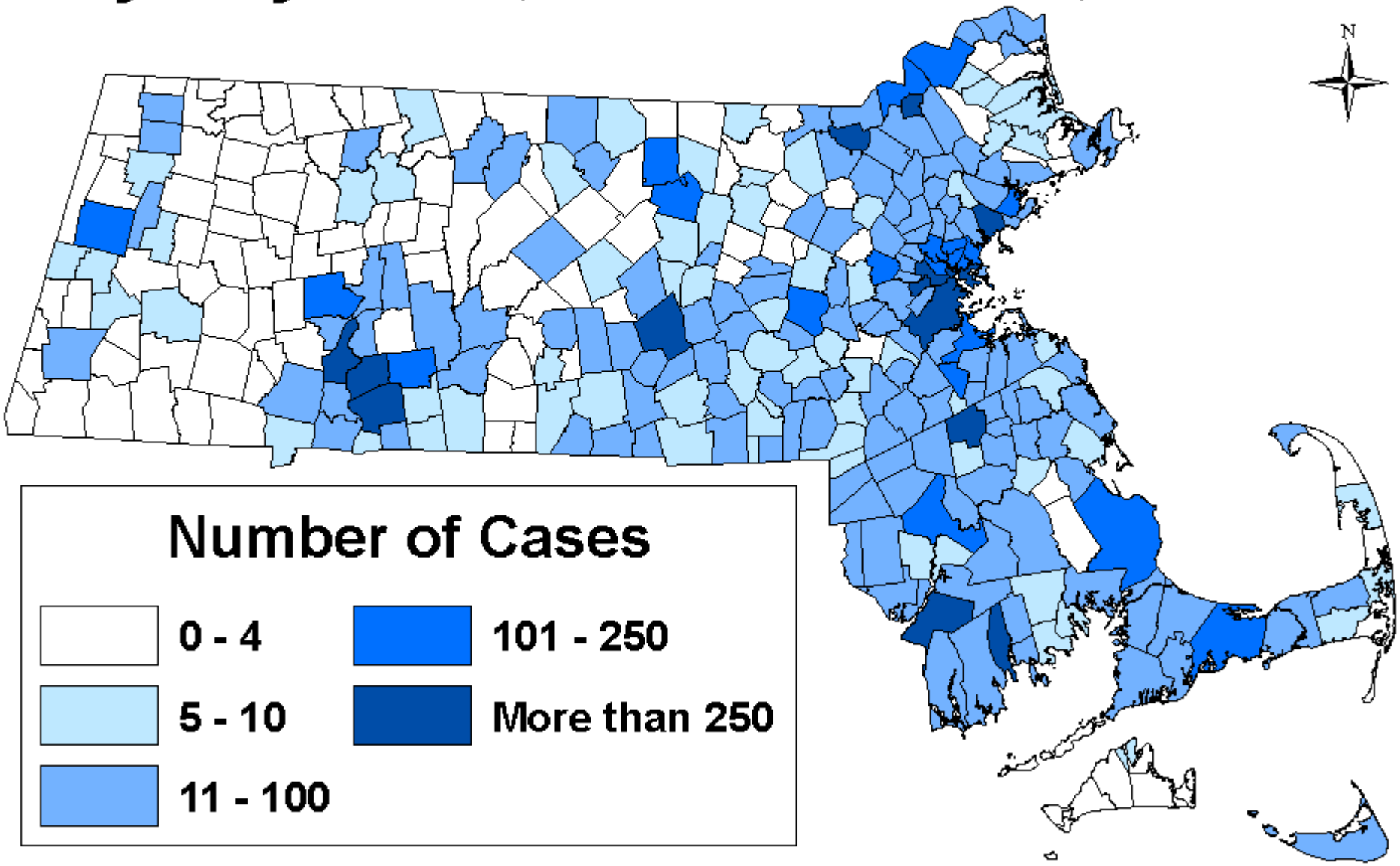
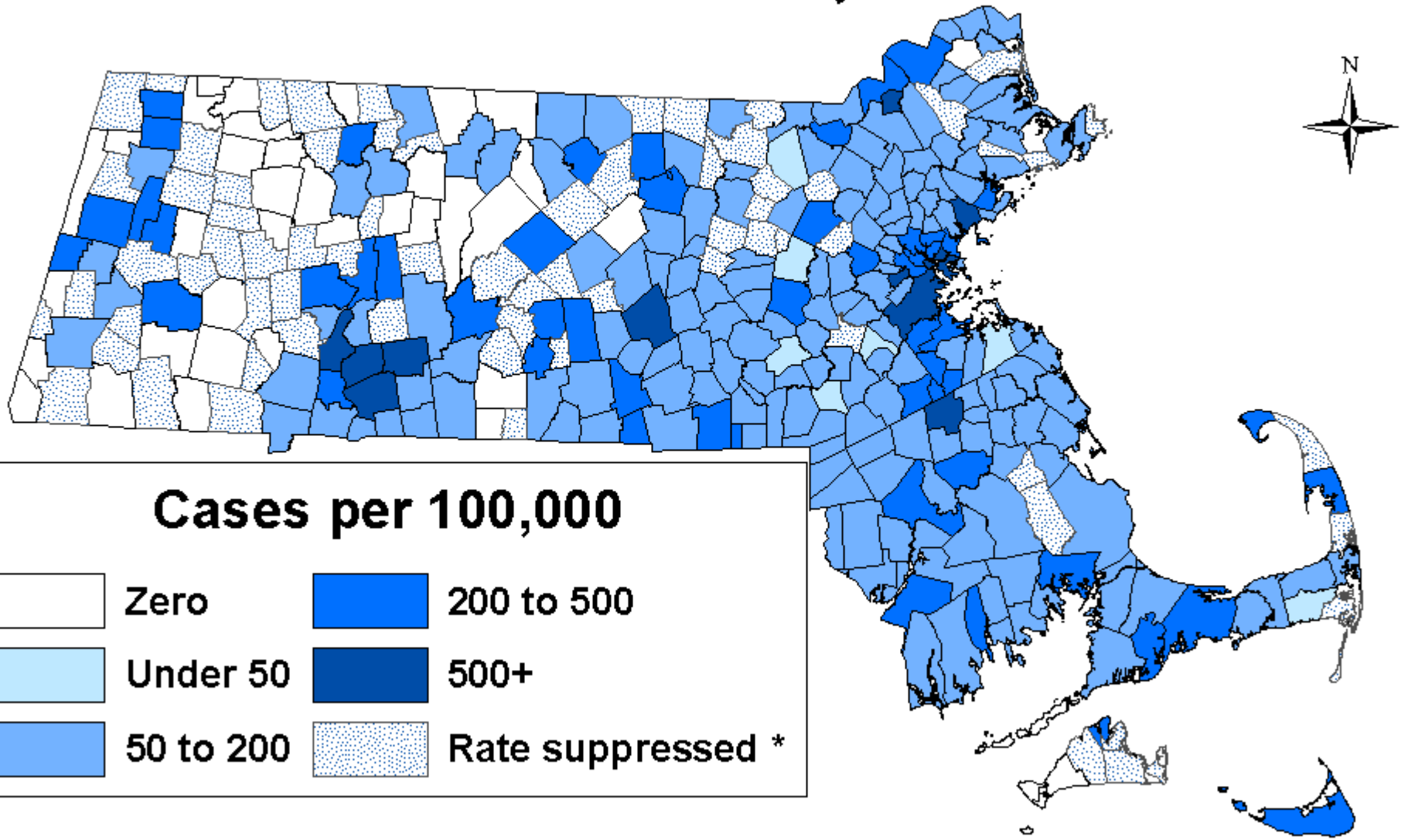
There were 21,236 reported chlamydia infections in Massachusetts in 2010. Chlamydia infection is widely distributed in Massachusetts.

Chlamydia case and incidence data by city and town are available online at www.mass.gov/dph/cdc/std.

Reported Chlamydia Infection Cases by City/Town, Massachusetts, 2010



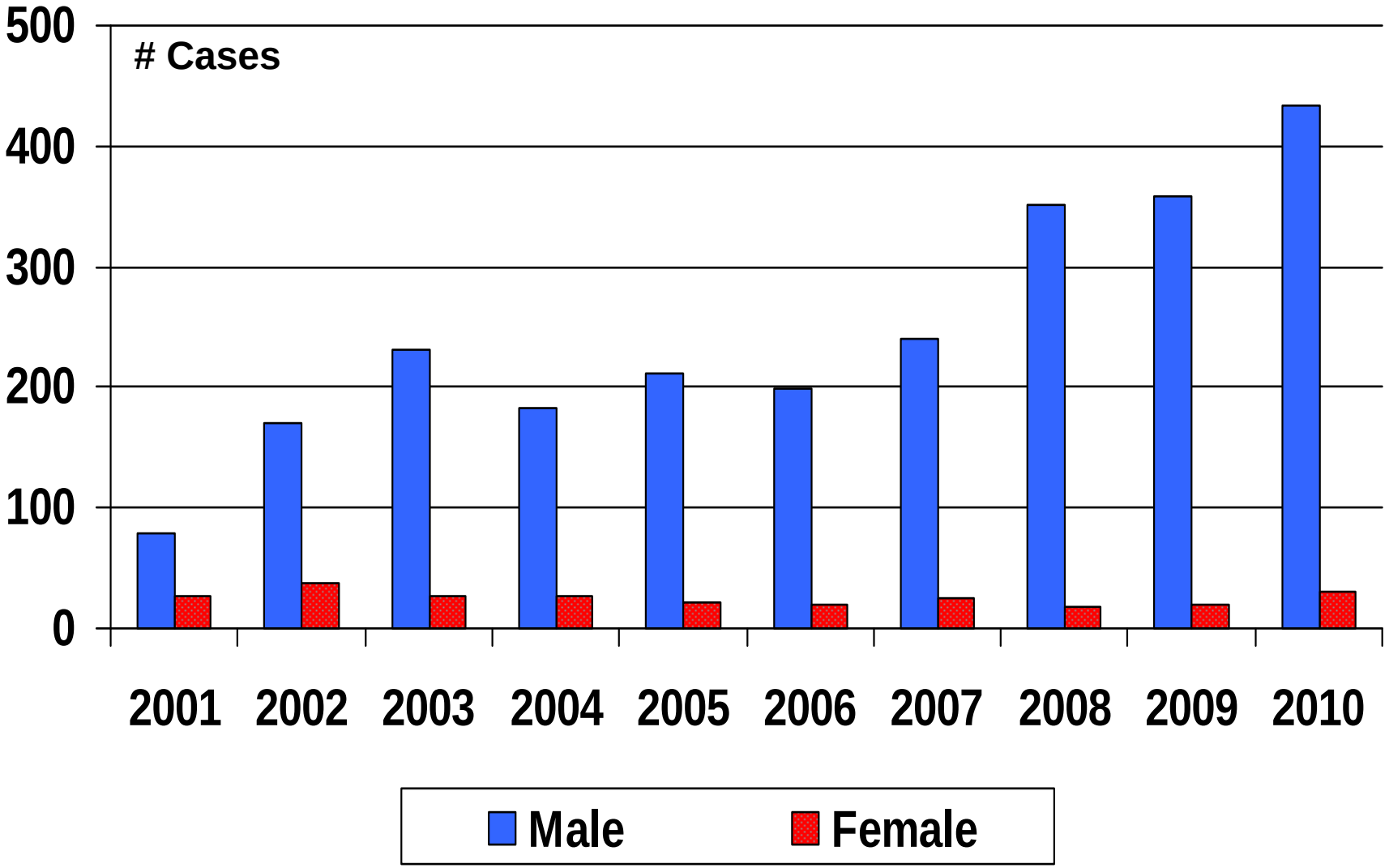
Chlamydia Incidence Rates by City/Town Massachusetts, 2010



* Values < 5 are suppressed for confidentiality for populations < 50,000

- The highest incidence rates of reported chlamydia infections are in large urban areas around Boston and Springfield.
- Throughout the state, the majority of cities and towns fall into the 50-200 cases per 100,000 population range.

Infectious Syphilis Cases by Gender Massachusetts, 2001-2010

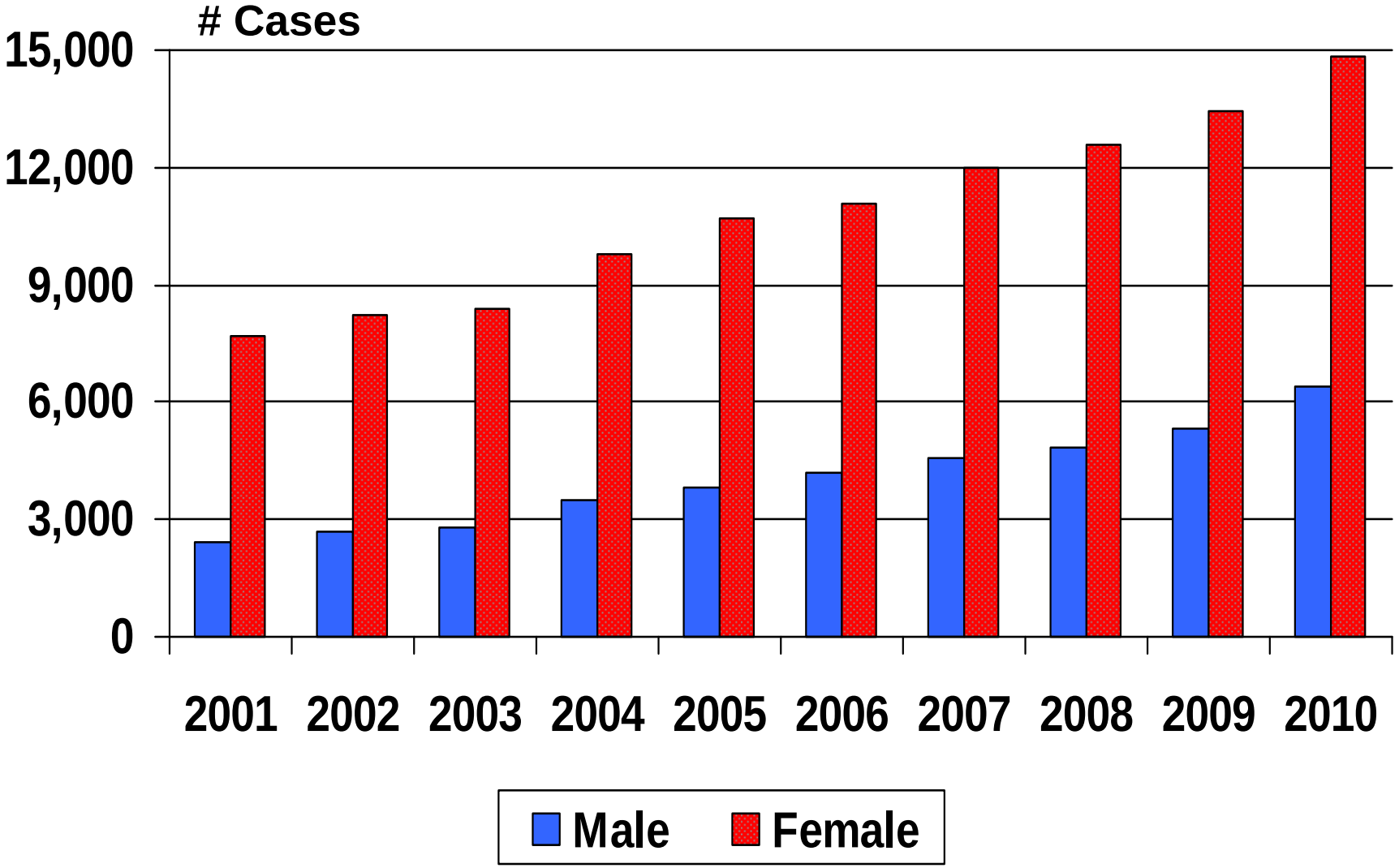


The total number of reported chlamydia infection cases in Massachusetts has increased by 110% in the past ten years, from 10,121 in 2001 to 21,236 in 2010.

