

## Chapter 7: Sexual Health



## Sexual Health

Sexual health is a state of physical, emotional, mental and social well-being in relation to sexuality (1). Achieving this state of well-being requires the prevention of, and when necessary, effective treatment of sexually transmitted infections (STIs) (2).

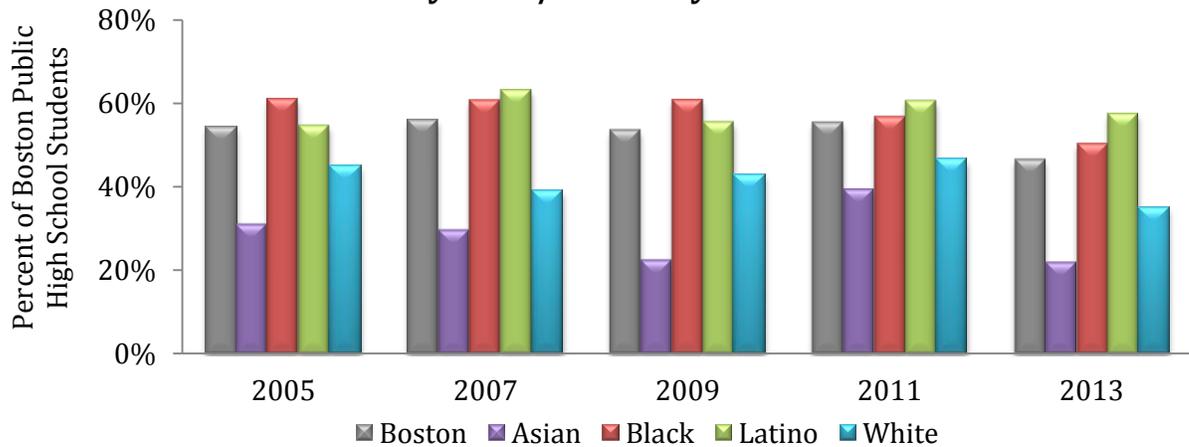
The CDC estimates that 19 million sexually transmitted infections occur each year, with half of new diagnoses estimated to occur in adolescents ages 15-24 (3). Many people are unaware they are infected with an STI since symptoms are often absent or when present, may be attributed to another cause. Symptoms as benign as non-specific abdominal pain or itching can be the first signs of an infection with the potential to cause serious long-term complications (4). Uncontrolled infections can make an individual more vulnerable to other STIs, including HIV (5).

Although anyone can experience serious health effects from STIs, they impact women more frequently and extensively than men. Infections can cause pelvic inflammatory disease, infertility and ectopic pregnancy if left untreated. Infections may also be passed on to an unborn child, causing serious harm including brain damage, blindness, or stillbirth (6). Often times, women do not have noticeable symptoms when infected with the most common STIs, whereas symptoms for men are more obvious (3).

Reducing the risk of becoming infected with an STI is the goal of recommended prevention strategies. Using condoms can prevent infection. Having honest conversations with new partners about infection and being aware of common STI symptoms can prevent STIs from spreading (5). Abstaining from sexual activity or being active in a long-term, monogamous relationship with an uninfected partner can prevent infection. . High-risk behaviors for contracting an STI include having multiple partners, unprotected intercourse with infected persons, and injection drug use (2).

After prevention, seeking medical care immediately after a potential infection is the next best approach. Although many STIs do not present with obvious symptoms, they can be detected through targeted medical screening tests. Since bacteria are often responsible for infections, most STIs can be effectively treated with antibiotics. Even STIs caused by viruses, such as Herpes and HIV, can be medically managed (2).

**Figure 7.1 High School Students Who Have Ever Had Sex by Race/Ethnicity and Year**

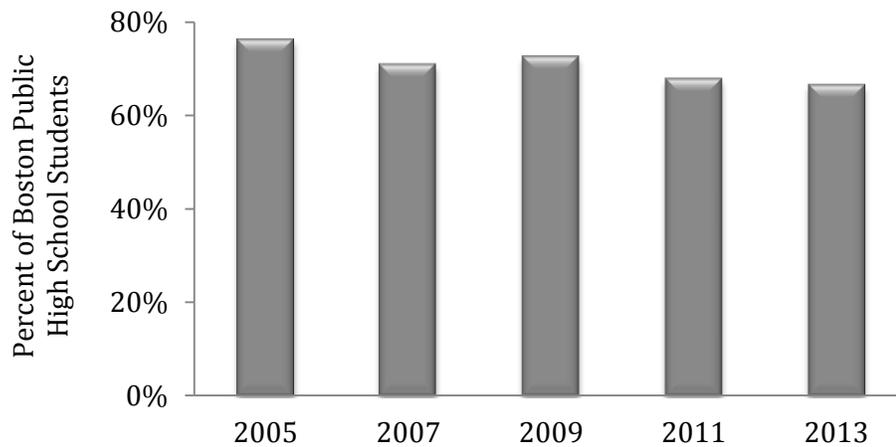


	2005	2007	2009	2011	2013
Boston	54.4% (50.5-58.2)	56.0% (52.7-59.4)	53.6% (49.4-57.7)	55.5% (50.7-60.2)	46.6% (41.4-51.8)
Asian	31.0% (22.5-39.5)	29.7% (22.0-37.3)	22.5% (13.9-31.1)	39.3% (29.1-49.5)	22.0% (12.8-31.2)
Black	61.1% (55.4-66.8)	60.8% (56.2-65.3)	60.8% (55.3-66.4)	56.8% (49.0-64.6)	50.4% (43.3-57.4)
Latino	54.6% (49.5-59.7)	63.1% (57.0-69.2)	55.4% (48.6-62.2)	60.5% (54.8-66.2)	57.4% (50.8-64.0)
White	45.0% (37.0-53.0)	39.0% (30.4-47.5)	43.0% (31.6-54.5)	46.5% (31.4-61.7)	35.0% (25.4-44.6)

