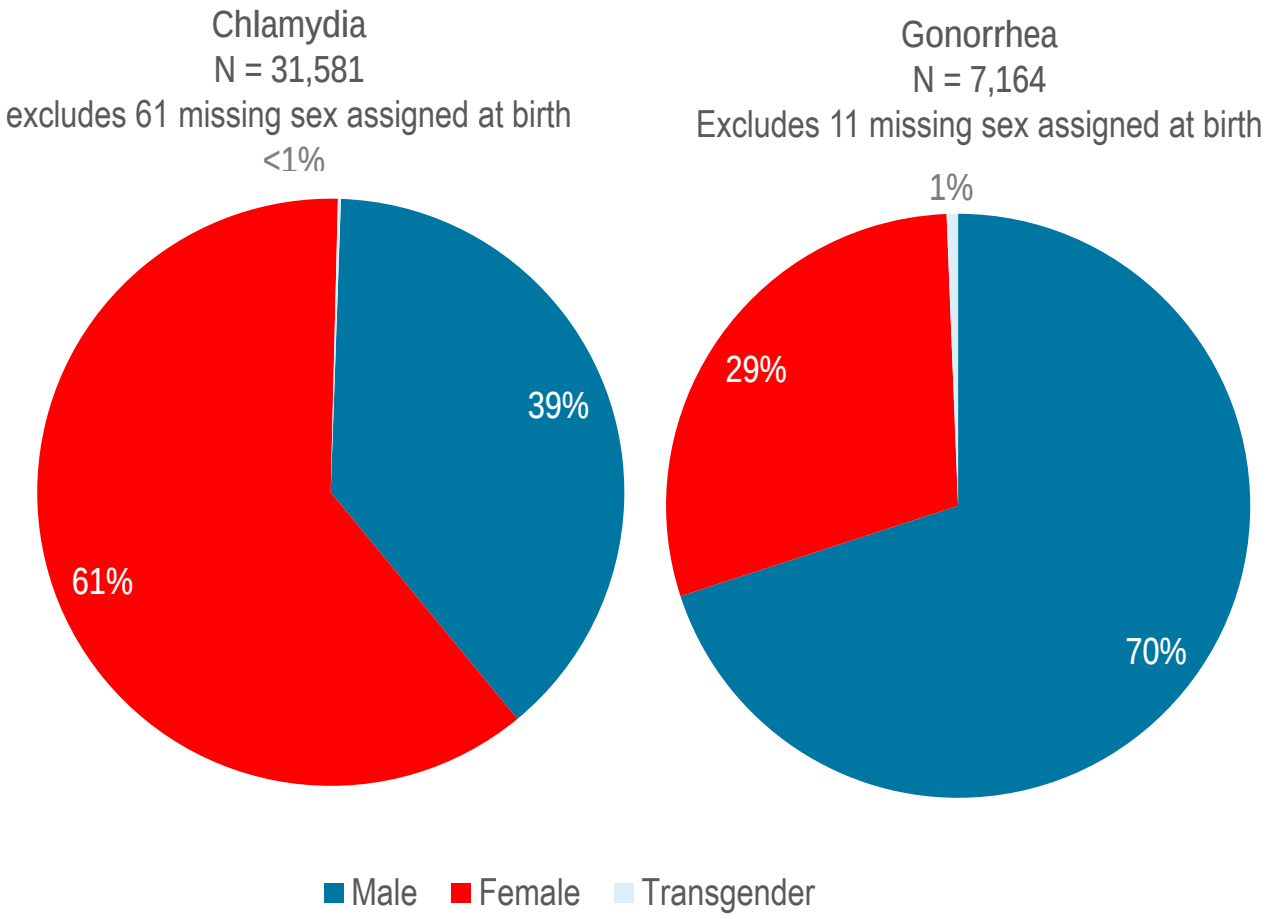
Figure 38. Average annual age-adjusted HIV diagnosis rates per 100,000 population[1] by sex assigned at birth and race/ethnicity, Massachusetts 2016–2018 (N=1,928)



- In 2016–2018, the average annual age-adjusted HIV diagnosis rate per 100,000 population for males was three times that for females.
- There are large disparities in age-adjusted HIV diagnosis rates by race/ethnicity:
  - The rates among black (non-Hispanic) individuals and Hispanic/Latino individuals were seven and four times that of white (non-Hispanic) individuals, respectively.
  - The rates among black (non-Hispanic) and Hispanic/Latina females were 15 and five times that of white (non-Hispanic) females, respectively.
  - The rates among black (non-Hispanic) and Hispanic/Latino males were five and four times that of white (non-Hispanic) males, respectively.
  - These disparities exist in all regions of Massachusetts.