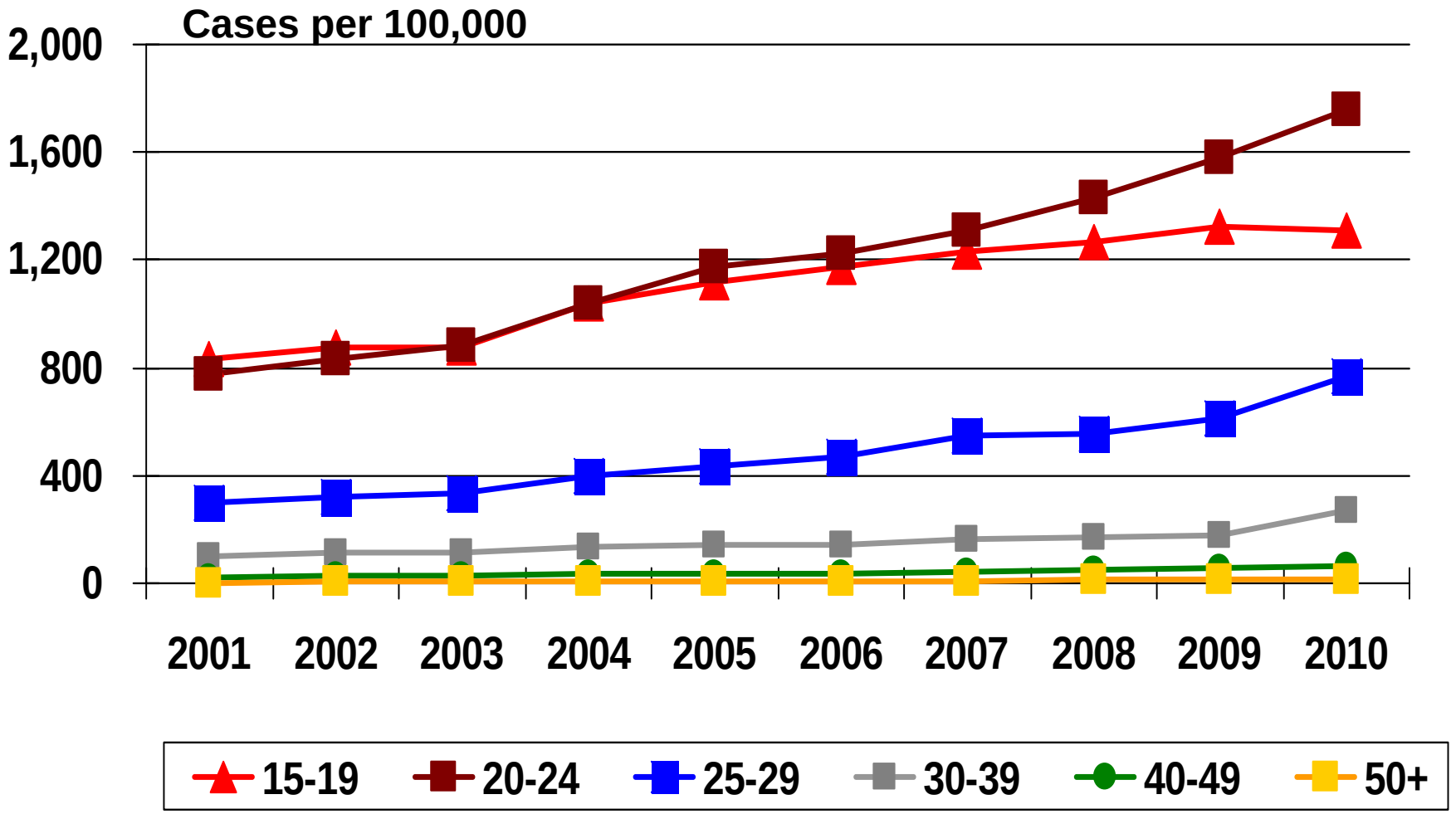
There was an 13% increase in the number of cases reported in 2010 compared to 2009.

Of the total reported cases in 2010, 6,394 were among men and 14,817 were among women. The greater number of chlamydia cases among women is a combined effect of increased incidence and a higher level of screening as compared to men.

Chlamydia Cases by Gender
Massachusetts, 2001-2010



Chlamydia Incidence by Age
Massachusetts, 2001-2010

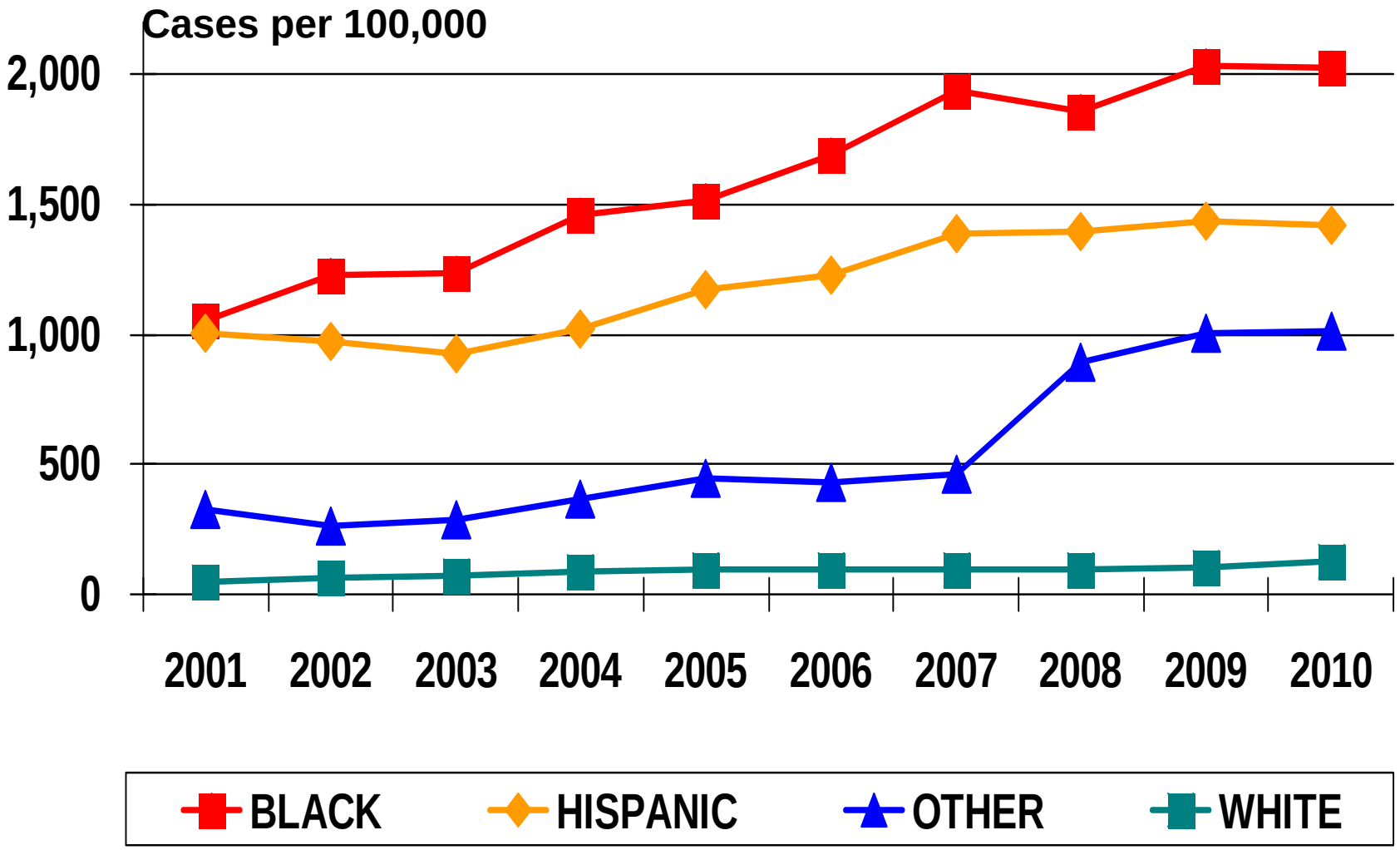


In 2010, the incidence of reported chlamydia infection in Massachusetts among adolescents (ages 15-19) and young adults (ages 20-24) exceeded 1,300 and 1,700 per 100,000, respectively. The overall Massachusetts chlamydia infection rate is 324 per 100,000.

Historically, communities of color have been disproportionately affected by STDs. In 2010, compared to whites, the incidence rate of reported chlamydia infection in Massachusetts were 18 times higher in blacks and 13 times higher in Hispanics. Disparities in the rate of chlamydia infection in Massachusetts have grown in recent years.

In 2008, changes in electronic reporting of laboratory results indicating STD cases to MDPH resulted in an increased proportion of STD cases being categorized as "other" race. Thus, as of 2008, increases in the rate of STD infections in the "other" category may be related to electronic laboratory reporting.

Chlamydia Incidence by Race/Ethnicity Massachusetts, 2001-2010



Infertility Prevention Project

Since 1997, the Division of STD Prevention has participated in a Centers for Disease Control and Prevention (CDC)-funded Infertility Prevention Project. The goal of this project is to reduce infertility and other health consequences of chlamydia infection through increased screening and treatment of women who are at higher risk for infection.

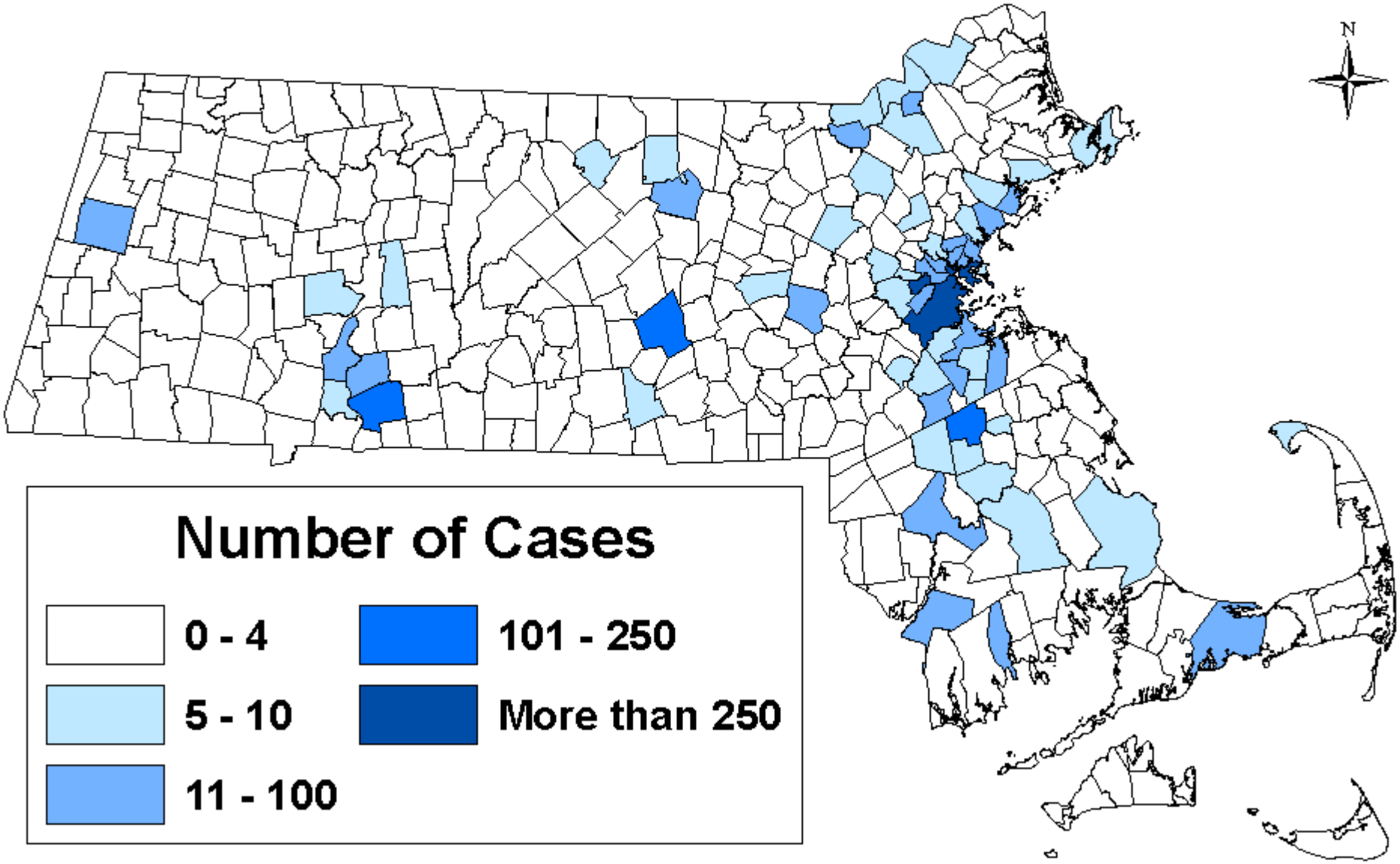
In 2010, as part of the Infertility Prevention Project, 14,575 specimens were tested for chlamydia infection. Test results from participating sites have yielded the following:

	PERCENT POSITIVE FOR *CHLAMYDIA TRACHOMATIS*	
Site Type (number tested)	**Females**	**Males**
School Based Health Centers (n = 1184)	9%	6%
Correctional Facilities (n = 3280)	2%	7%
Family Planning Clinics (n = 6827)	4%	15%
STD Clinics (n = 3284)	4%	5%

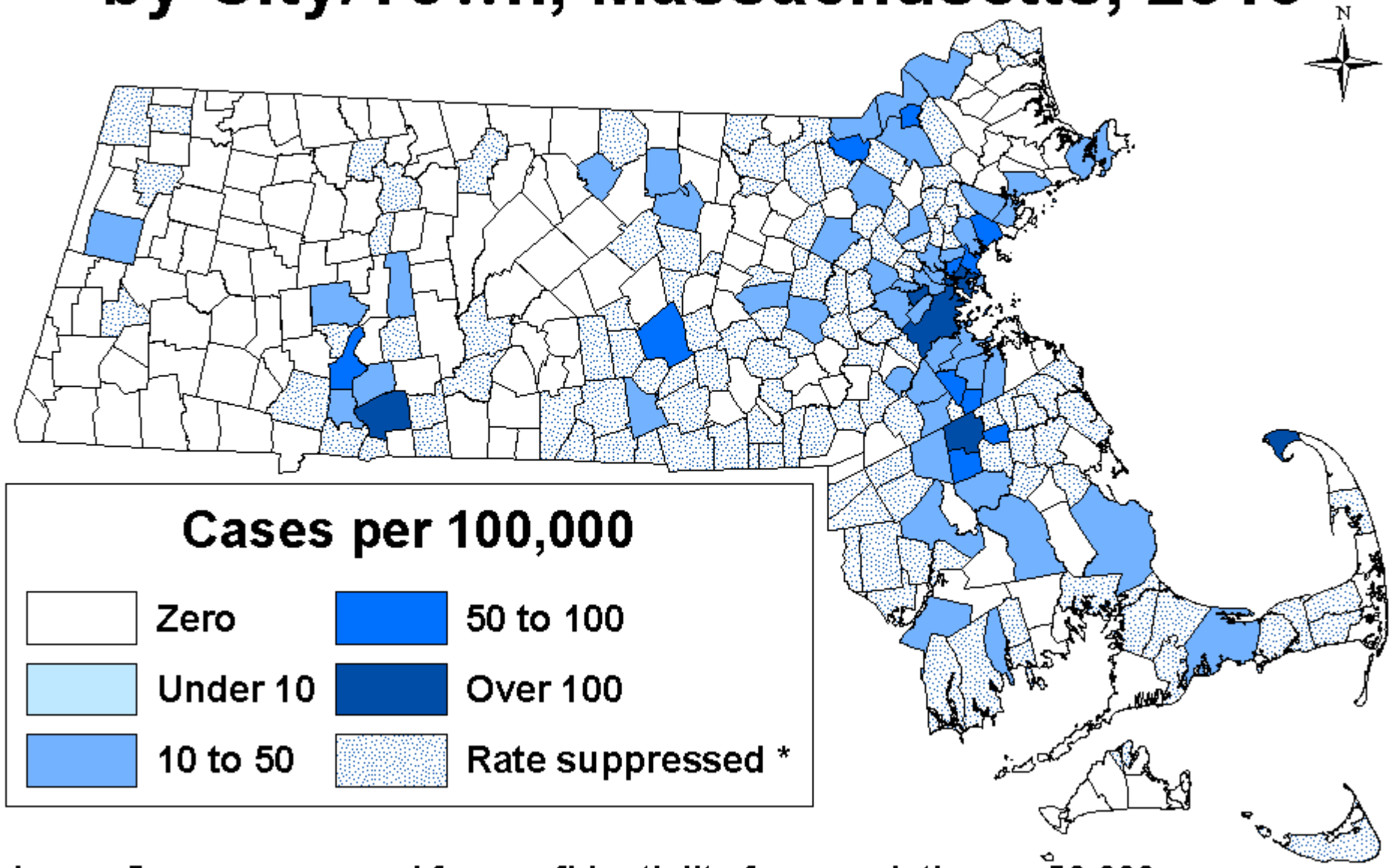
The number of reported cases of gonorrhea in Massachusetts in 2010 was 2,497, a 30% increase over the previous year. Although gonorrhea is widely distributed in Massachusetts, cases are more prevalent in urban locations.

Gonorrhea case and incidence data by city and town are available online at www.mass.gov/dph/cdc/std.