DATA SOURCE: Youth Risk Behavior Survey (2005, 2007, 2009, 2011, and 2013), Centers for Disease Control and Prevention

Between 2005 and 2013, the percentage of Boston public high school students who had ever had sex significantly decreased over time. While the percentage of Black students who had ever had sex decreased over time from 61% in 2005 to 50% in 2013, there were no significant changes over time among Asian, Latino, or White students. In 2013, the percentage of Latino students who had ever had sex was higher than that of White students.

**Figure 7.2 Condom Use During Last Sex Among High School Students by Year**



2005	2007	2009	2011	2013
76.3%	70.9%	72.6%	67.8%	66.5%
(72.6-80.0)	(67.6-74.1)	(69.2-76.0)	(62.4-73.2)	(61.5-71.6)

DATA SOURCE: Youth Risk Behavior Survey (2005, 2007, 2009, 2011, and 2013), Centers for Disease Control and Prevention

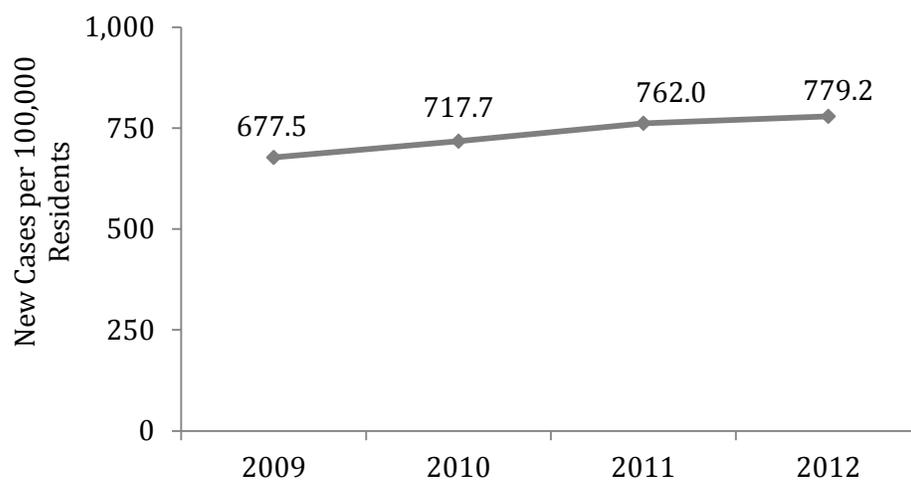
Between 2005 and 2013, the percentage of sexually active Boston public high school students who used a condom during the last time they had sex significantly decreased over time.

## Chlamydia

Chlamydia is the most frequently reported STI in the United States, and is caused by the bacterium *Chlamydia trachomatis*. It is considered a silent infection because most infected people are asymptomatic with normal physical examination findings. Symptomatic infections can be characterized by vaginal discharge for women and burning during urination for both men and women. Untreated infections can lead to serious consequences including pelvic inflammatory disease, infertility, and complications during pregnancy. Infection can also be spread from an untreated mother to her baby during childbirth. This can result in conjunctivitis or pneumonia in the infant (7).

Sexually active young people are at higher risk of acquiring chlamydia for several reasons related to behavior and biology. Nevertheless, any sexually active person can become infected. CDC recommends yearly chlamydia screening of all sexually active women ages 25 and younger, and older women with new or multiple sex partners (2). Due to the disease's asymptomatic nature, a laboratory test is usually necessary to identify an infection and requires the collection of vaginal swabs or urine samples (2).

Chlamydia infections can effectively be treated with antibiotics, which stop the infection, but sometimes the damage caused by the infection is irreversible. Therefore, treatment is most effective when delivered as soon as possible after exposure. Repeated infection is common and can occur if a person's sex partners have not been treated (7). Chlamydia infection can be prevented by using barrier contraception. In Massachusetts, partners of patients with chlamydia can be treated without needing to be tested to prevent reinfection.