[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..

Figure 39. Distribution of confirmed chlamydia and gonorrhea cases reported by sex assigned at birth, Massachusetts, 2019

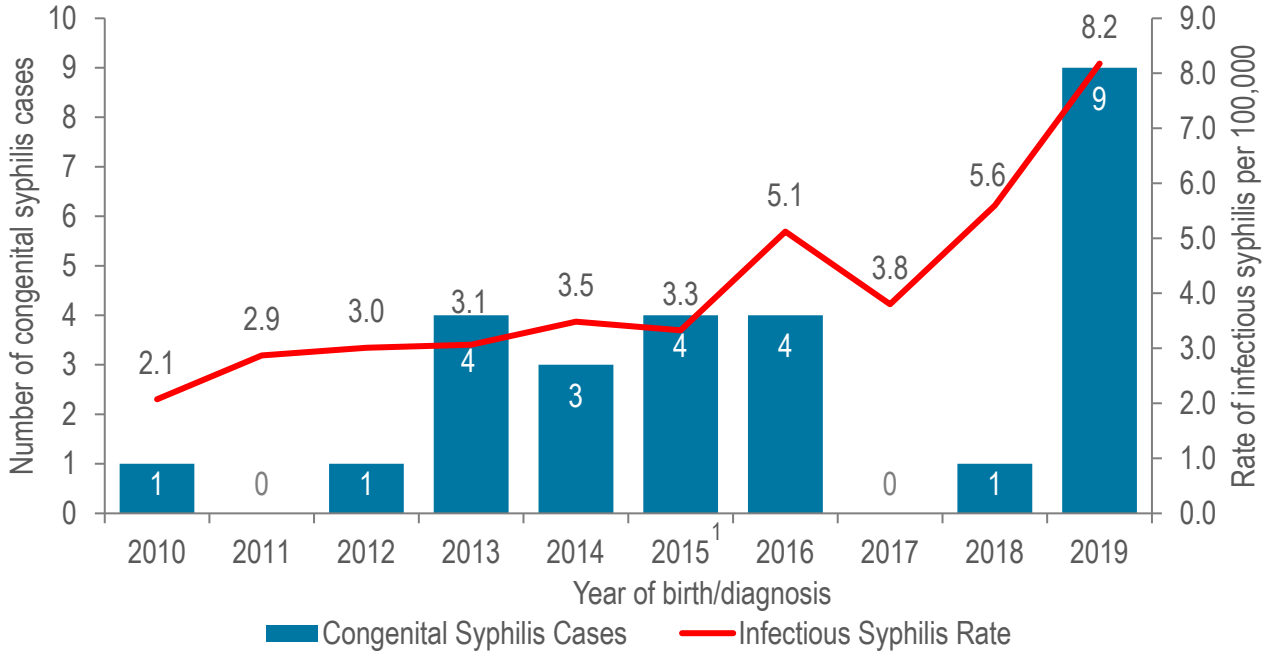


- In 2019, 61% of reported chlamydia cases were among females (N=19,376), 39% were among males (N=12,152), and less than one percent (N=53) was among transgender individuals.
- In 2019, 29% of reported gonorrhea cases were among females (N=2,105), 70% were among males (N=5,014), and one percent (N=45) was among transgender individuals.