Reported Gonorrhea Cases by City/Town, Massachusetts, 2010



Reported Gonorrhea Incidence Rates by City/Town, Massachusetts, 2010

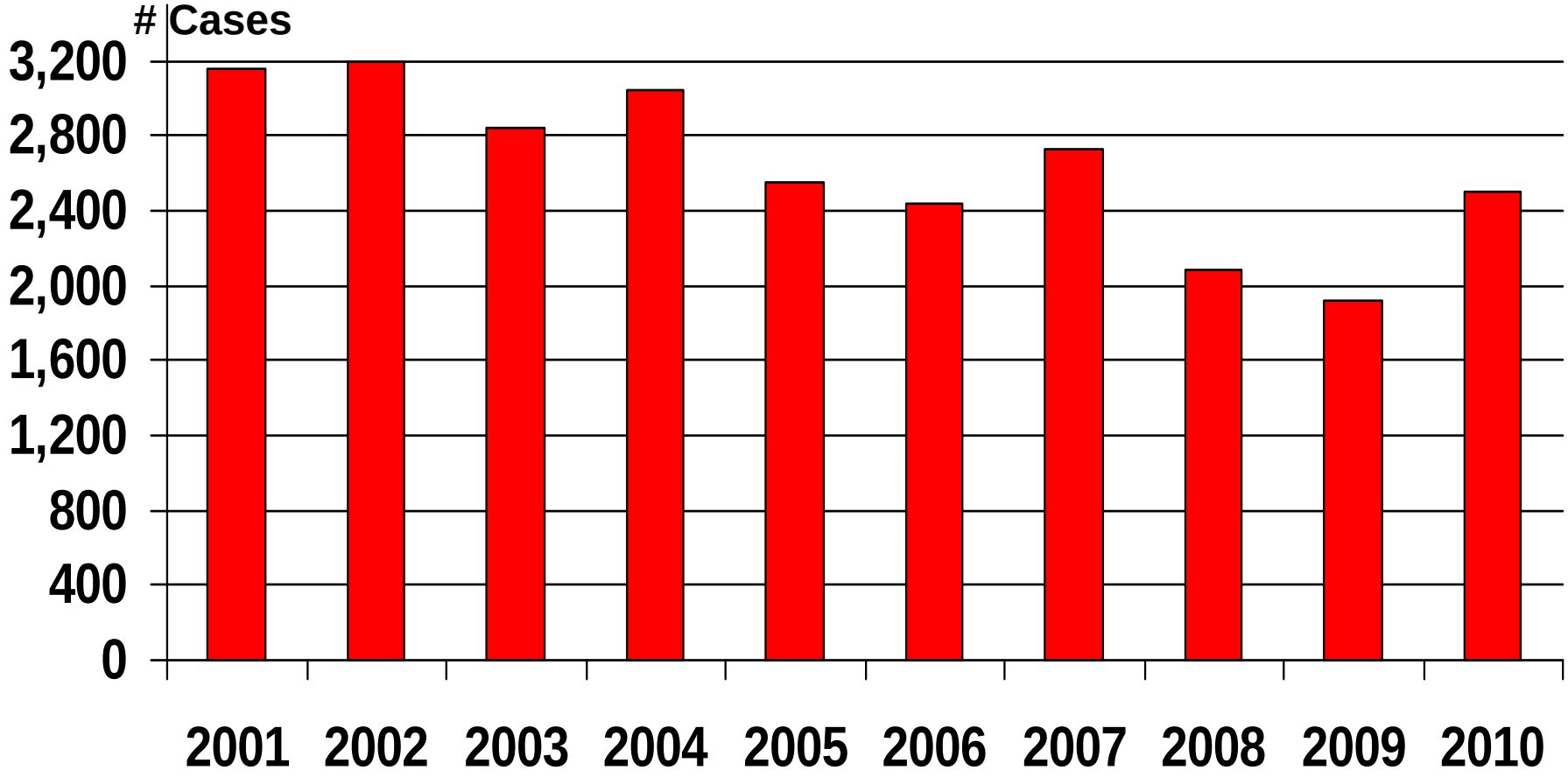


Values < 5 are suppressed for confidentiality for populations < 50,000

- The highest incidence rates of reported gonorrhea are clustered in the large urban areas around Boston and Springfield.
- The highest concentration of cases is in the eastern part of the state.

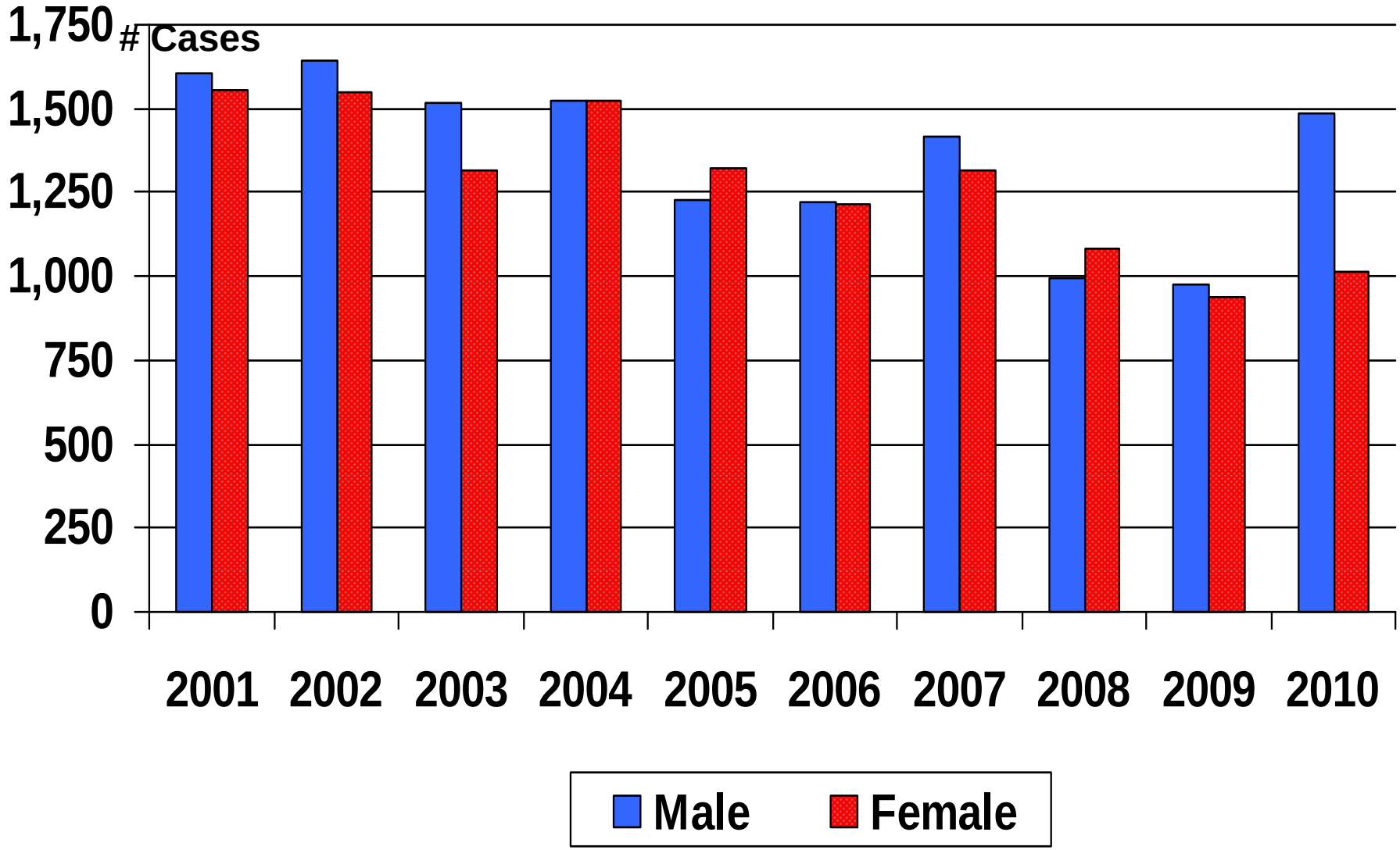
Massachusetts experienced an slight decrease in reported gonorrhea cases from 2003–2006. After a 13% increase from 2006 to 2007, there was a 30% decrease in gonorrhea cases from 2007 to 2009 and a 31% increase from 2009 to 2010.

Gonorrhea Cases
Massachusetts, 2001-2010

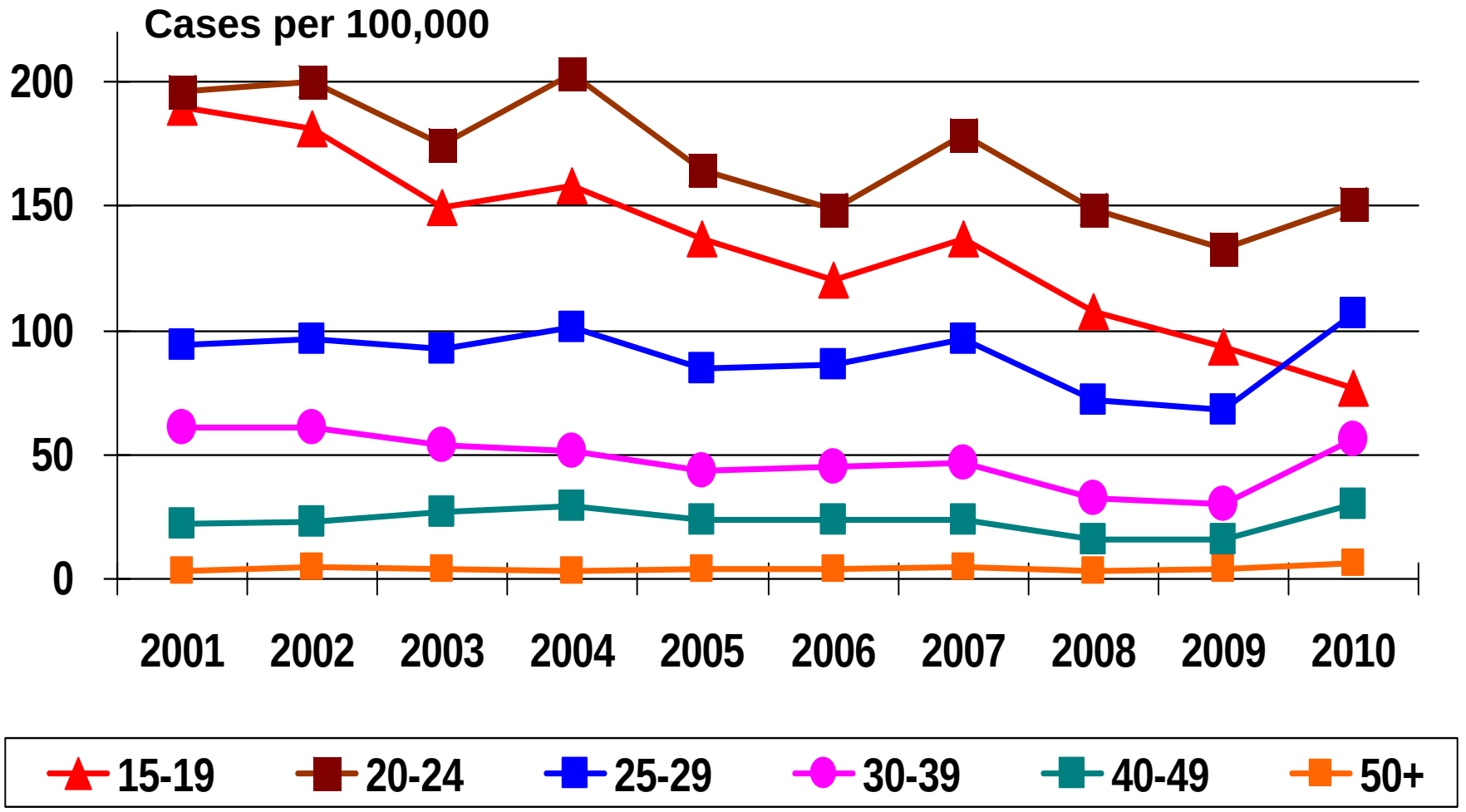


During 2001-2009 the number of gonorrhea cases reported in Massachusetts among males and females has overall remained the same. In 2010, more cases were reported in men rather than women.

Gonorrhea Cases by Gender
Massachusetts, 2001-2010



Gonorrhea Incidence by Age
Massachusetts, 2001-2010

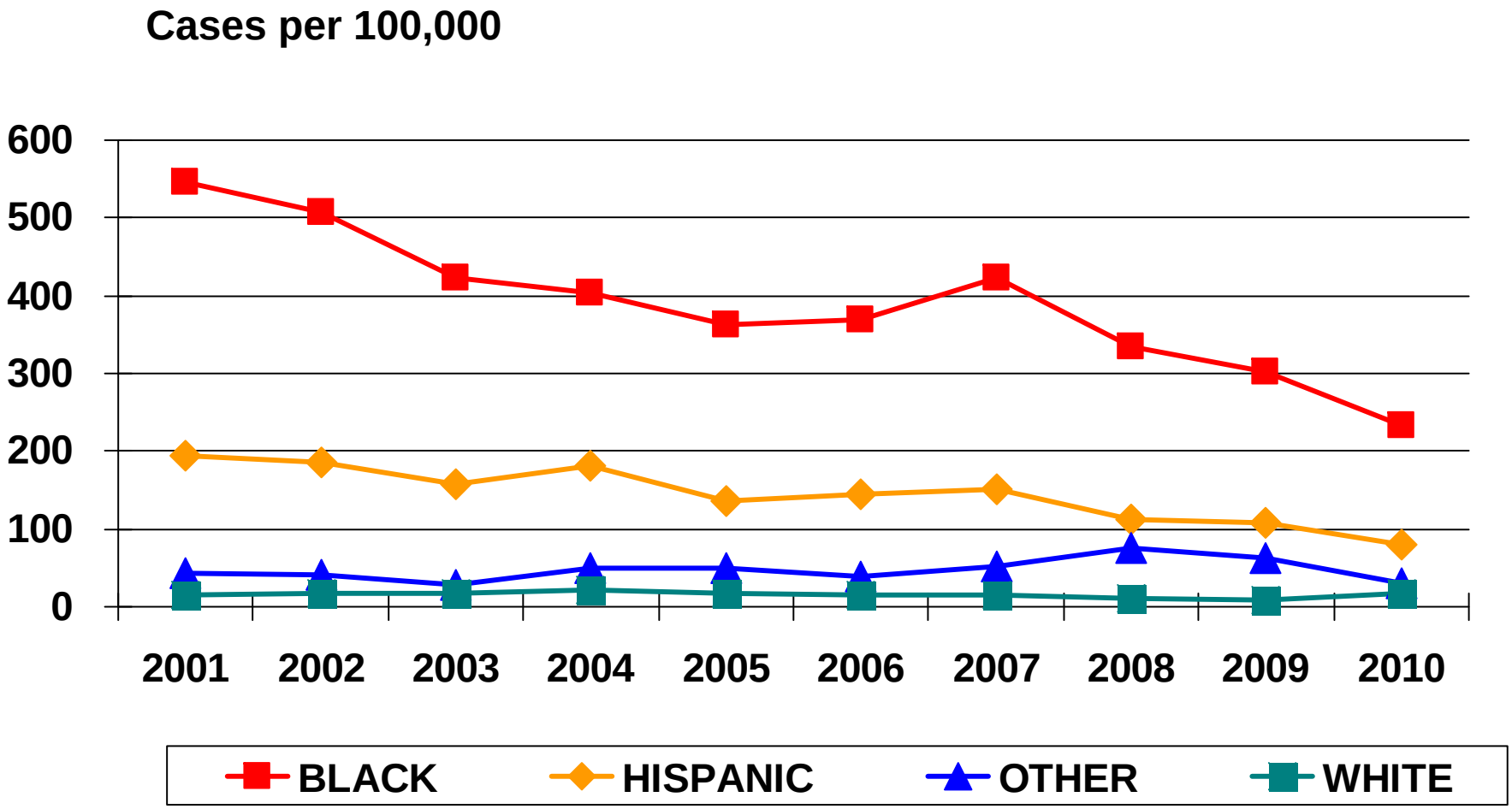


The incidence of gonorrhea in Massachusetts is highest among young adults (ages 20-24 years), followed by adolescents (ages 15-19 years). Compared to the state-wide incidence rate of gonorrhea (38.1 per 100,000), the incidence rate was 2.0 times higher for adolescents and 3.3 times higher for young adults.

In 2010, in Massachusetts, the reported gonorrhea incidence rate was 16 times higher in blacks and 7 times higher in Hispanics compared to whites.

In 2008, changes in electronic reporting of laboratory results indicating STD cases to MDPH resulted in an increased proportion of STD cases being categorized as “other” race. Thus, as of 2008, increases in the rate of STD infections in the “other” category may be related to electronic reporting.