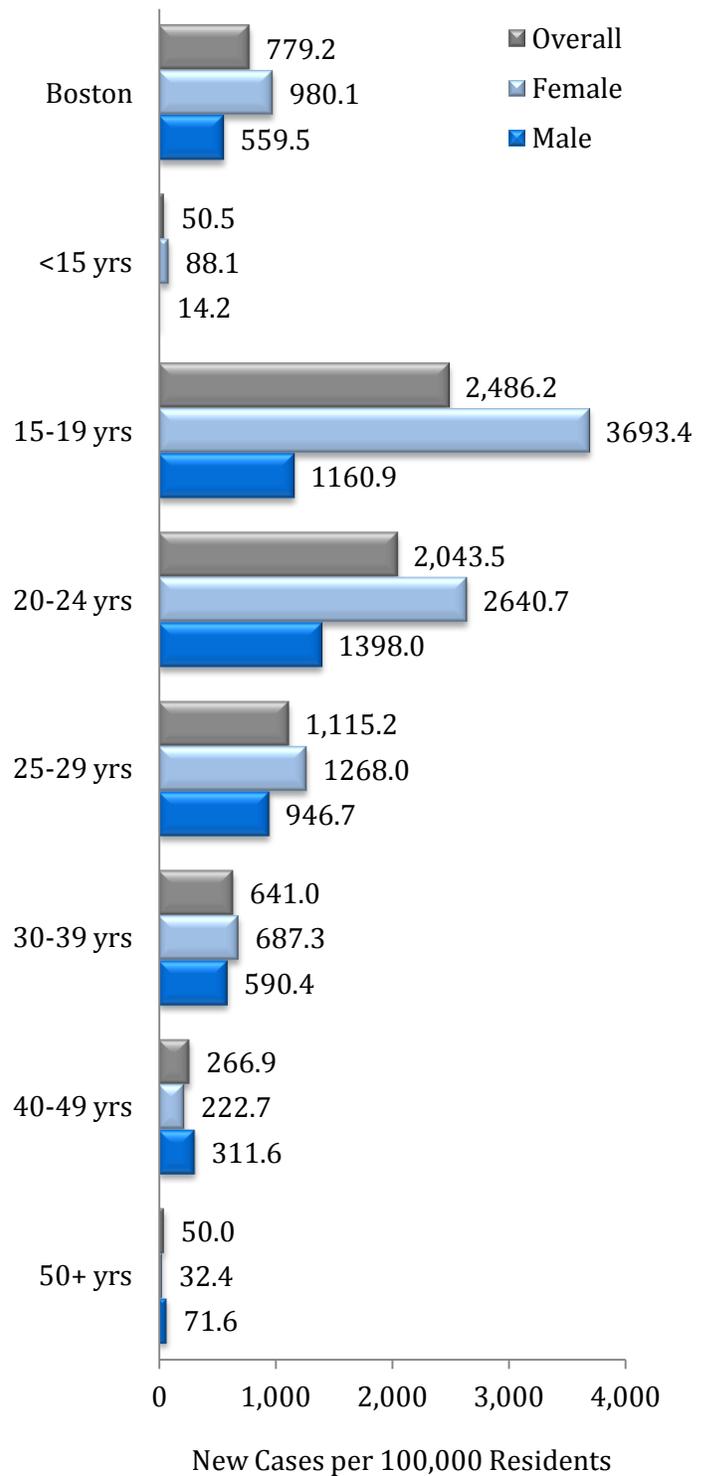
**Figure 7.3 Chlamydia by Year**

DATA SOURCE: Division of STD Prevention, Massachusetts Department of Public Health

In 2009, the Chlamydia rate in Boston was 677.5 new cases per 100,000 residents. In 2012 the rate was 779.2.

**Figure 7.4 Chlamydia by Gender within Age, 2012**

The rate of new Chlamydia infections was highest among Boston females ages 15-19. For both genders, compared to ages 30-39, the incidence rates were higher for residents ages 15-19, and lower for all other age groups.



DATA SOURCE: Division of STD Prevention, Massachusetts Department of Public Health

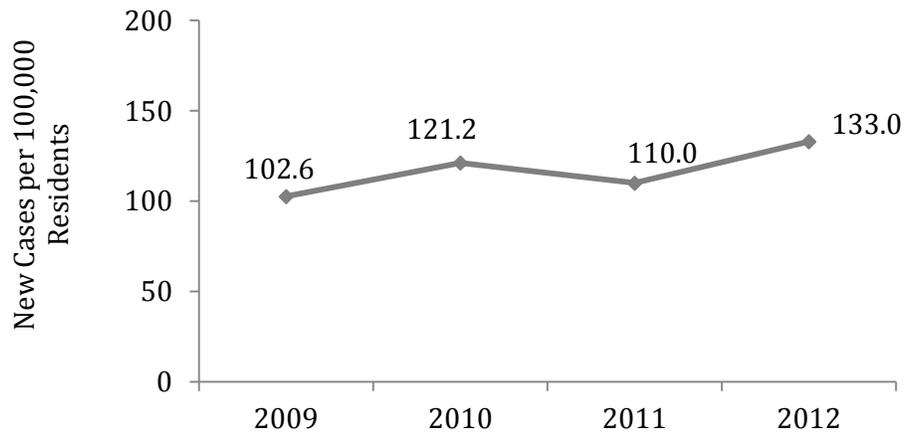
## Gonorrhea

Gonorrhea is a sexually transmitted infection caused by the bacterium *Neisseria gonorrhoea*. It is the second most commonly reported communicable disease in the United States (after chlamydia) (8). Many infections are asymptomatic; however, symptoms can include sore throat, painful urination, or abnormal vaginal/urethral discharge. Symptoms among women are generally mild and may be mistaken for bladder or vaginal infections. Men sometimes experience testicular pain or pain with urination. If left untreated, gonorrheal infection can lead to several serious complications including joint infections, pelvic inflammatory disease, infertility, and ectopic pregnancies. Transmission of infection to newborns is possible during childbirth, which can result in blindness, joint infection, and blood infection (4). In addition, people with gonorrhea are at higher risk of becoming infected with HIV.

The prevalence of gonorrhea varies widely among communities and populations. In Boston, health-care providers are urged to consider local patterns of infection when making screening decisions, including targeted screening of all sexually active women under age 25, those who have unprotected sex with multiple partners, and pregnant women (2).