WOMEN AND INFANTS – CONGENITAL SYPHILIS

Despite close follow-up of cases of syphilis in pregnant women and their partners, breakthrough cases of congenital syphilis have been occurring in Massachusetts. Two stillbirths with syphilis and a symptomatic congenital syphilis case were reported to MDPH as of June 30, 2020, with additional cases expected throughout the year. MDPH is therefore recommending 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 40. 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 (15–45 years), Massachusetts, 2010–2019



- 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 reached a ten-year high of 8.2 per 100,000 in 2019, so too did the number of probable cases of congenital syphilis[2] (N=9).
- A similar trend was observed nationally where the number of congenital syphilis cases reached 1,306 in 2018, with a rate of 33.1 cases per 100,000 live births, the highest rate reported since 1995.[3]

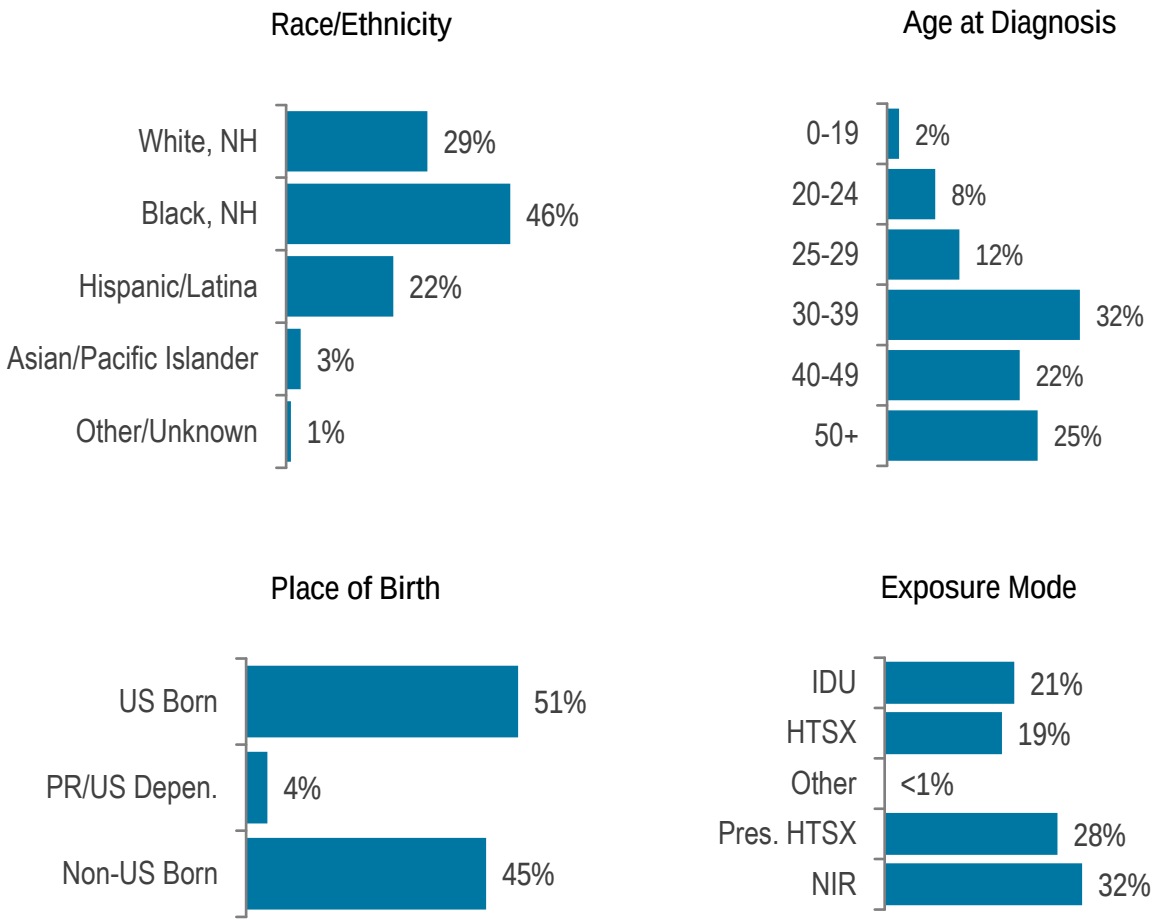
[1] On January 1, 2015, the congenital case definition was updated to better define treatment and laboratory parameters for classifying cases. From 2015 through 2018 no *confirmed* cases of congenital syphilis have been reported (2015 and 2016 cases presented here are probable)

[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] Centers for Disease Control and Prevention. *Sexually Transmitted Disease Surveillance 2018*. Atlanta: U.S. Department of Health and Human Services; 2019. DOI: 10.15620/cdc.79370.