Gonorrhea Incidence by Race/Ethnicity Massachusetts, 2001-2010

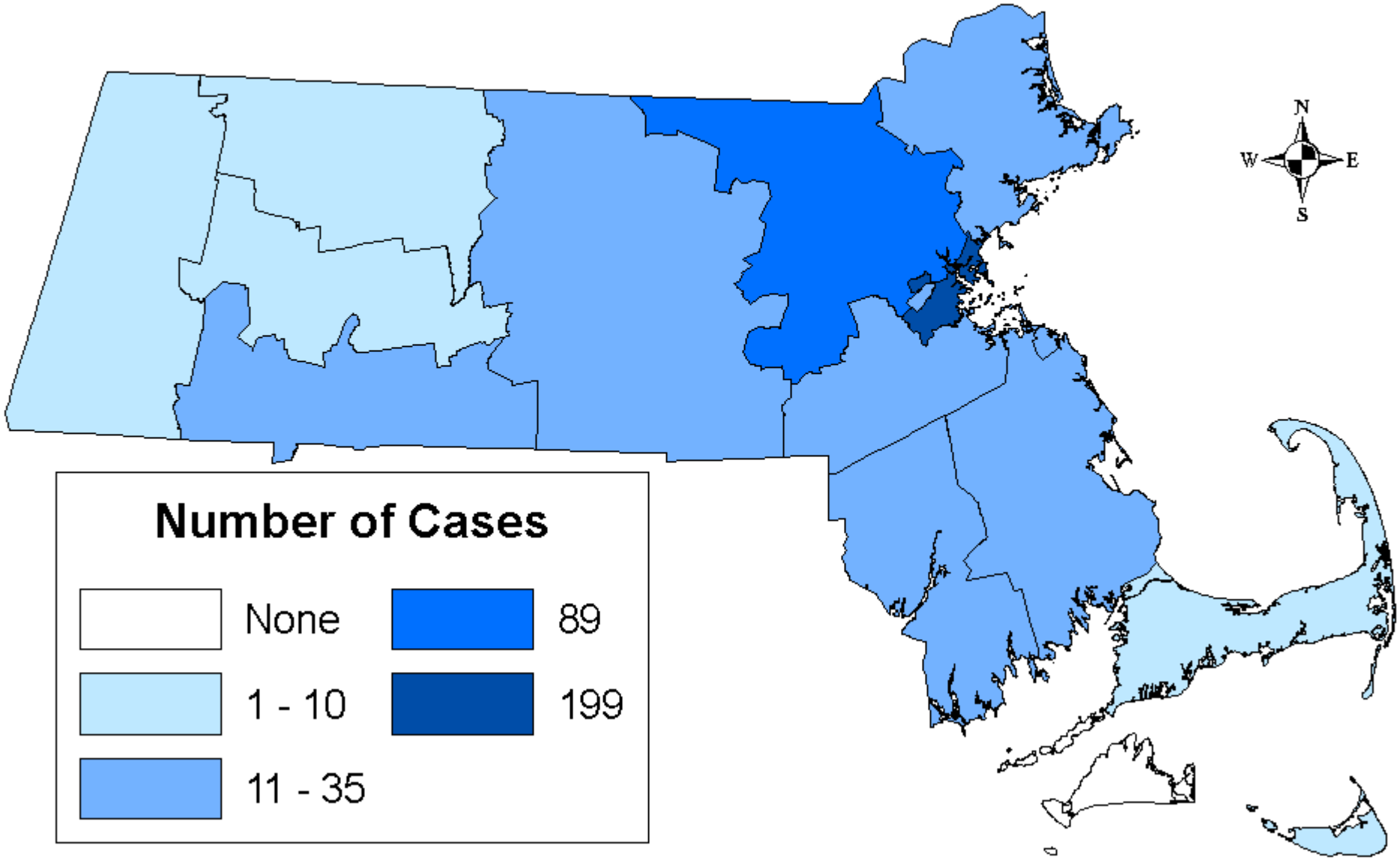


- Place Holder

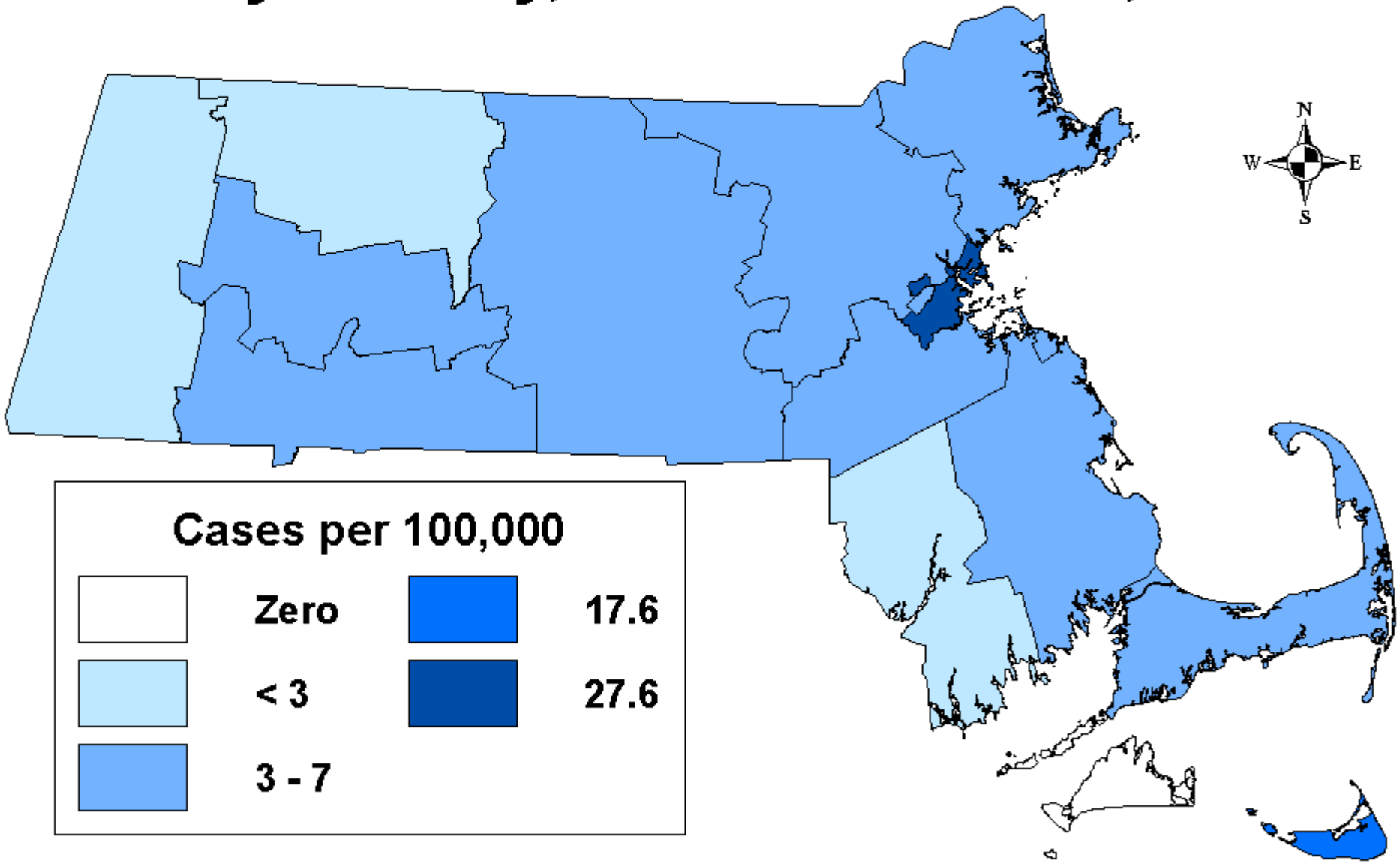
In 2010, there were 464 reported infectious syphilis cases (primary, secondary, and early latent) in Massachusetts; a 23% increase from 2009. Although infectious syphilis cases have been reported in almost all counties, 43% of cases (199) were reported in Suffolk County.

Infectious syphilis case and incidence data by city and town are available online at www.mass.gov/dph/cdc/std.

Reported Infectious Syphilis Cases by County, Massachusetts, 2010



Reported Infectious Syphilis Incidence Rate by County, Massachusetts, 2010

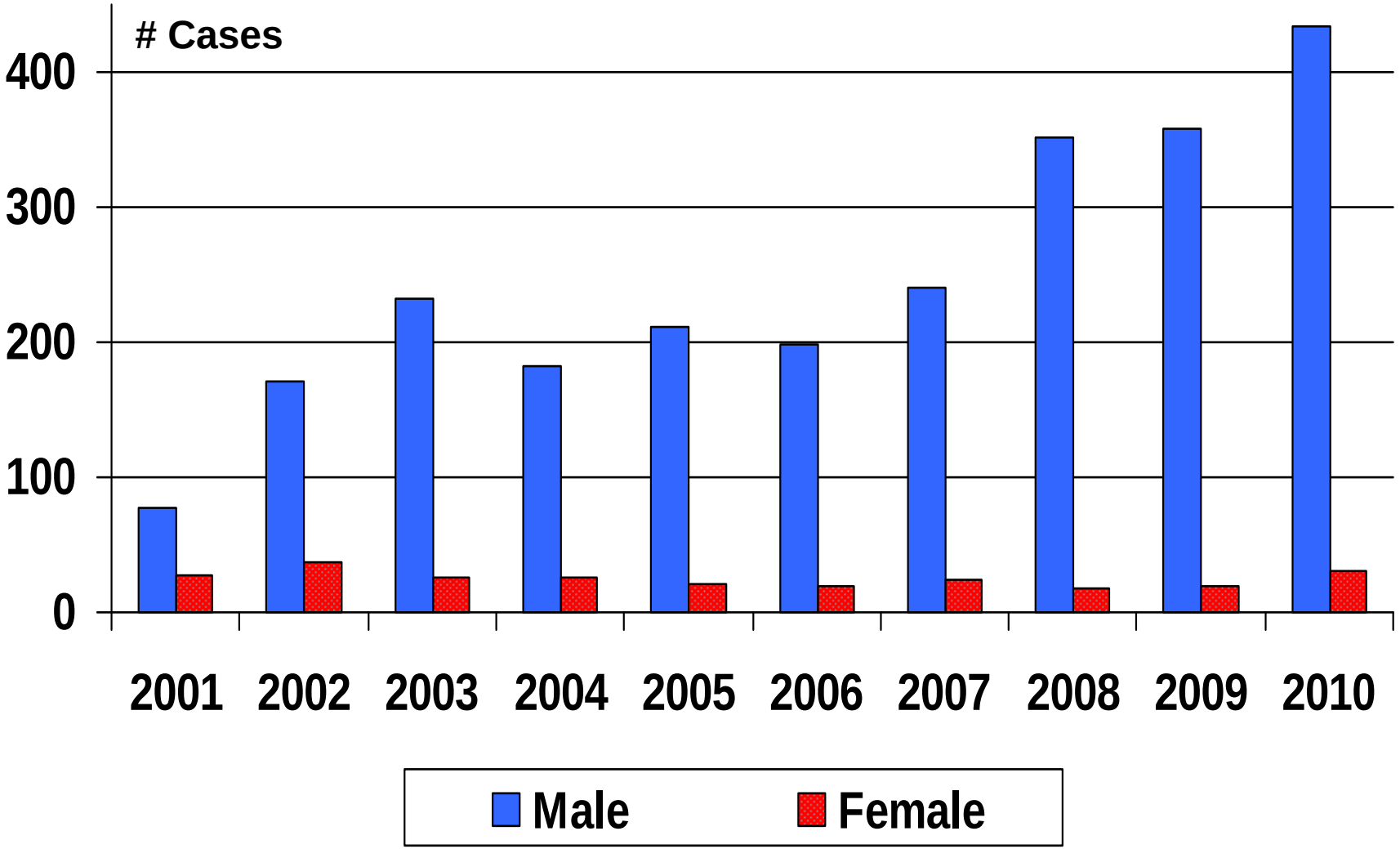


In 2010, three counties have a syphilis incidence rate of less than three cases per 100,000 population. Eight counties have a rate between three and seven cases per 100,000 population. Dukes County had no reported cases.

Suffolk county has the highest syphilis rate at 27.6 cases per 100,000 population.

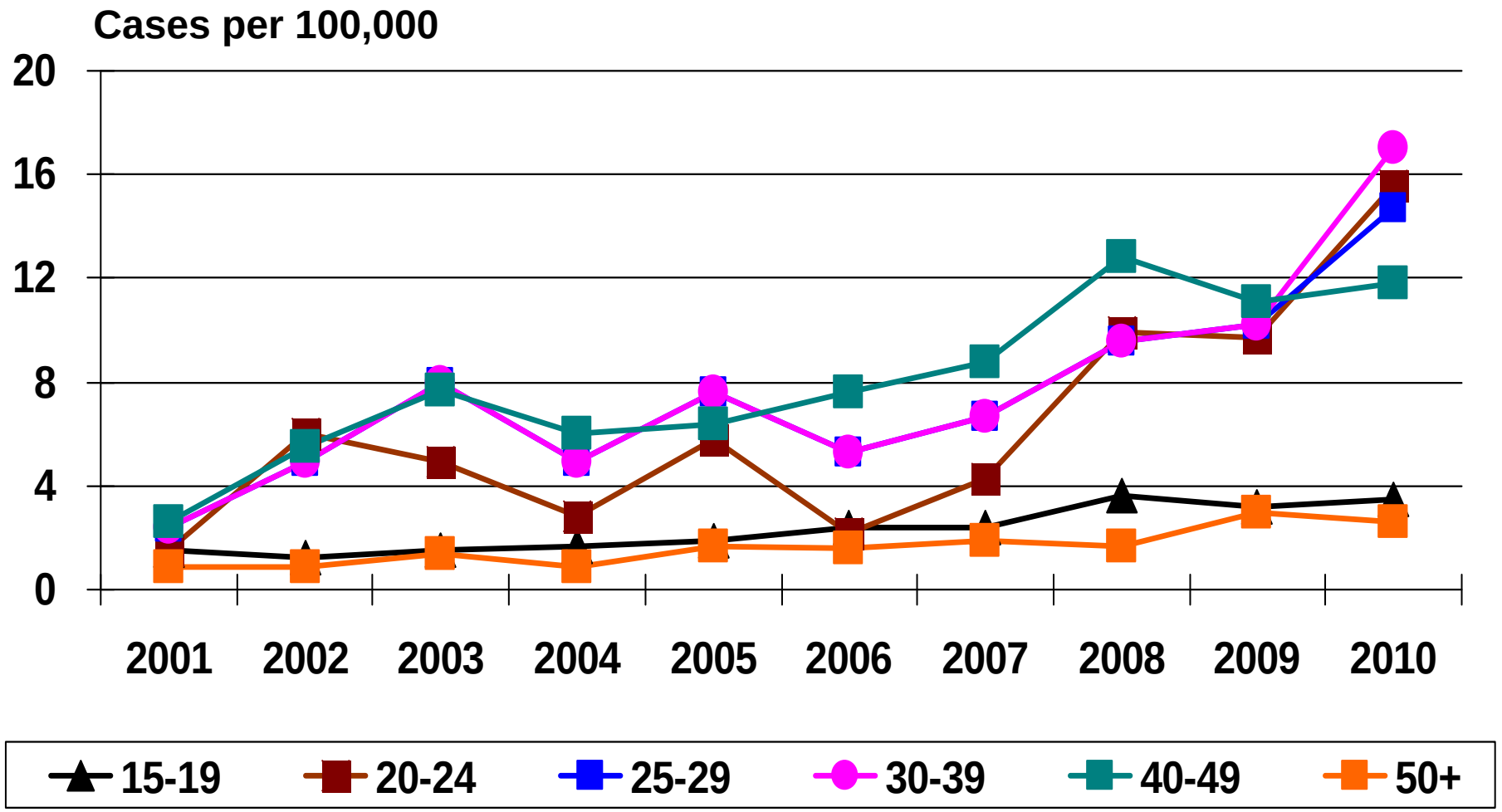
In Massachusetts, the male-to-female ratio of infectious syphilis cases changed from 2.9 to 1 in 2001, to 14.5 to 1 in 2010. This shift reflects an increase in the number of infectious syphilis cases diagnosed in men who have sex with men. This trend has also been observed in other regions of the United States.