Gonorrhea can be diagnosed by testing urine, urethral, or vaginal specimens. If a person has had oral or anal sex, cotton swabs of the throat or anus are tested (4).

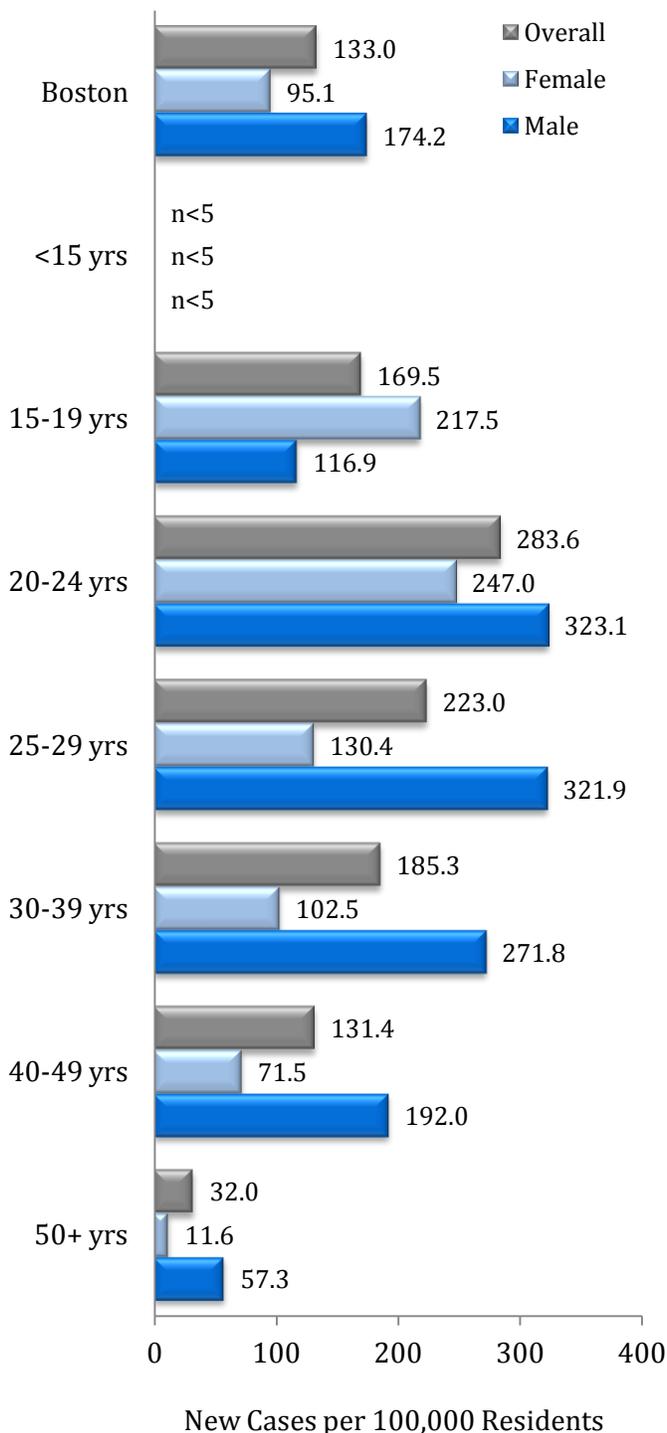
Gonorrhea can be effectively treated with antibiotics. Evidence indicates that patients with gonorrhea are frequently co-infected with chlamydia. For this reason, CDC recommends treating both conditions simultaneously. Many strains of gonorrhea have developed resistance to antibiotics, making it important to be retested for gonorrhea following treatment (4).

**Figure 7.5 Gonorrhea by Year**

DATA SOURCE: Division of STD Prevention, Massachusetts Department of Public Health

In 2009, the rate of Gonorrhea in Boston was 102.6 new cases per 100,000 residents. The rate was 133.0 in 2012.

**Figure 7.6 Gonorrhea by Gender within Age, 2012**



In 2012, the gonorrhea incidence rate among Boston females ages 15-19 was higher than females ages 30-39. While the rate was lower for Boston males ages 15-19, 40-49 and 50+ compared to those ages 30-39, there was no statistical difference in gonorrhea rates for males ages 20-24 or 25-29 compared to males ages 30-39.

DATA SOURCE: Division of STD Prevention, Massachusetts Department of Public Health

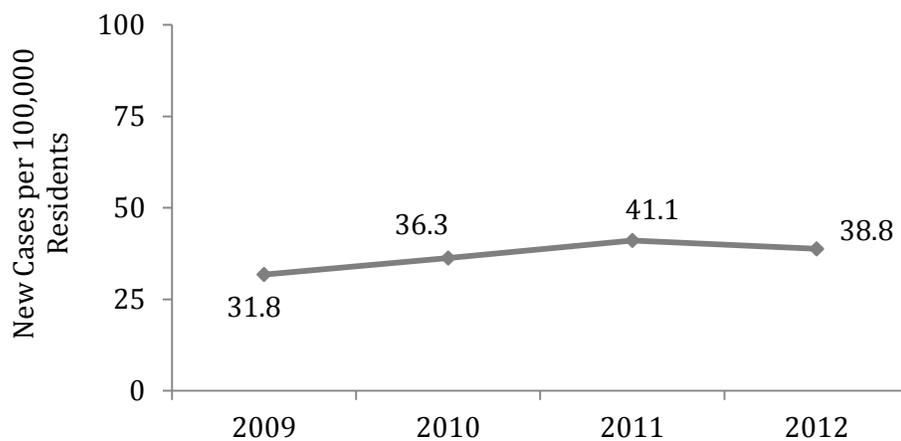
## Syphilis

Syphilis is a sexually transmitted illness caused by the bacterium *Treponema pallidum* and is characterized by four stages: primary, secondary, latent, and late. Every year, about 55,000 Americans get new syphilis infections (9).