WOMEN[1] - RECENT HIV DIAGNOSES

Figure 41. Percentage of females diagnosed with HIV infection by race/ethnicity, age, place of birth, and exposure mode, Massachusetts 2016–2018 (N=519)



- Females newly diagnosed with HIV infection in Massachusetts during 2016–2018 were predominantly middle-aged (32% 30–39 year-olds and 22% 40–49 year-olds), black (non-Hispanic) (46%), and US born (51%), with an exposure mode of presumed heterosexual sex (28%). While presumed heterosexual sex was the leading exposure mode, a large percentage of new HIV diagnoses had no identified risk (32%).
- Among females, the proportion of HIV infection diagnoses with IDU exposure mode increased from 7% (N=12/164) in 2014 to 25% (N=40/160) in 2017, then decreased to 20% (N=38/190) in 2018.

[1] Recent HIV diagnoses among women include 519 individuals assigned female sex at birth. Data included reflect sex assigned at birth and therefore not gender identity or gender expression of transgender individuals (N=19 transgender individuals diagnosed with HIV infection from 2016 – 2018).

STRENGTHS AND LIMITATIONS OF DATA

	HIV/AIDS	STD	Viral Hepatitis
Description	• Collected by MDPH Bureau of Infectious Disease and Laboratory Sciences • Reported statewide • All laboratories and healthcare providers are required by state law to report		
	• New HIV diagnoses include only individuals who were first diagnosed in Massachusetts. • HIV prevalence data include all individuals who were reported as residing in Massachusetts regardless of where they were first diagnosed.	• Includes individuals first reported as living in MA.	• Includes individuals first reported as living in MA.
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.	• All clinical laboratories in MA report electronically resulting in more complete and timely reporting of disease. • Most infectious syphilis cases agree to interview, resulting in reasonably complete race/ethnicity and sex of sex partner data.	• All clinical laboratories in MA report electronically resulting in more complete and timely reporting of disease.
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, 2018 HIV diagnoses through December 31, 2018 were released on January 1, 2020.	• Race/ethnicity data are incomplete for gonorrhea (missing for 32% of 2019 cases) and chlamydia (missing for 54% of 2019 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			
Description	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 (ESE) 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 https://www.mass.gov/lists/massachusetts-youth-health-survey-myhs		
Strengths	A two-stage sampling method is used to produce representative samples of students in grades 9 – 12. Response rates are high.		
Limitations	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.		

INTERPRETING HIV/AIDS, STD, AND VIRAL HEPATITIS DATA

Hepatitis B surveillance data are current as of June 19, 2020, hepatitis C data are as of June 16, 2019, HIV/AIDS data are as of January 1, 2020, and STD data are as of July 10, 2020. All data are subject to change.

I. HIV/AIDS Exposure Mode Definitions

The HIV exposure mode indicates the most probable risk behavior associated with HIV infection. Assignment of exposure mode is done in accordance with Centers for Disease Control and Prevention (CDC) guidelines when multiple exposure modes are reported. Although the reported 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 assigned male at birth (including individuals assigned male at birth who also report sexual contact with individuals assigned female, intersex, or other at birth). Please note that in accordance with CDC guidelines, this category is defined by an individual's assigned sex at birth and the assigned sex at birth of their sexual contacts 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/AIDS 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: Cases among individuals assigned male at birth who report both injection drug use and sexual contact with other individuals assigned male at birth (including individuals assigned male at birth who also report sexual contact with individuals assigned female, intersex, or other at birth).
    - 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 persons who inject drugs (PWID). For the purposes of official reporting in the MA HIV/AIDS 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 living with, or at increased risk for, HIV infection (e.g. a person who injects drugs). The sub-categories for this mode of transmission are listed below.
    - Heterosexual Sex w/ an person who injects drugs
    - Heterosexual Sex w/ a person 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 mother to child transmission through pregnancy, childbirth, or breastfeeding (perinatal transmission).