Infectious Syphilis Cases by Gender Massachusetts, 2001-2010

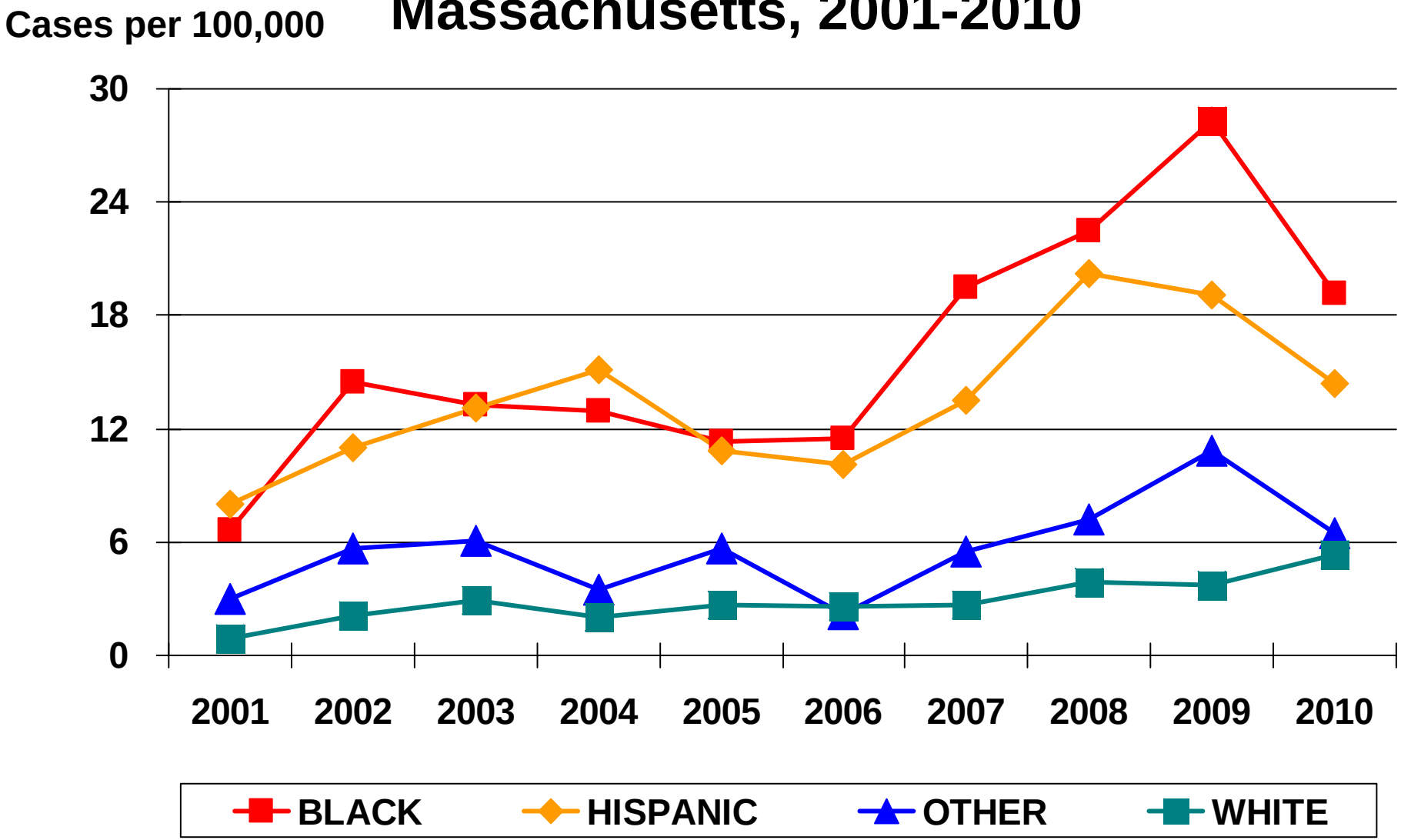


In contrast to chlamydia infection and gonorrhea, which tend to occur more frequently among adolescents and young adults, infectious syphilis is more commonly reported in people over age 25 years.

Reported Infectious Syphilis Incidence by Age Massachusetts, 2001-2010



Reported Infectious Syphilis Incidence by Race/Ethnicity Massachusetts, 2001-2010



In 2010, in Massachusetts, the reported infectious syphilis incidence rate was 3.6 times higher in blacks and 2.7 times higher in Hispanics compared to whites.

Syphilis in Men Who Have Sex With Men (MSM)

In Massachusetts, MSM represent a higher-risk group for infectious syphilis. Of the 464 infectious syphilis cases in 2010, 382 (82.2%) were reported in MSM. Thirty-nine percent (149/382) of the MSM with infectious syphilis disclosed that they were co-infected with HIV. Forty-six percent (177/382) of the infectious syphilis cases in MSM were reported in Suffolk county.

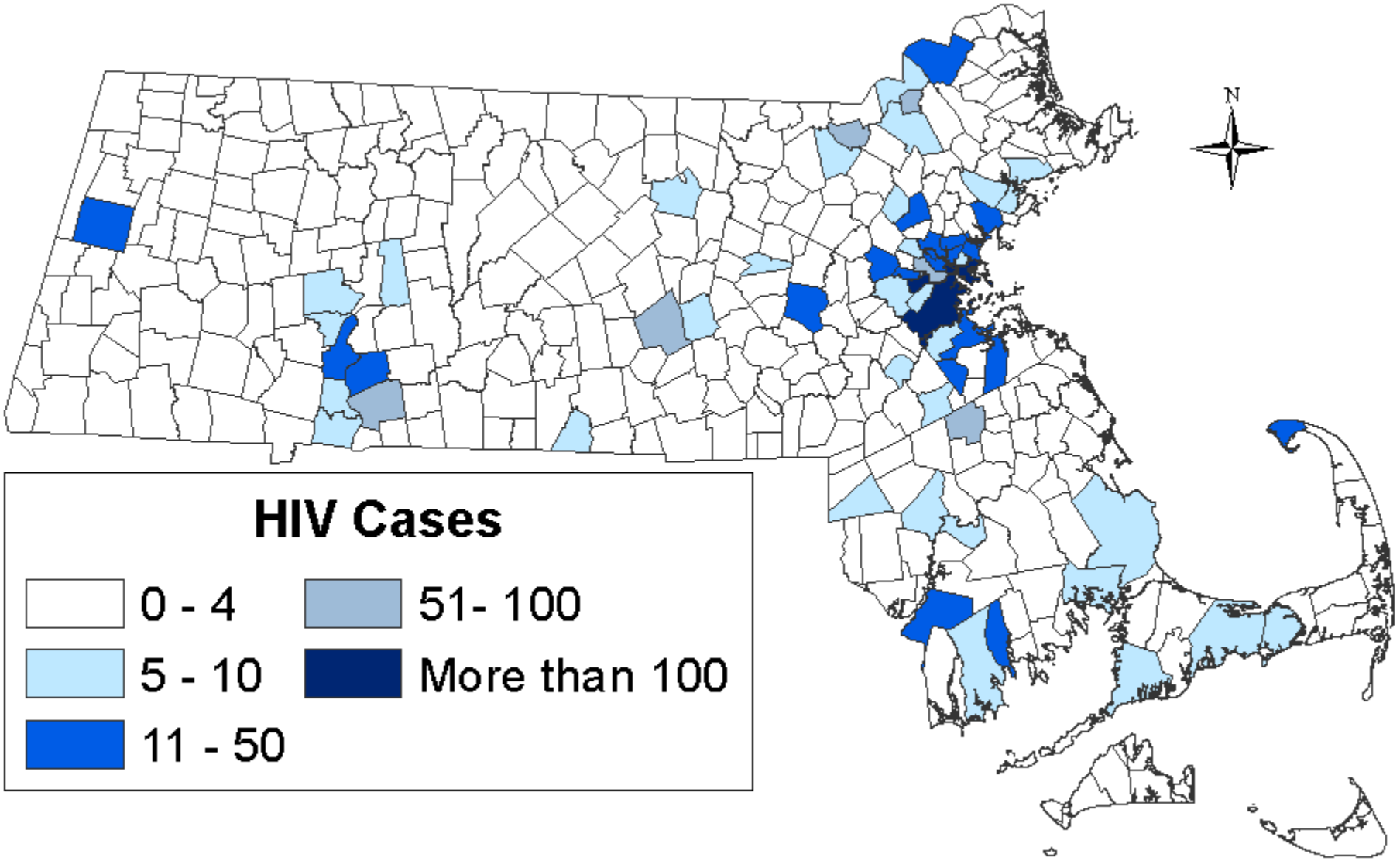
Transmission of syphilis can occur between men through unprotected oral and anal sex. Additional information and resources regarding MSM and STDs is available online at www.mastdinfo.org

- Place Holder

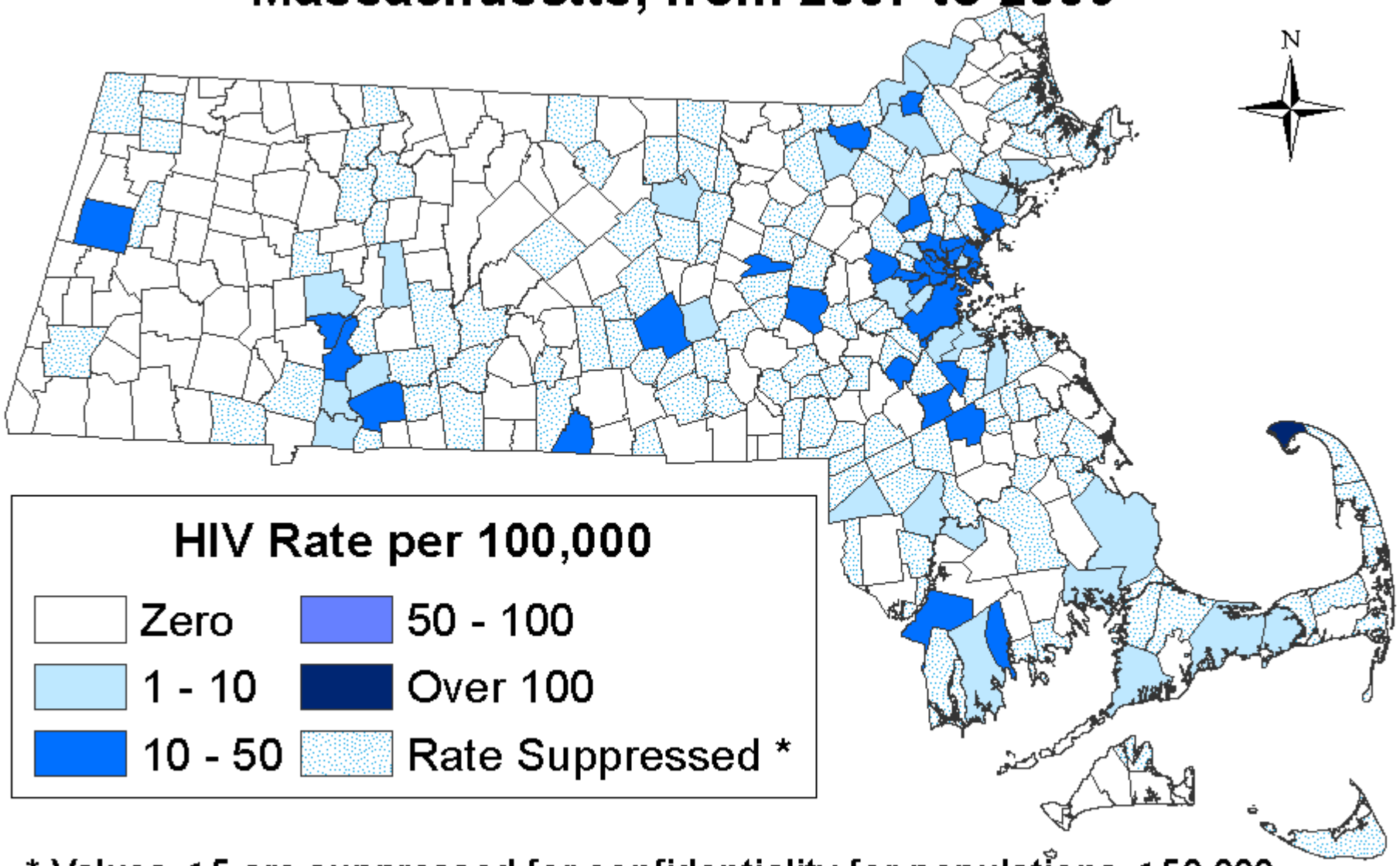
Of the 351 cities and towns in Massachusetts, 194 (54.1%) had at least one newly diagnosed HIV infection reported from 2007-2009. The majority of newly identified HIV infections were reported in large urban areas.

HIV infection case and incidence data by city and town are available online at www.mass.gov/dph/cdc/aids. Additional information is available through the MDPH HIV/AIDS Epidemiologic Profile at the same weblink.

Newly Diagnosed HIV Cases by City/Town, Massachusetts, from 2007 to 2009



Average HIV Incidence Rate by City/Town, Massachusetts, from 2007 to 2009



* Values < 5 are suppressed for confidentiality for populations < 50,000

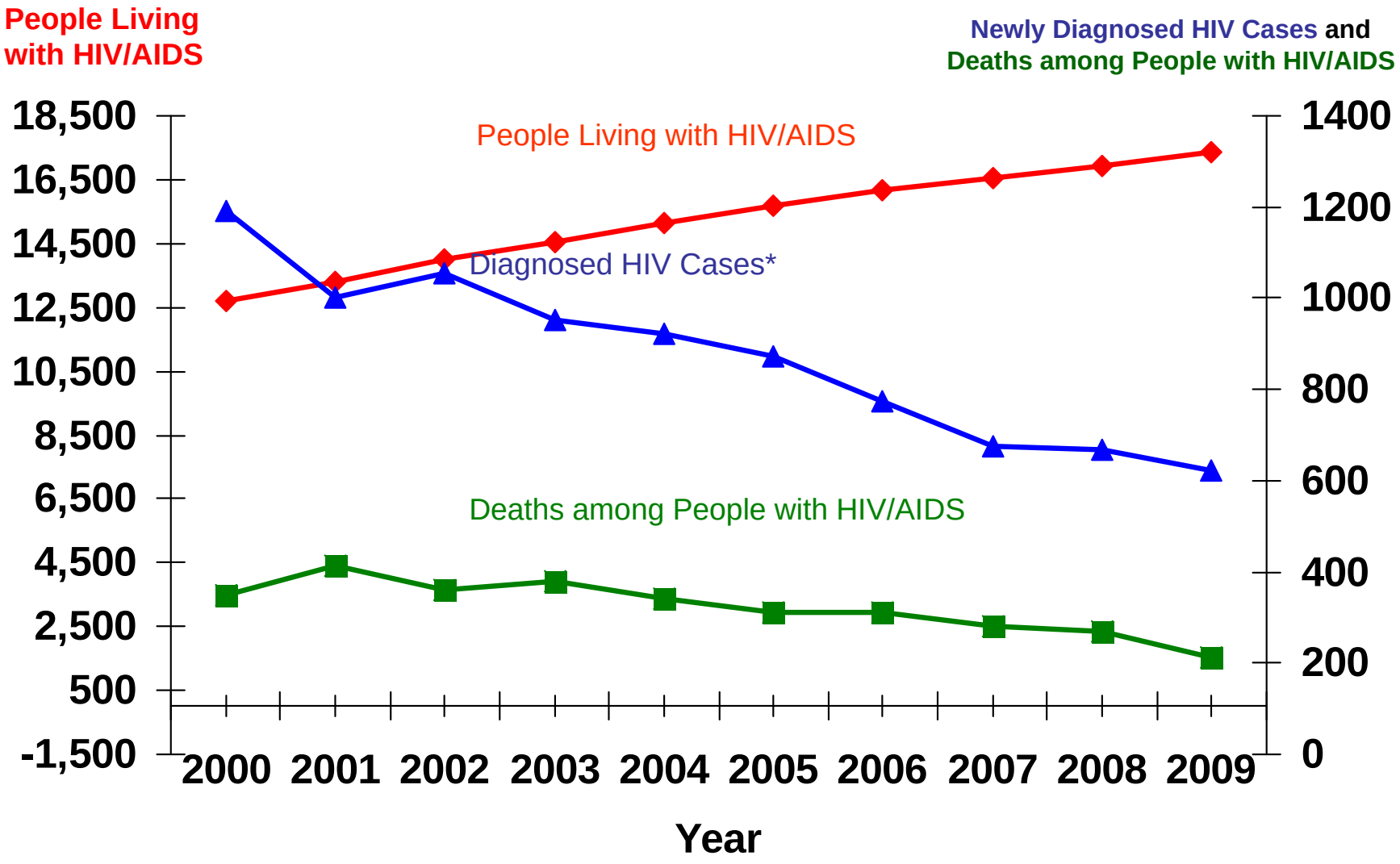
Of those cities and towns where HIV infections were diagnosed between 2007-2009, the majority had rates of under 10 per 100,000 population.

Provincetown had the highest rate of HIV infection diagnosis at greater than 385 per 100,000 population.

In 2009, there were 622 reported newly diagnosed HIV infections and 214 deaths among people with HIV/AIDS in Massachusetts.

Newly diagnosed HIV infections and deaths among people with HIV/AIDS continue to decline each year, but because newly diagnosed infections continue to exceed the number of deaths annually, the number of people known to be living with HIV/AIDS in Massachusetts increased from 12,696 on December 31, 2000 to 17,358 on December 31, 2009.