Symptoms associated with the primary stage usually appear 21 days after infection, but can range from 10-90 days after infection (9). The initial stage is marked by painless sores that appear near the location where syphilis entered the body (e.g., genitalia, mouth, or anus). The sores last three to six weeks and heal regardless of treatment (9). However without treatment, 25% of syphilis cases progress to the secondary stage, which can be marked by a host of signs and symptoms including rash, fever, headache, weight loss, enlarged lymph nodes, hair loss, hepatitis, kidney injury, and eye problems (10). Like primary syphilis, the symptoms of secondary syphilis often disappear without treatment but the infection can remain latent. The latent stage of syphilis can last for several years and is not associated with any signs or symptoms, but 15% of untreated cases can develop into late, or tertiary, syphilis (9). Late stage syphilis is characterized by difficulty coordinating movement, paralysis, blindness, and dementia. The disease may also damage internal organs, resulting in death. At any stage of infection, syphilis can invade the nervous system and cause a wide range of symptoms (9).

Mother-to-child transmission during pregnancy is possible and poses an extreme risk to the child's survival. Babies that survive pregnancy are at high risk for developing serious problems within a few weeks of birth, which may lead to developmental delays, seizures, or death (9).

Syphilis is diagnosed through blood tests. Routine screening is recommended for all pregnant women early in pregnancy and during the third trimester because treatment can prevent transmission of the disease (2). In its early stages, syphilis can be treated with a single intramuscular injection of penicillin. Later stages require at least three doses at weekly intervals. Although treatment will kill the bacteria in the body, it will not repair any existing damage (9). Therefore, it is important to prevent infection with safe sex practices that include the use of condoms, and to seek treatment as soon as possible if there are signs of infection.

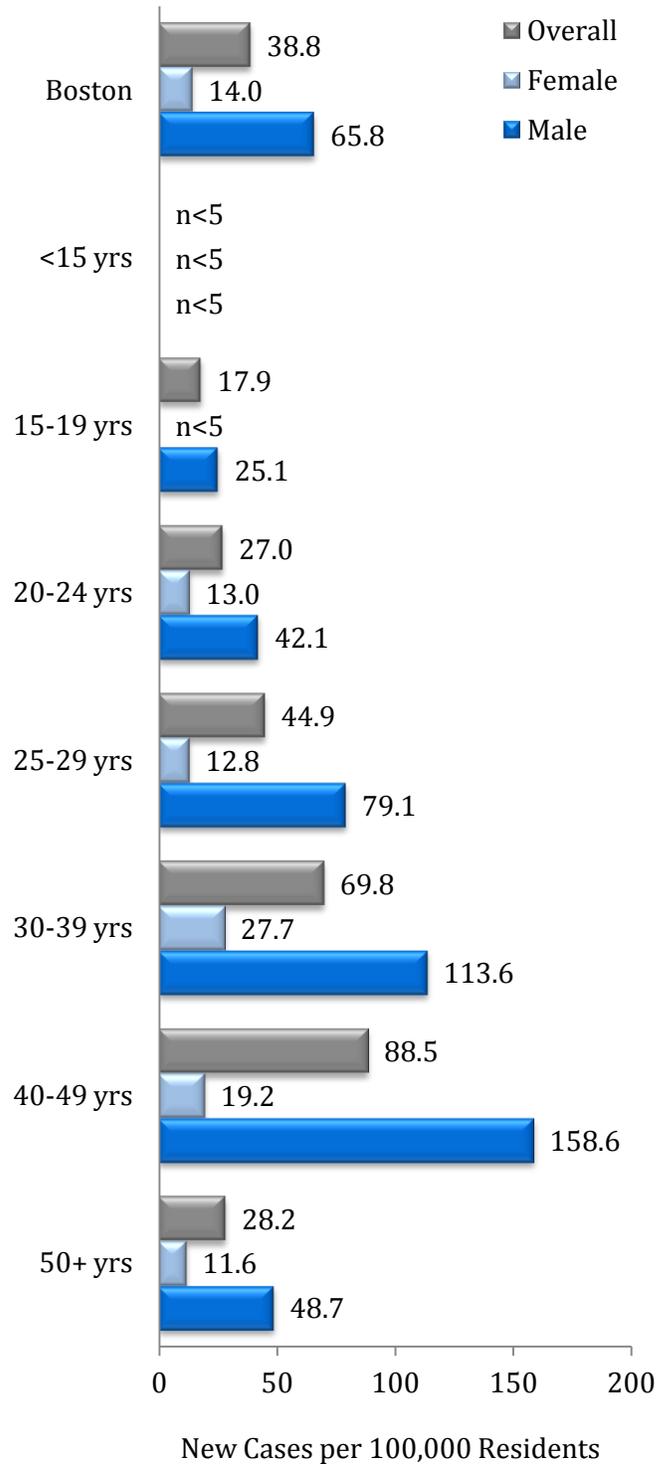
**Figure 7.7 Syphilis by Year**

DATA SOURCE: Division of STD Prevention, Massachusetts Department of Public Health

In 2009, the rate of syphilis in Boston was 31.8 new cases per 100,000 residents. The rate was 38.8 in 2012.