- 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 assigned male at birth 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 assigned male at birth were 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/AIDS 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 risk for those cases that are initially reported without a risk identified. Includes cases among males 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/AIDS data reflect HIV infections diagnosed through 2018. Newly diagnosed HIV infections/cases include all persons diagnosed with HIV from 2016 to 2018, 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/AIDS 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 reflect 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. 2017 population estimates were used for single-year rates; for pooled year rates (i.e., 2016-2018), the 2017 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 47% of confirmed chlamydia cases and 32% of confirmed gonorrhea cases reported from 2009 to 2018. 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.

In the time period of the data in this report

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 person more likely to get infections or infection-related cancers. These opportunistic infections, or cancers take advantage of the weakened immune system and signal that the person has AIDS (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

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

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):

- 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.

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HIV/AIDS Resource Allocation, Policy, and Programs	H. Dawn Fukuda (Director, Office of HIV/AIDS)	Dawn.Fukuda@mass.gov	617-624-5303
Health Promotion and Disease Prevention Services	Linda Goldman (Director of Health Promotion and Disease Prevention)	Linda.Goldman@mass.gov	617-624-5347
Behavioral Health and Community Engagement	Barry Callis (Director of Behavioral Health and Infectious Disease Prevention	Barry.Callis@mass.gov	617-624-5316
Viral Hepatitis Program			
Viral Hepatitis Surveillance and Epidemiology	Lindsay Bouton (Programmatic epidemiologist for hepatitis A and B) Molly Crockett (Surveillance epidemiologist for hepatitis A and B) Anthony Osinski (Programmatic epidemiologist for hepatitis C Susan Soliva (Surveillance epidemiologist for hepatitis C)	Lindsay.Bouton@mass.gov Molly.Crockett@mass.gov Anthony.Osinski@mass.gov Susan.Soliva@mass.gov	617-983-6800 617-983-6801 617-983-6800 617-983-6801

HIV/AIDS, STD, AND VIRAL HEPATITIS RESOURCES

Training

Professional training to community based organizations, local public health departments, and medical providers can be requested and is free of charge.

Type of Training	Contact Information and Website
STD Education, STD Partner Notification, and STD Reporting	617-983-6940 www.mass.gov/dph/cdc/std
HIV/AIDS Reporting and Surveillance Projects	617-983-6560 www.mass.gov/dph/cdc/aids
HIV/AIDS Provider Trainings	617-624-5338 www.mass.gov/dph/aids
Viral Hepatitis Education	617-983-6800 https://www.mass.gov/lists/hepatitis-b-educational-materials-and-other-resources https://www.mass.gov/lists/hepatitis-c-educational-materials-and-other-resources
STD Diagnosis, Treatment, and Management	617-983-6945 www.RatellePTC.org

Material and Clinical Toolkits

Health education materials and clinical toolkits can be requested free of charge.

Type of Material	Contact Information and Website
Massachusetts HIV/AIDS Epidemiologic Profile	617-983-6560 https://www.mass.gov/lists/hivaids-epidemiologic-profiles
HIV/AIDS Reporting for Health Care Providers	617-983-6560 https://www.mass.gov/infectious-disease-surveillance-reporting-and-control
STD, and HIV Posters and Brochures	617-983-6800 https://massclearinghouse.ehs.state.ma.us/
STD Diagnosis, Treatment, and Management Toolkits	617-983-9645 www.RatellePTC.org

MDPH and MDPH Funded Websites

Bureau of Infectious Disease and Laboratory Sciences	www.mass.gov/orgs/bureau-of-infectious-disease-and-laboratory-sciences
Office of HIV/AIDS	www.mass.gov/dph/aids
Viral Hepatitis Programs	www.mass.gov//hepatitis-a www.mass.gov/hepatitis-b-hbv www.mass.gov/hepatitis-c-hcv
Sylvie Ratelle STD/HIV Prevention Training Center	www.RatellePTC.org
Division of STD Prevention	www.mass.gov/dph/cdc/std

National Websites

Centers for Disease Control and Prevention	www.cdc.gov
Division of STD Prevention	www.cdc.gov/std
Division of HIV/AIDS Prevention	www.cdc.gov/hiv
Division of Viral Hepatitis	www.cdc.gov/hepatitis
National Network of STD/HIV Prevention Training Centers	www.nnptc.org