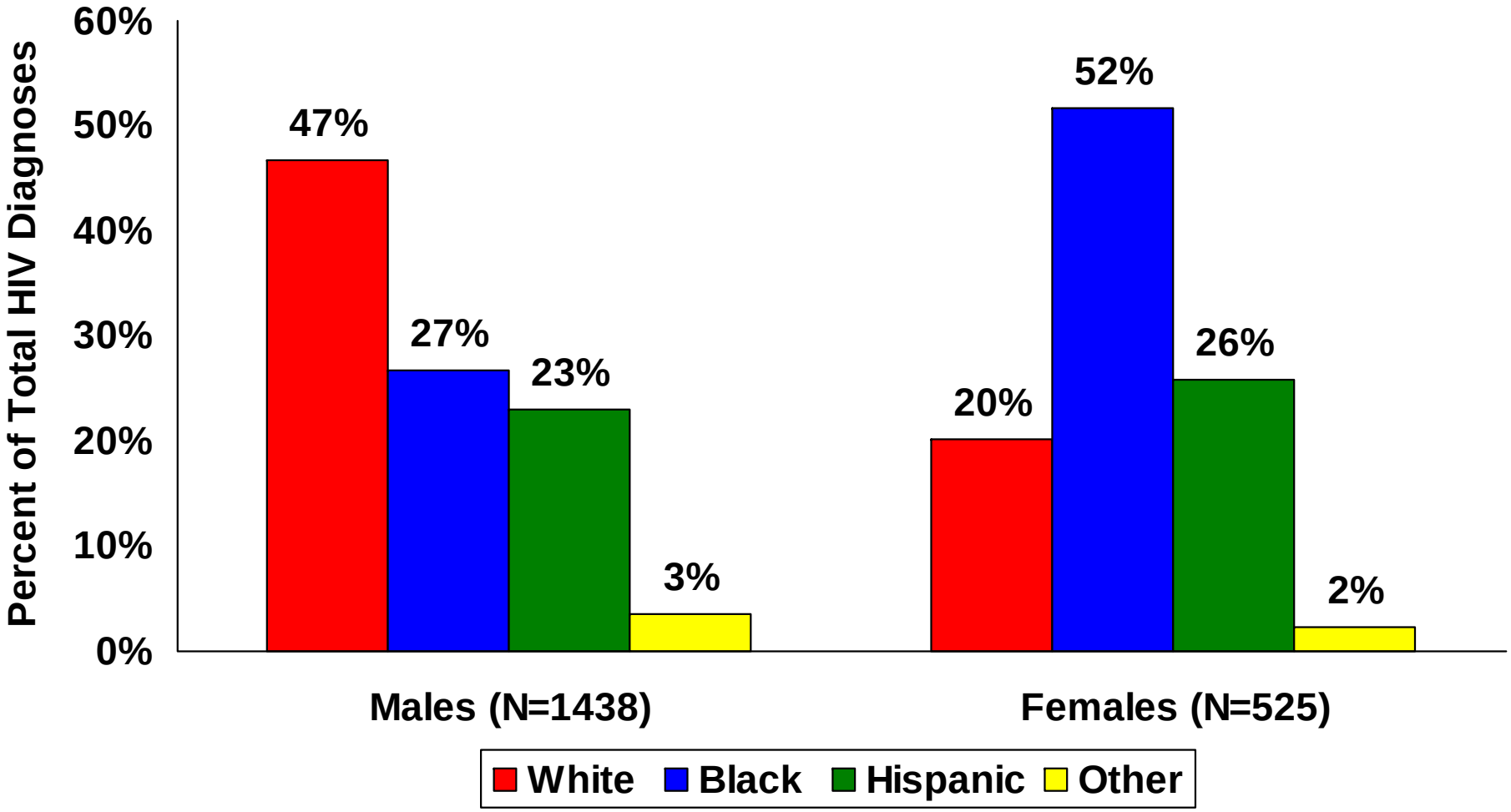
People Living with HIV/AIDS, Diagnosed HIV Infection Cases, and Deaths among People with HIV/AIDS Massachusetts, 2000-2009



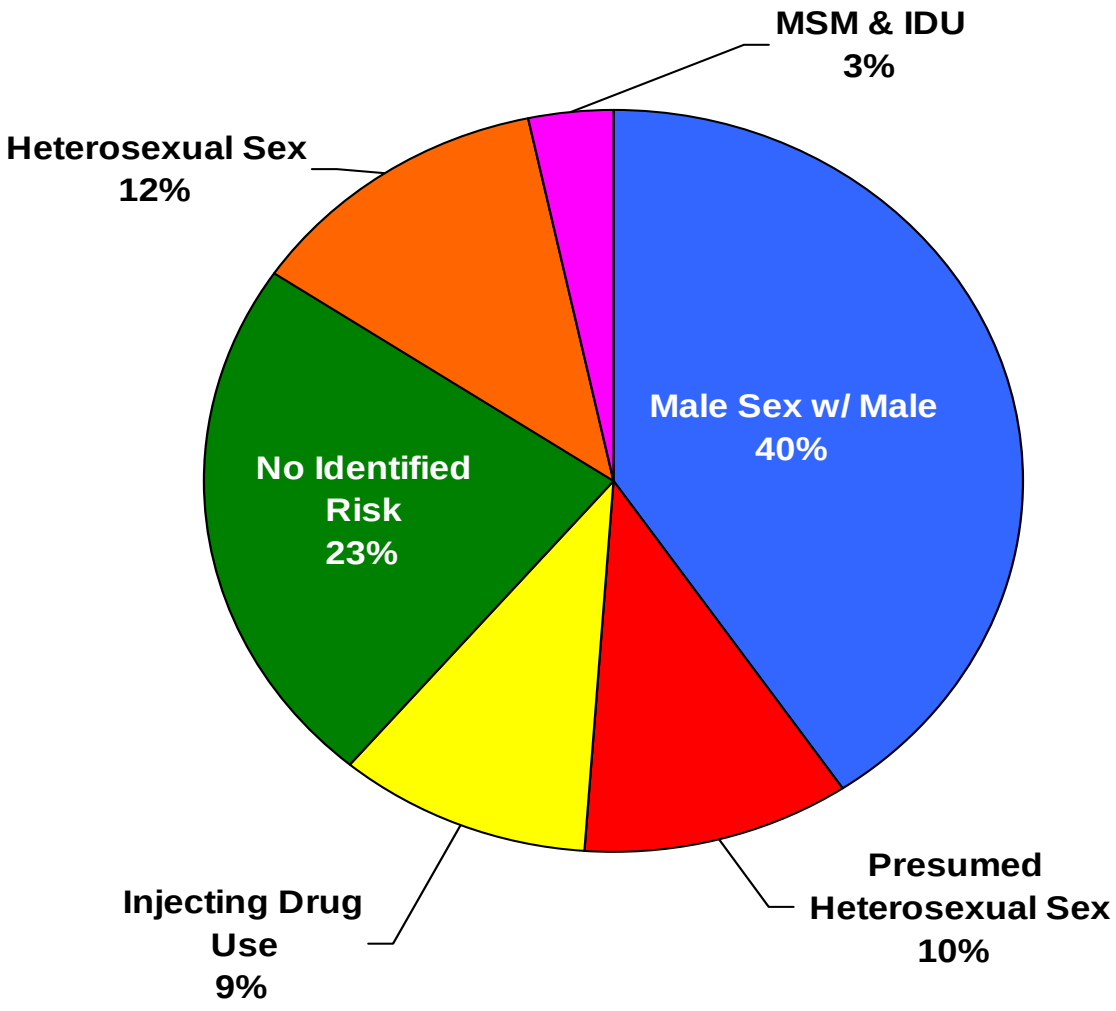
*Includes people concurrently or subsequently diagnosed with AIDS

From 2007-2009, of the 1,963 newly diagnosed HIV infections in Massachusetts, 1,438 (73%) were in men and 525 (27%) were in women. Most of the newly diagnosed HIV infections in men were in white men, whereas the majority of newly diagnosed HIV infections in women were in black women.

Percent Distribution of Newly Diagnosed HIV Infection by Gender and Race/Ethnicity Massachusetts, 2007-2009



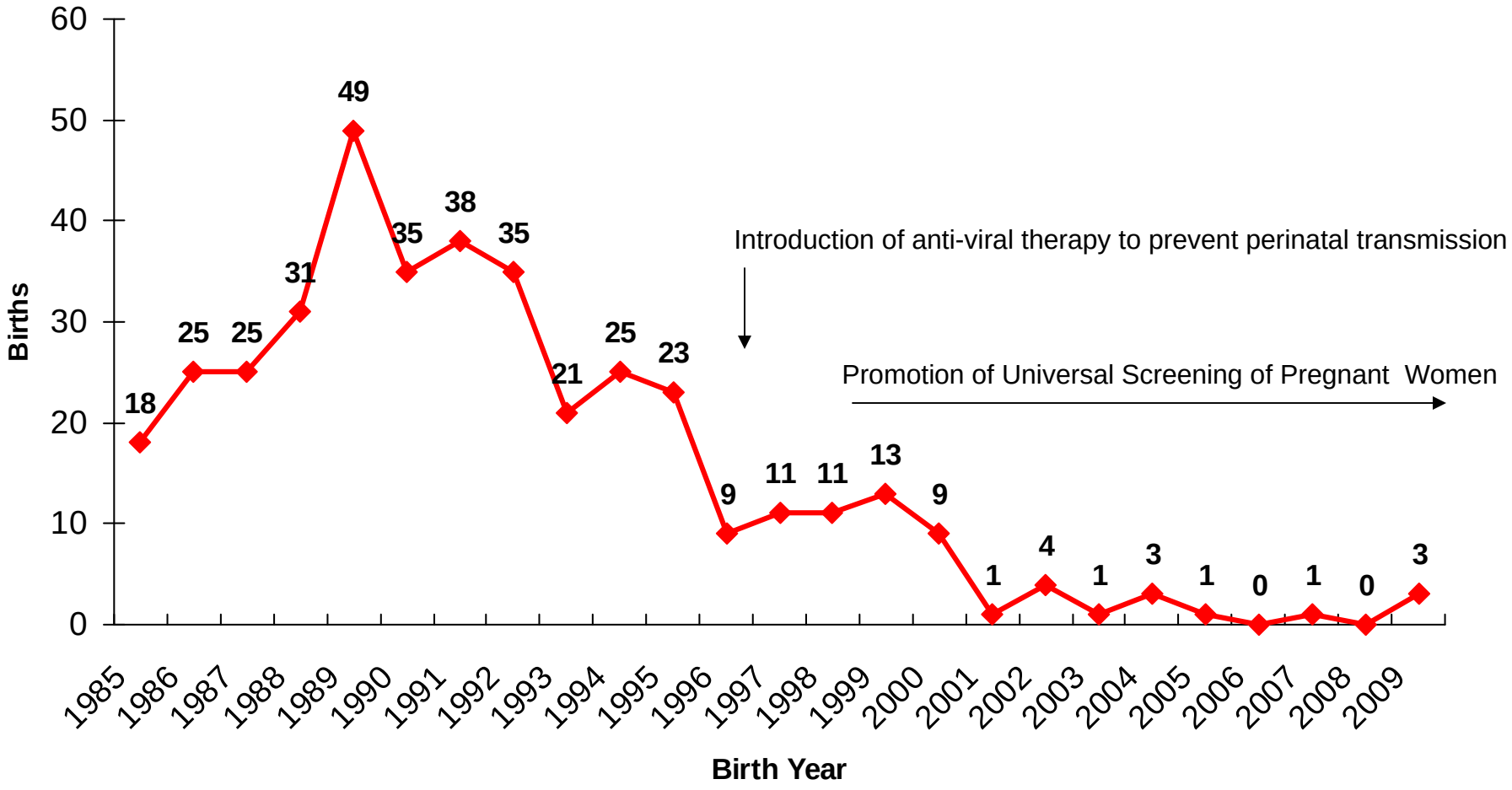
Newly Diagnosed HIV Infection by Exposure Mode
Massachusetts, 2007-2009
N = 1,963



From 2007-2009, the primary exposure modes reported among newly diagnosed cases of HIV infection in Massachusetts were male with male sex (40%), presumed heterosexual sex (10%), injection drug use (10%) and heterosexual sex (12%).

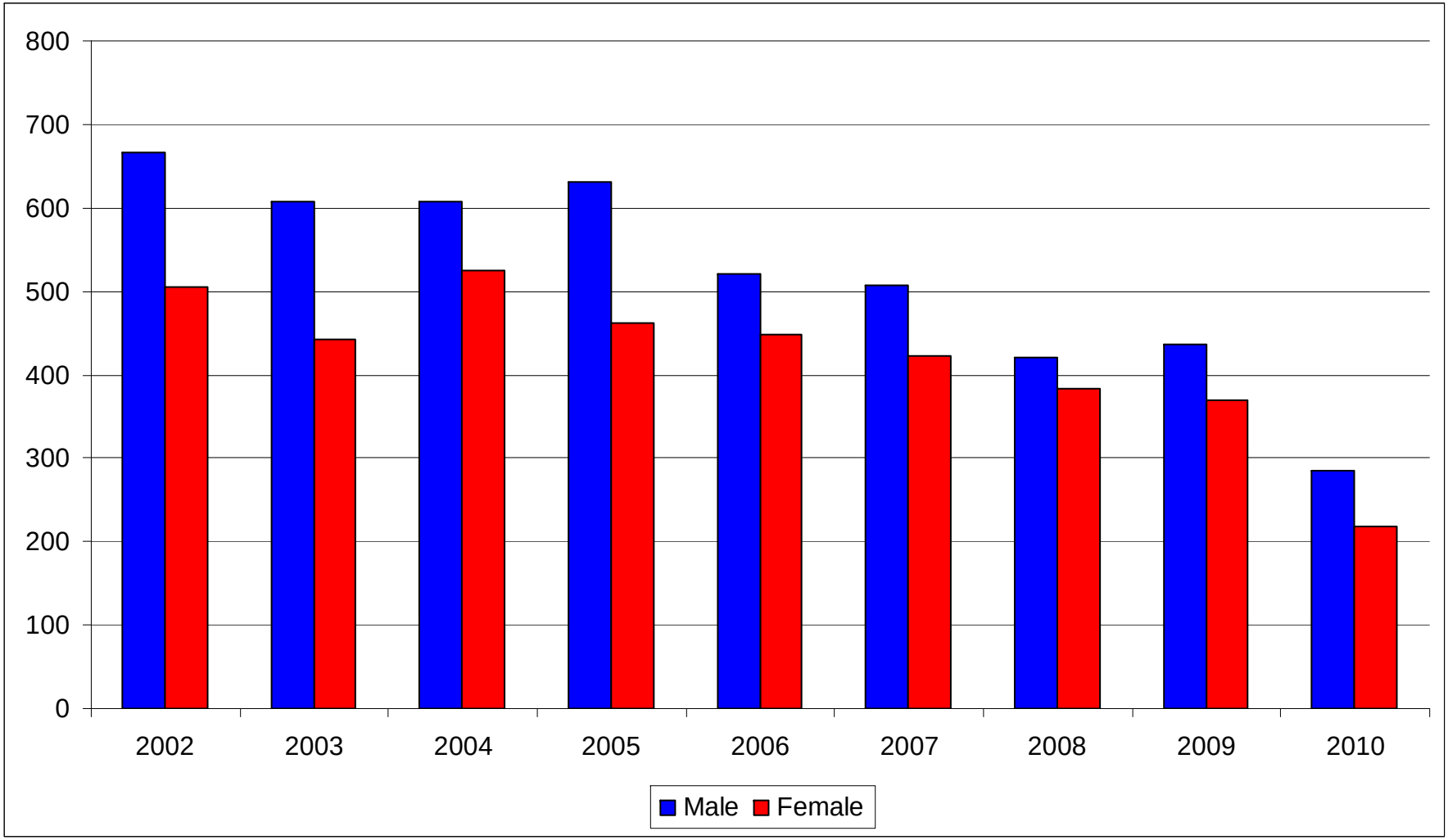
Since the mid-1990's, Massachusetts experienced a dramatic reduction in mother-to-child transmission of HIV infection, with no HIV-infected newborns identified in 2006 and one in 2007, none again in 2008 and three cases in 2009. The decline is attributed to improvements in HIV screening during pregnancy and the treatment of HIV-infected women with anti-retroviral therapy. However, every case of mother-to-child transmission remains a sentinel event mandating investigation to identify if new systems can be put in place to assure maximum efforts to prevent vertical transmission.

Identified Mother-to-Child Transmission of HIV Infection By Year of Birth, Massachusetts, 1985-2009



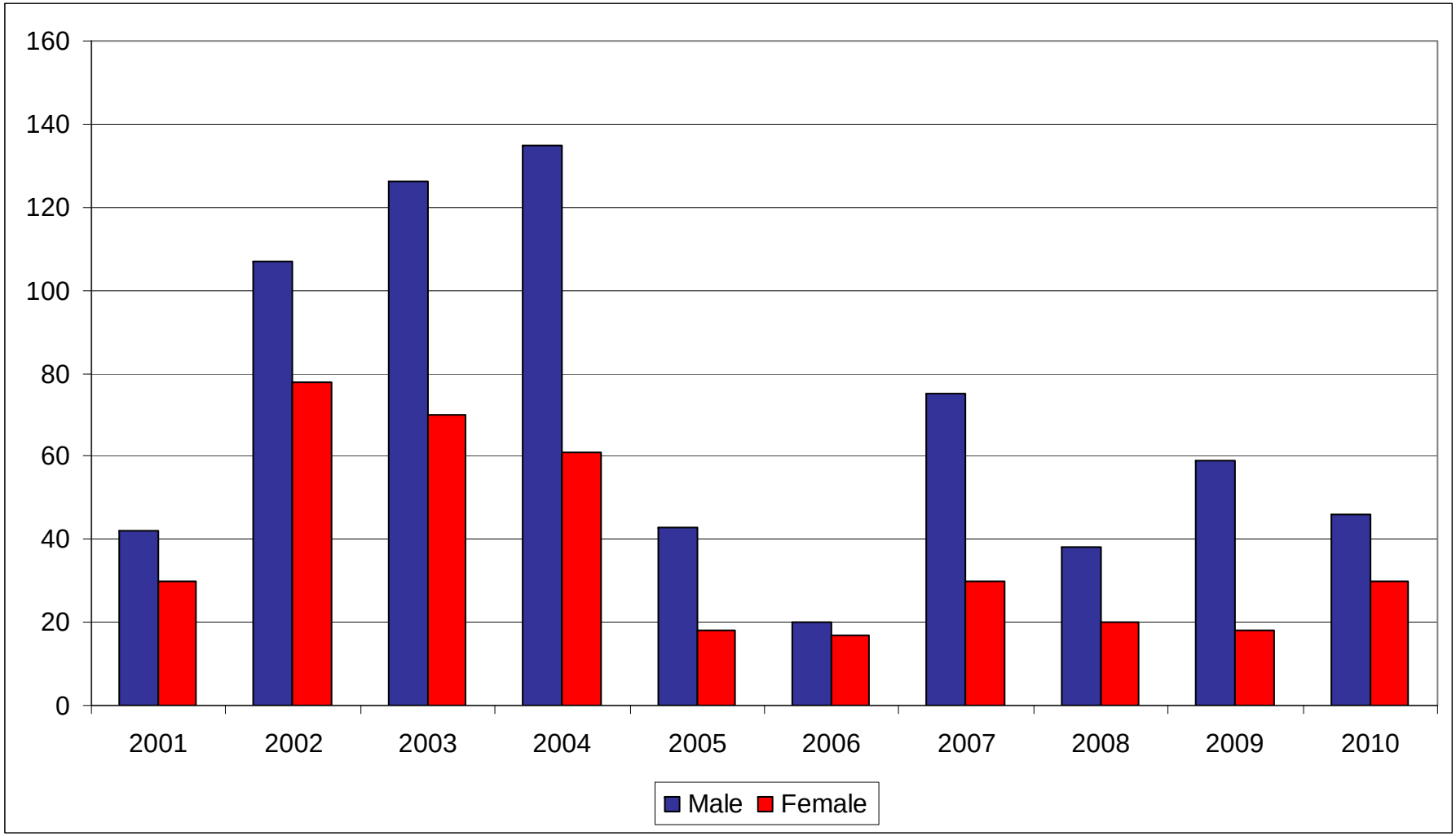
The number of confirmed cases of chronic hepatitis B reported to Massachusetts has been declining since 2005. In 2010, 503 cases were reported. This number is likely to increase due to continued processing of case reports and case confirmation. Even so, there is an overall downward trend to both confirmed and probable cases of hepatitis B infection (data not shown), due in large part to increasing levels of immunity against hepatitis B in adults at risk of infection and almost universal immunization of children against hepatitis B.