In 2012, the syphilis incidence rate among Boston males ages 15-19, 20-24, and 50+ was lower than males ages 30-39. While it was higher for females ages 50+ compared to females ages 30-39, there was no statistical difference in syphilis rates among Boston females ages 20-24, 25-29 and 40-49 compared to females ages 30-39.

**Figure 7.8 Syphilis by Gender within Age, 2012**



NOTE: Rates are not presented for ages <15 and females ages 15-19 due to the small number of cases.

DATA SOURCE: Division of STD Prevention, Massachusetts Department of Public Health

## HIV/AIDS

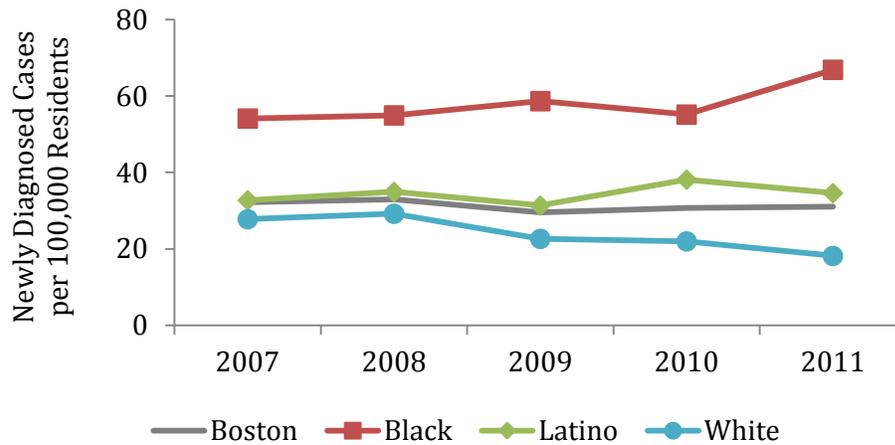
Human immunodeficiency virus (HIV) is a virus that affects the CD4 cells of the immune system and can eventually lead to acquired immunodeficiency syndrome (AIDS). Overtime HIV destroys the CD4 cells (or T cells), preventing the body from fighting off infections. Once infected, the body does not get rid of HIV. This means that HIV is considered an incurable infection (11).

Over a million people in the United States have been infected with HIV, and nearly a half million have developed AIDS (12). Transmission of HIV occurs when bodily fluids from an infected person come into contact with mucous membranes (found inside the vagina, penis, rectum, or mouth), damaged tissue, or blood stream of an uninfected person. Examples of bodily fluids that carry the virus include blood, semen, vaginal fluids, rectal fluids, and breast milk (12).

Within two to four weeks of HIV infection, acute retroviral syndrome can develop, which may or may not have symptoms similar to a common cold (11). During this early stage of infection, large amounts of HIV are produced in the body and one's ability to spread the infection is very high. Eventually, the immune system will stabilize the amount of virus in the body. The next stage of HIV infection is known as clinical latency, in which HIV reproduces at very low levels. Depending upon responses to treatment, clinical latency can last several decades. Over time, the viral load in the body begins to rise again, and the CD4 cell count begins to drop. This final stage of HIV infection is known as AIDS when the number of CD4 cells falls below 200 cells per cubic millimeter of blood [200 cells/mm<sup>3</sup>] (normal CD4 counts are between 500 and 1,600 cells/mm<sup>3</sup>) (11). AIDS can also be defined by a person developing one or more opportunistic infections. Opportunistic infections take advantage of the weakened immune system and cause serious health consequences in people with HIV infection. Examples of opportunistic infections include fungal infections, tuberculosis, and pneumonia (11).

Although there is no cure for HIV infection, people can live long, productive lives with antiretroviral therapy (ART) and preventive treatment for opportunistic infections. Prevention of HIV infection is possible through consistent condom use during sex, refraining from needle sharing during intravenous drug use, and avoiding breastfeeding if infected. CDC recommends HIV screening for all persons who seek evaluation and treatment of STIs. Screening can also be performed at home with HIV test kits that are available over the counter (11).

**Figure 7.9 Newly Diagnosed Cases of HIV/AIDS by Year of Diagnosis**

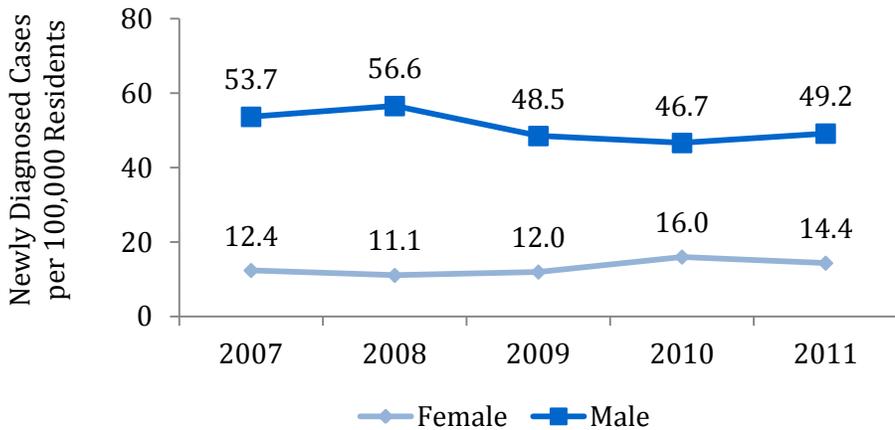


NOTE: Data values for Asian residents were suppressed for confidentiality. Prisoners are excluded from these data.

DATA SOURCE: HIV/AIDS Surveillance Program, Massachusetts Department of Public Health

In 2011, the incidence rate for newly diagnosed HIV/AIDS cases among Boston residents was 31.0 per 100,000 residents. In Boston, there was no significant change over time from 2007 to 2011. The incidence rate for both Black residents (66.9) and Latino residents (34.6) was higher in 2011 than it was for White residents (18.2).

**Figure 7.10 Newly Diagnosed Cases of HIV/AIDS by Gender and Year of Diagnosis**



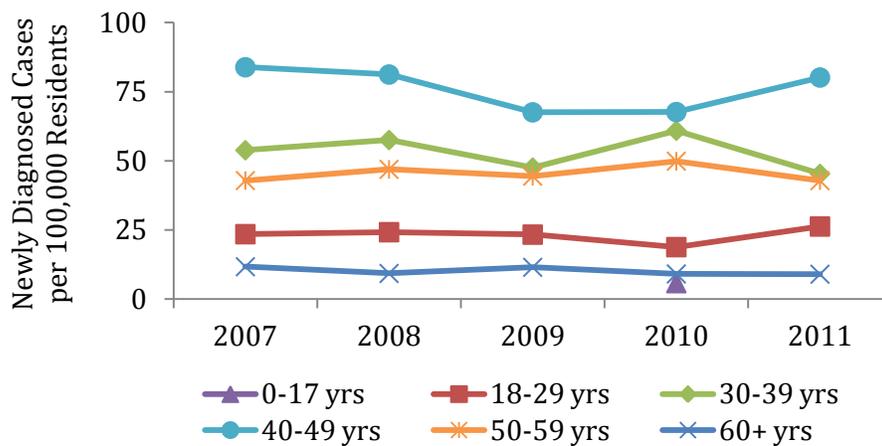
In 2011, the incidence rate for newly diagnosed HIV/AIDS cases among females in Boston was 14.4 per 100,000 residents. For males in Boston, the rate was higher than females at 49.2.

NOTE: Prisoners are excluded from these data.

DATA SOURCE: HIV/AIDS Surveillance Program, Massachusetts Department of Public Health

In 2011, the incidence rate for newly diagnosed HIV/AIDS cases among residents ages 18-29 years was 26.3 per 100,000. The rate was higher for those ages 30-39 (45.3), 40-49 (80.2) and 50-59 (42.9) compared to 18-29 year olds. The rate was lower for those 60 years of age and older (9.0) compared to 18-29 year olds.

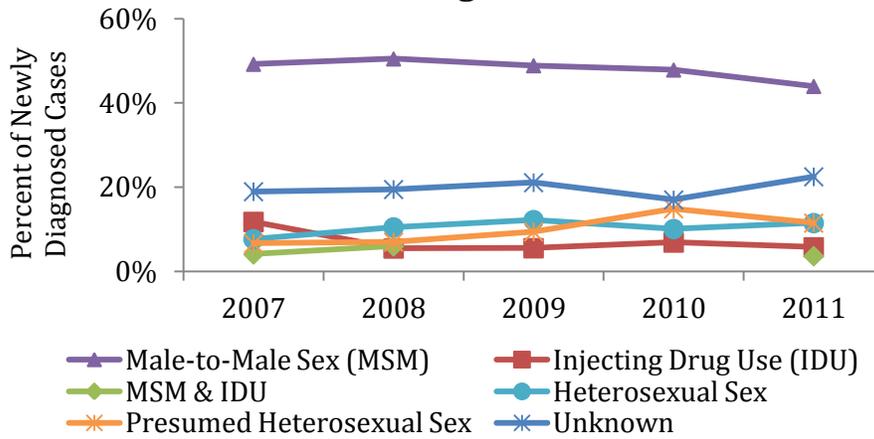
**Figure 7.11 Newly Diagnosed Cases of HIV/AIDS by Age at Diagnosis and Year**



NOTES: Values for ages 0-17 were suppressed for the years 2007, 2008, 2009, and 2011 for confidentiality. Prisoners are excluded from these data.

DATA SOURCE: HIV/AIDS Surveillance Program, Massachusetts Department of Public Health

**Figure 7.12 Newly Diagnosed Cases of HIV/AIDS by Mode of Transmission and Year of Diagnosis**



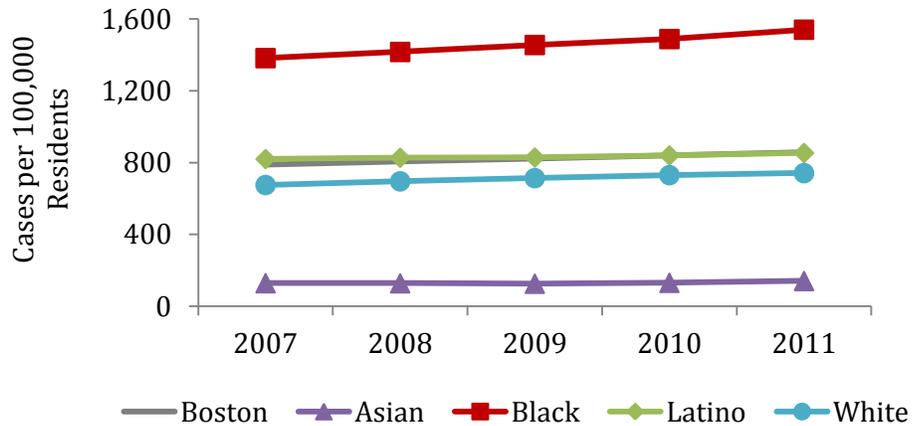
NOTE: Values for MSM & IDU in 2009 and 2010 were suppressed for confidentiality. Prisoners are excluded from these data.