Confirmed Chronic Hepatitis B Cases by Gender and Year Massachusetts, 2001-2010



N=8,460 excludes 25 missing gender and 1 transgender

Confirmed Acute Hepatitis B Cases by Gender and Year Massachusetts, 2001-2010

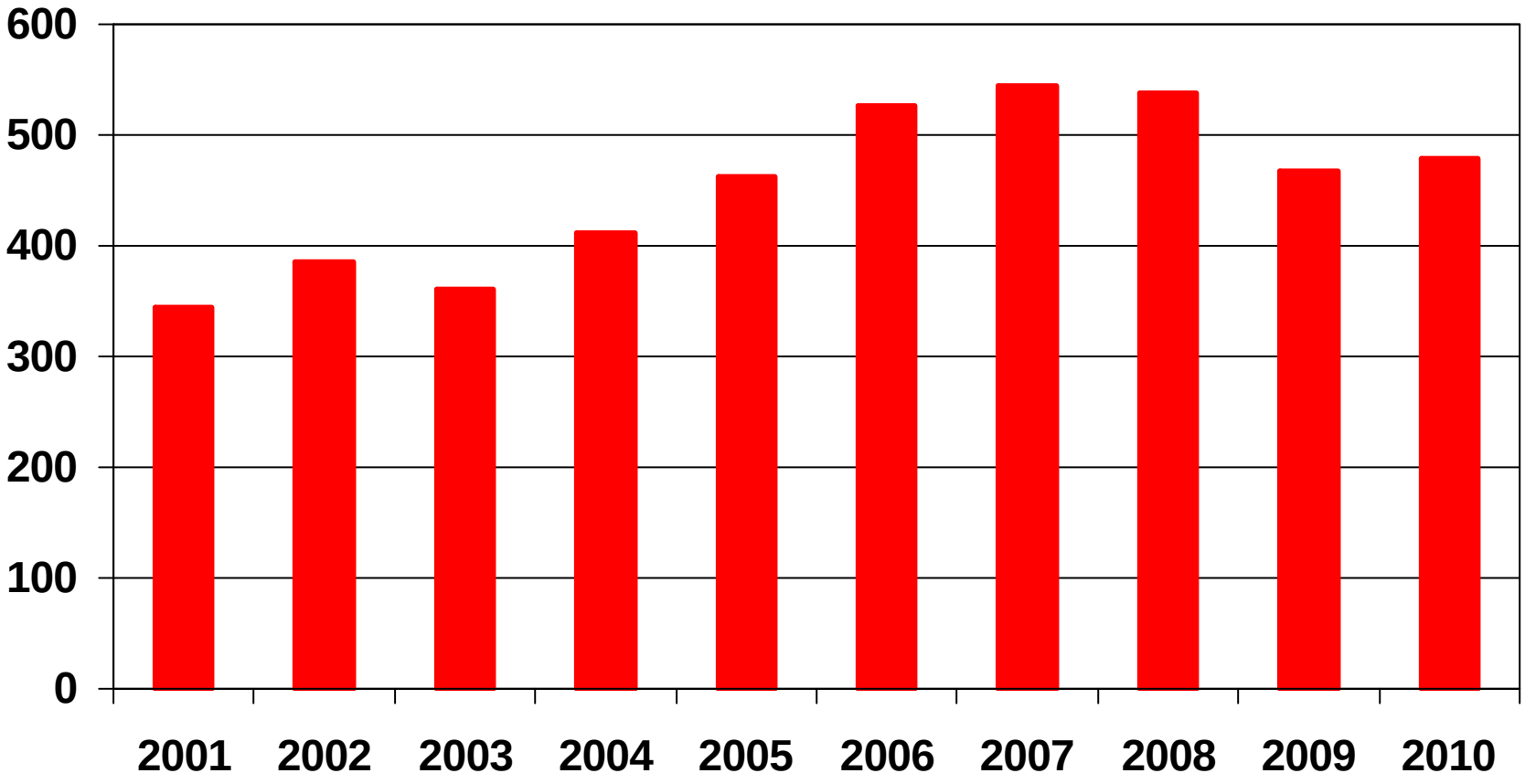


N=1,063 excludes 5 missing gender

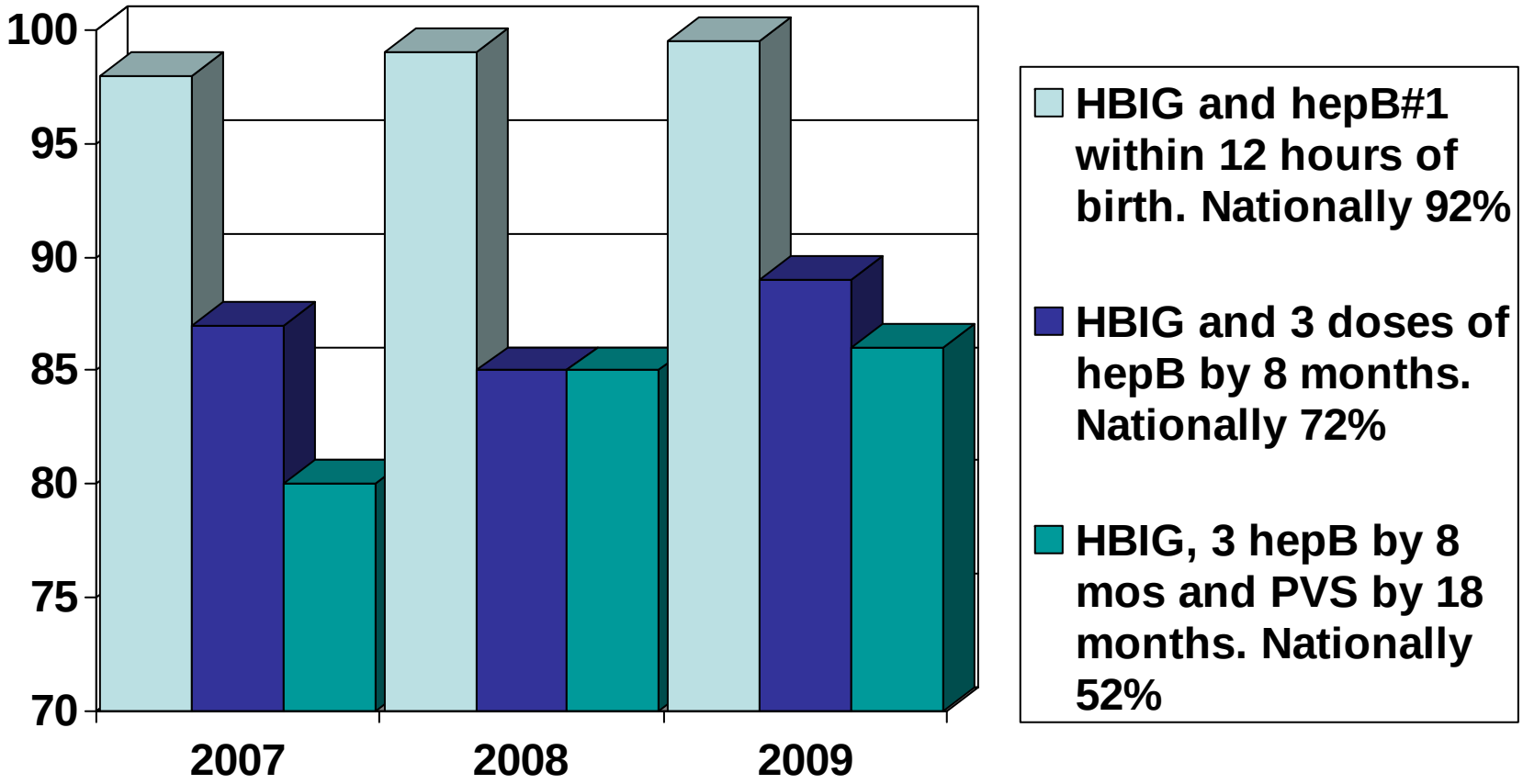
Seventy six confirmed cases of acute hepatitis B were identified in 2010. Confirmation of acute infection requires additional information, including specific laboratory test results and symptom information.

It is recommended that pregnant women be screened for hepatitis B during pregnancy to allow case management to begin early and prevent transmission of the virus to infants. Since 2007, the Perinatal Hepatitis B Program has partnered with local public health to increase identification of household and sexual contacts of hepatitis B surface antibody (HBsAg) positive pregnant women in an effort to reduce the risk of maternal-child transmission of hepatitis B as well.

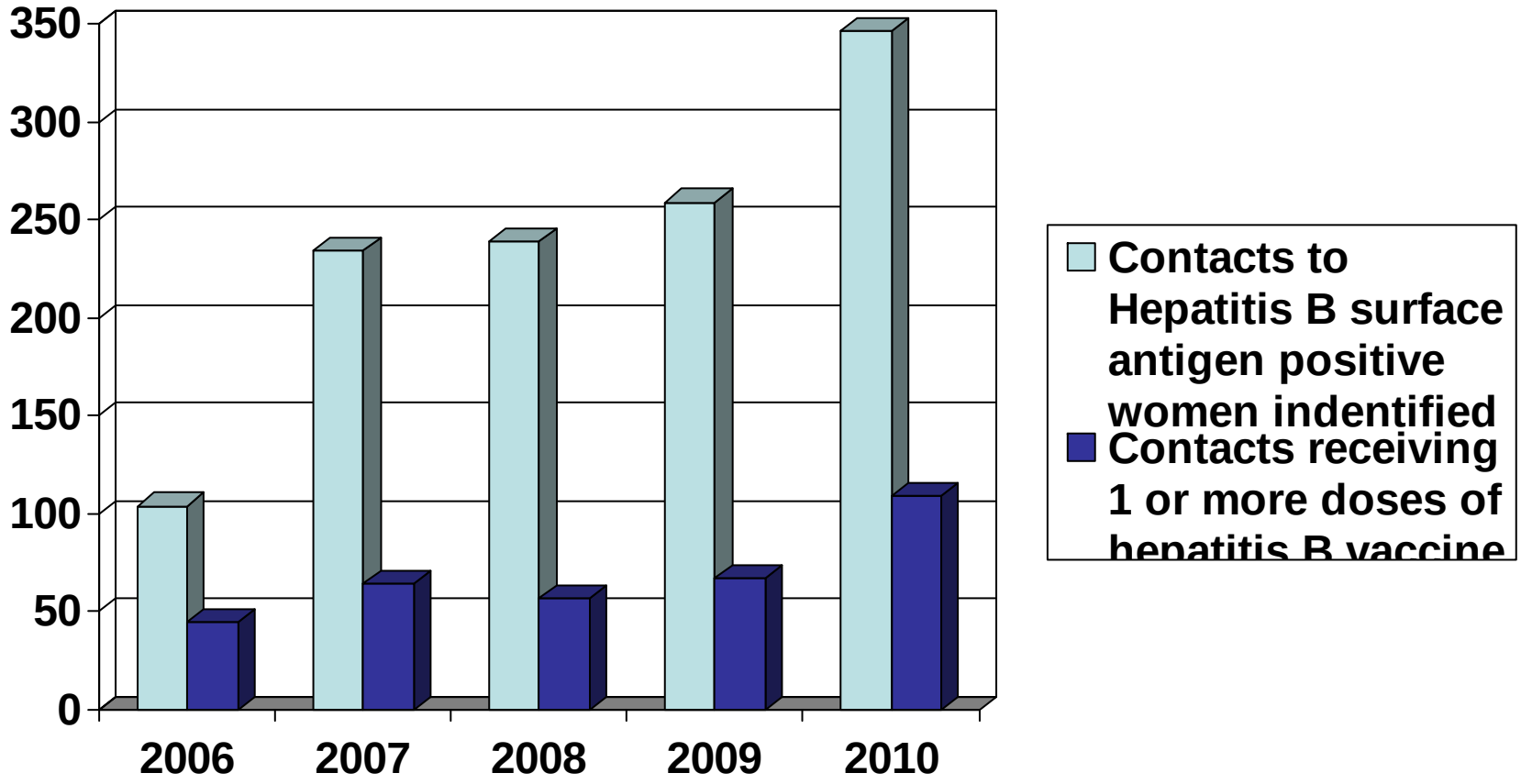
Hepatitis B Positive Pregnant Females Identified in MA



Infants Born to Hepatitis B Surface Antigen Positive Females in MA

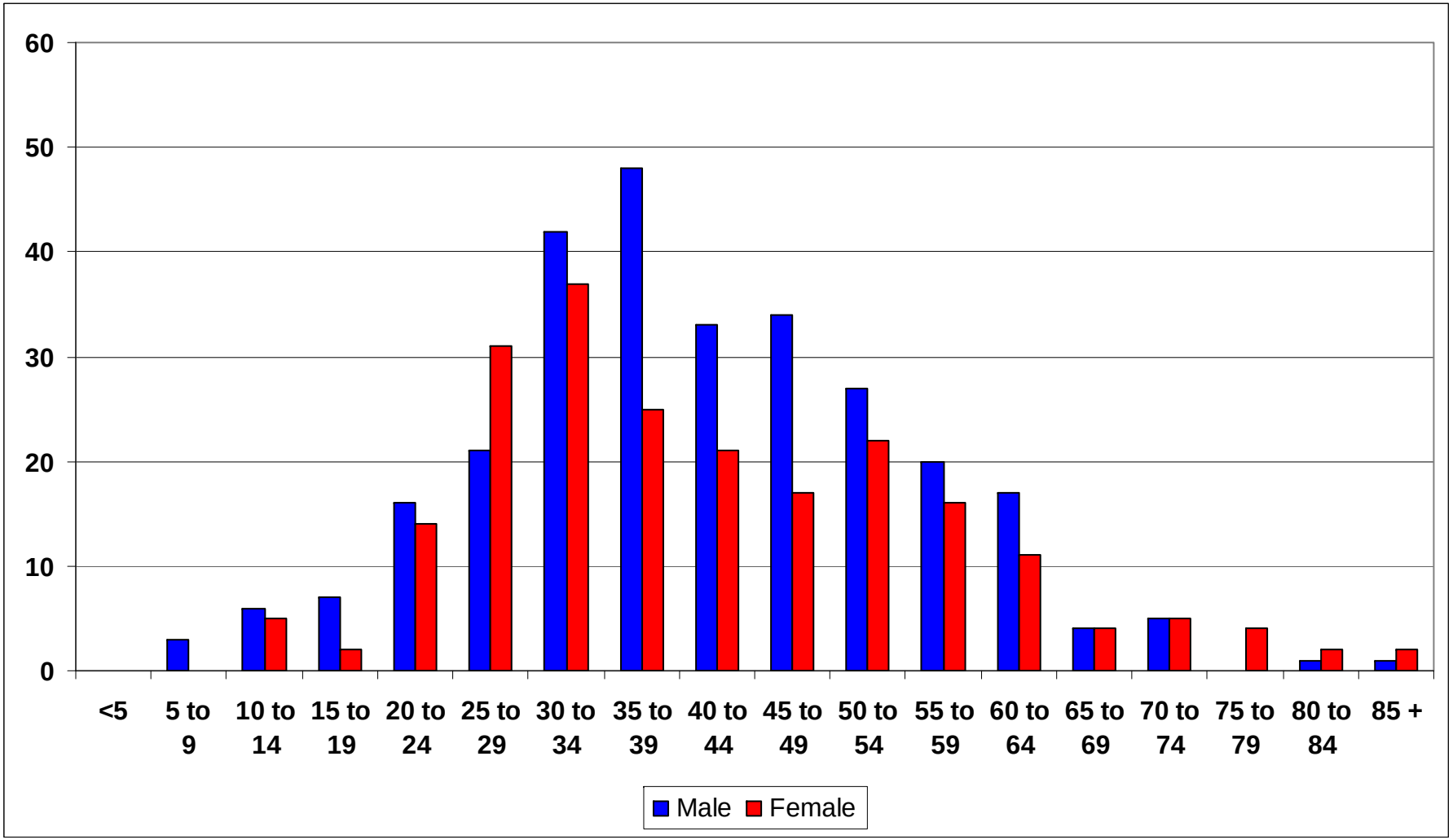


Household and Sexual Contacts to Hepatitis B Surface Antigen Positive Pregnant Females in MA