DATA SOURCE: HIV/AIDS Surveillance Program, Massachusetts Department of Public Health

In 2011, 44% of all newly diagnosed cases of HIV/AIDS in Boston were reported as male-to-male sex (MSM) as the mode of transmission. Additionally, 23% of newly diagnosed cases of HIV/AIDS were reported as an unknown mode of transmission. Presumed heterosexual sex as the reported mode of transmission for HIV/AIDS among Boston residents significantly increased from 2007 to 2011.

From 2007 to 2011 the number of people living with HIV/AIDS in Boston increased. In 2011, the rate for people living with HIV/AIDS in Boston was 858.3 per 100,000 residents. The rate among Black and Latino residents was higher than that of White residents. The rate among Asian residents was lower than that of White residents.

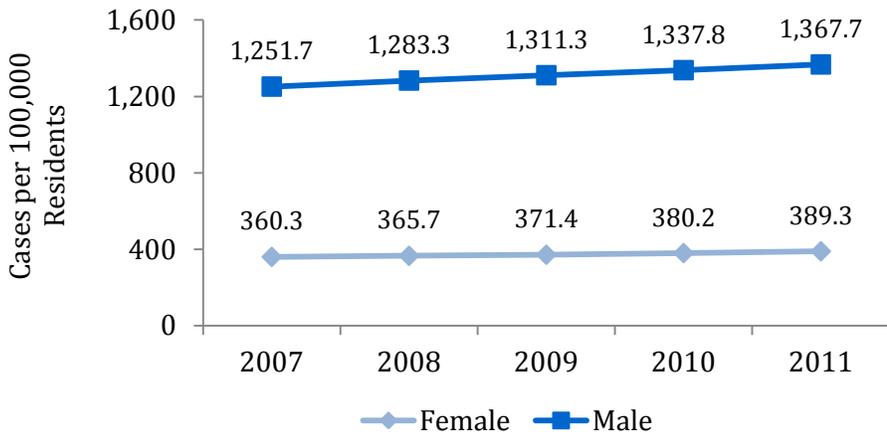
**Figure 7.13 People Living with HIV/AIDS by Race/Ethnicity and Year**



NOTE: Prisoners are excluded from the data.

DATA SOURCE: HIV/AIDS Surveillance Program, Massachusetts Department of Public Health

**Figure 7.14 People Living with HIV/AIDS by Gender and Year**



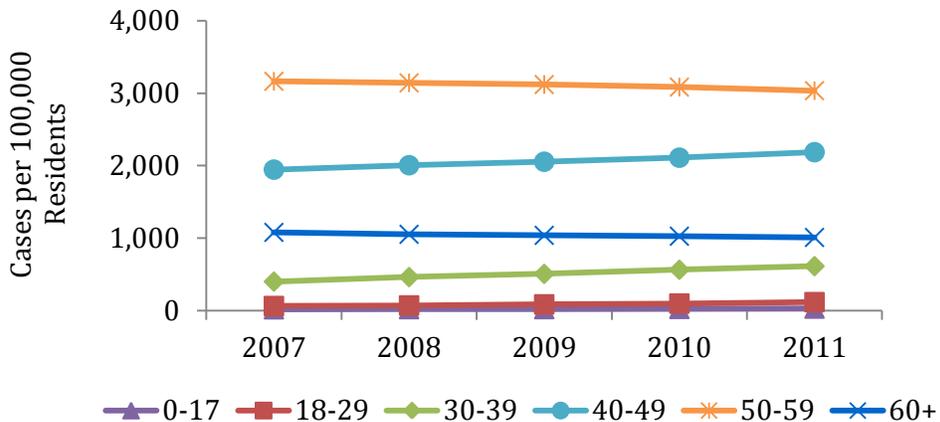
In 2011, the rate among females living with HIV/AIDS in Boston was 389.3 per 100,000 residents. The rate among males was higher than females, at 1,367.7 per 100,000 residents.

NOTE: Prisoners are excluded from these data.

DATA SOURCE: HIV/AIDS Surveillance Program, Massachusetts Department of Public Health

In 2011, the rate among Boston residents 18-29 years of age living with HIV/AIDS was 115.9 per 100,000 residents. The rates among residents ages 30-39 (613.0), 40-49 (2,186.6), 50-59 (3,035.8), and 60 years or older (1,009.1) were higher than that of 18-29 year olds. The rate of those ages 0-17 (27.4) was lower than that of 18-29 year olds.

**Figure 7.15 People Living with HIV/AIDS by Age and Year**



NOTE: Prisoners are excluded from these data.

DATA SOURCE: HIV/AIDS Surveillance Program, Massachusetts Department of Public Health

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