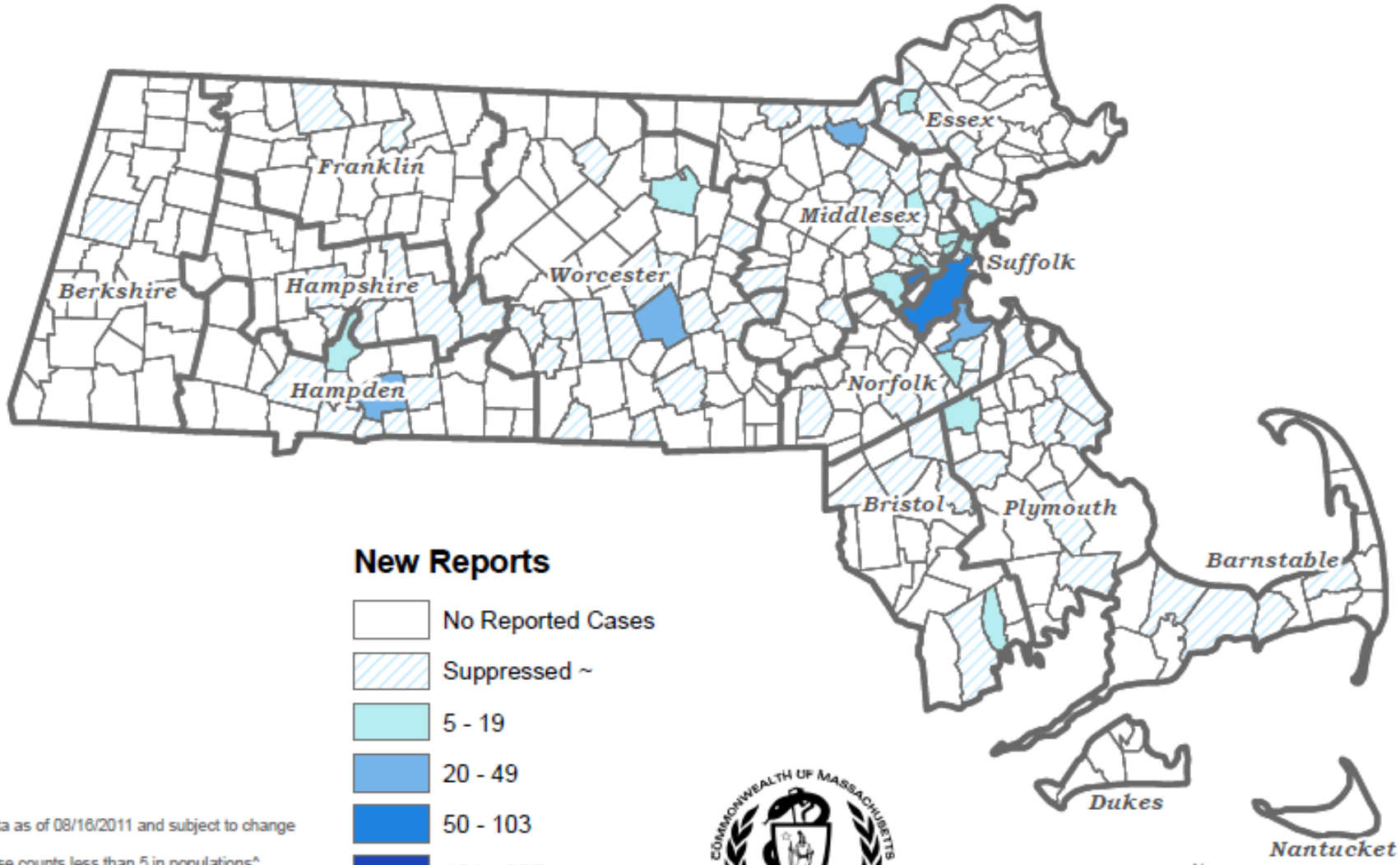
Due to enhanced surveillance focused on identifying pregnant women who are hepatitis B positive, a large number of the hepatitis B cases identified and reported in 2010 were in women between the ages of 25 and 44 years. While efforts are made to identify infection among the household and sexual contacts of these women, there are many barriers to getting those partners tested.

Confirmed Chronic Hepatitis B Cases Reported in 2010 by Five Year Age Groups and Gender



N=503

Confirmed Chronic Hepatitis B Cases by Massachusetts City/Town: 2010*



* Data as of 08/16/2011 and subject to change

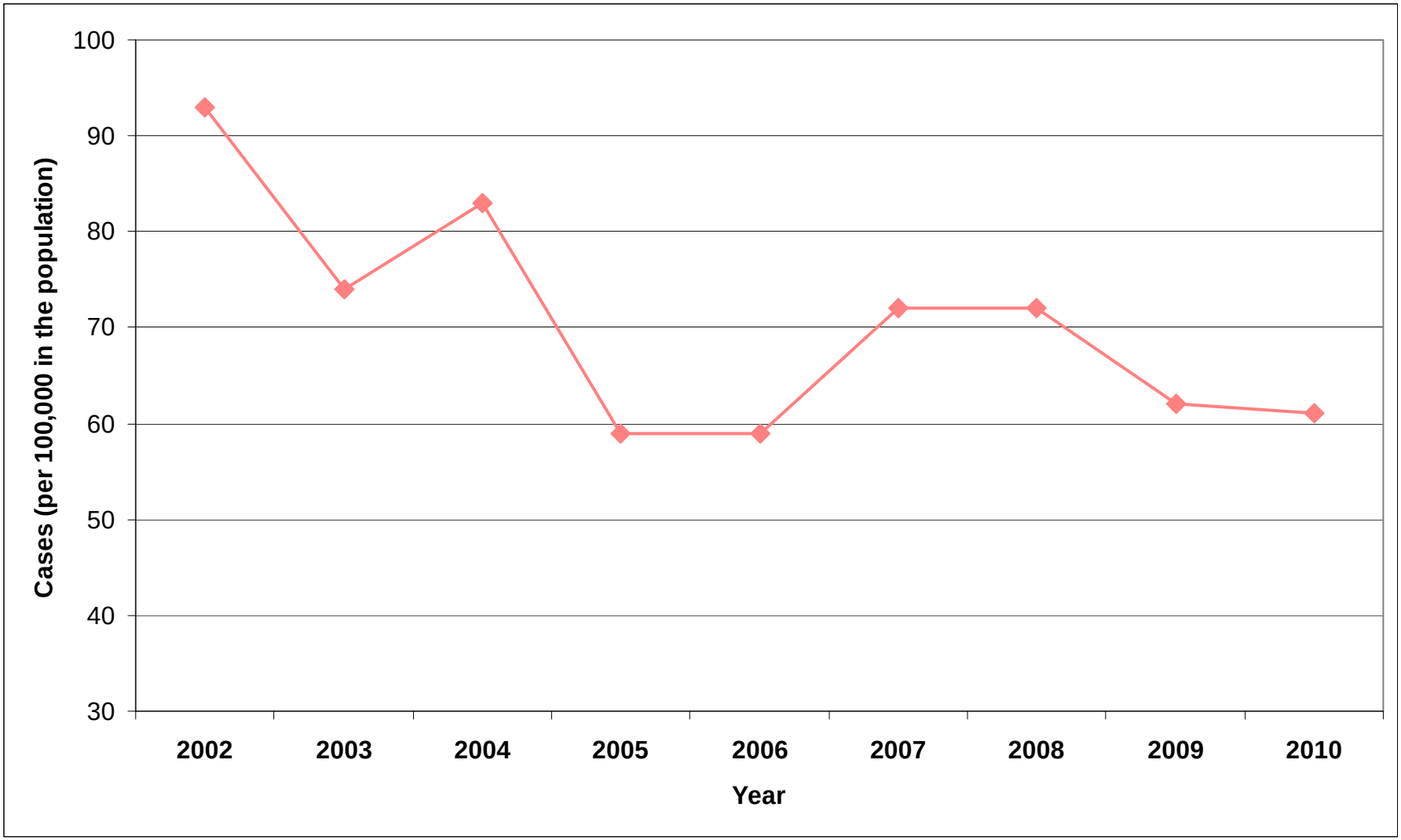
~ Case counts less than 5 in populations^ less than 50,000 are suppressed to maintain patient confidentiality.

^ Population based on 2010 Census data.

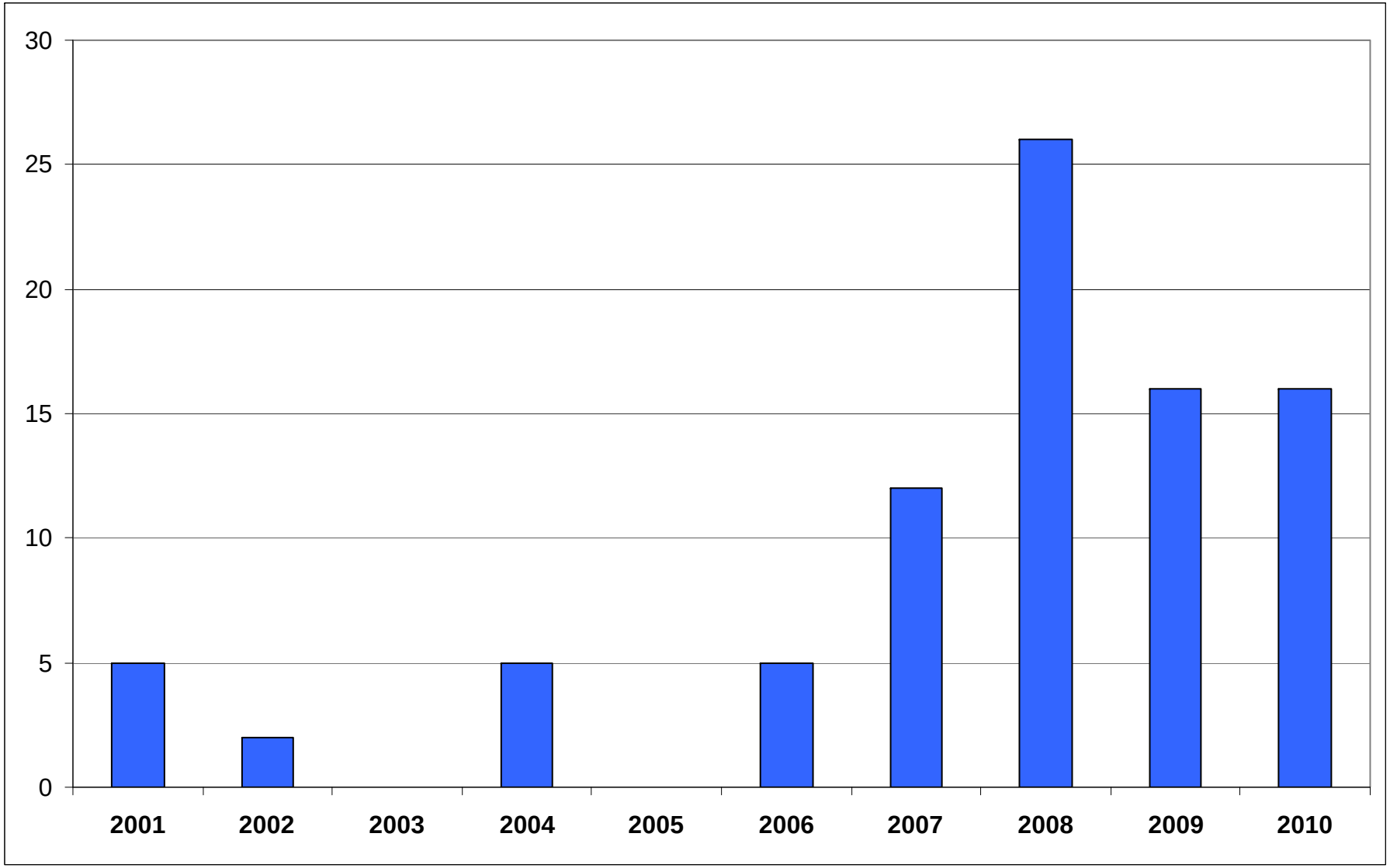
Most newly diagnosed cases of chronic hepatitis B are in people living in urban areas such as Boston, Worcester, Lowell and Springfield.

There has been an overall decline in the number of newly diagnosed hepatitis C infection cases reported in Massachusetts since 2004. However, the overall number of cases reported remains very high with 7,000 to 10,000 newly diagnosed probable and confirmed cases reported to MDPH annually since 2002. There are hepatitis C cases reported to MDPH for 2010 that have yet to be fully processed, so this number is likely to increase. Hepatitis C remains one of the highest volume infectious diseases reported in Massachusetts.

Rate of Newly Diagnosed, Confirmed, HCV Infection Cases by Year



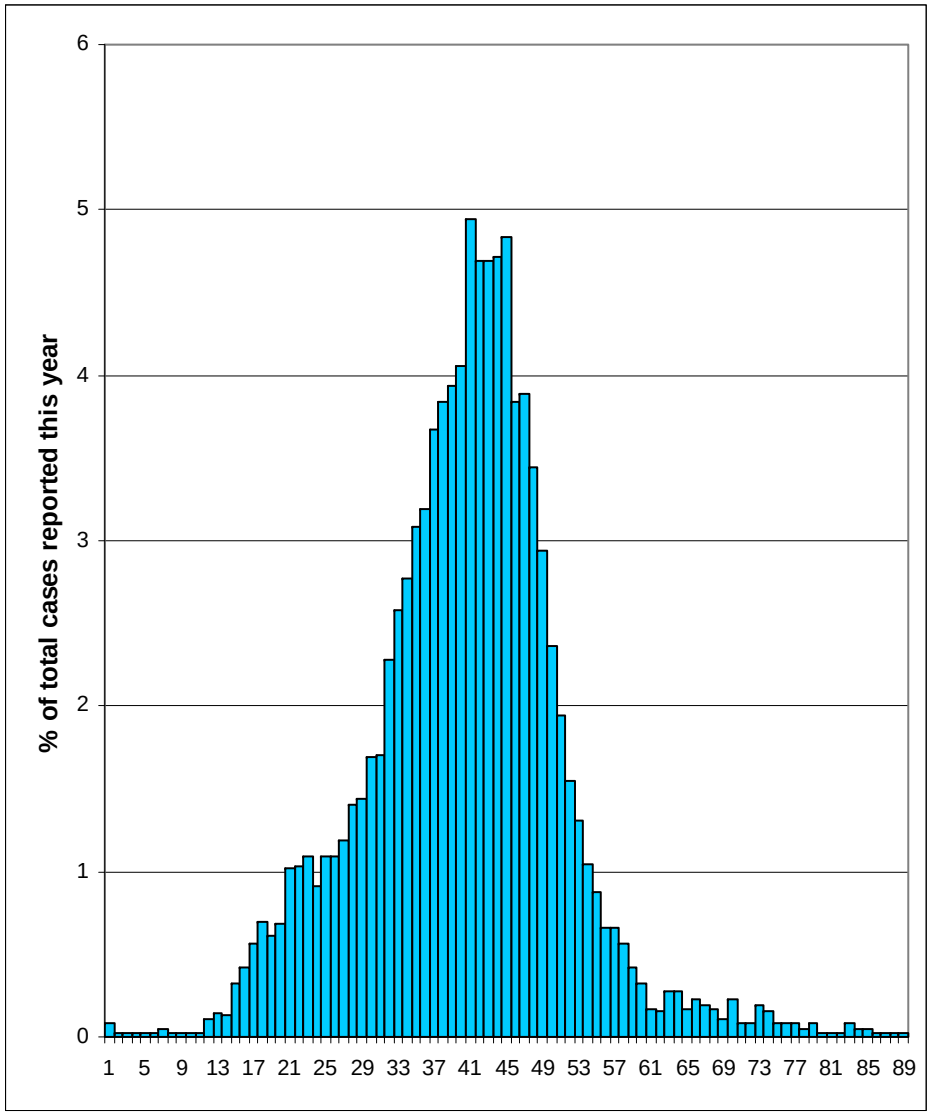
Number of Confirmed Acute Hepatitis C Cases by Year



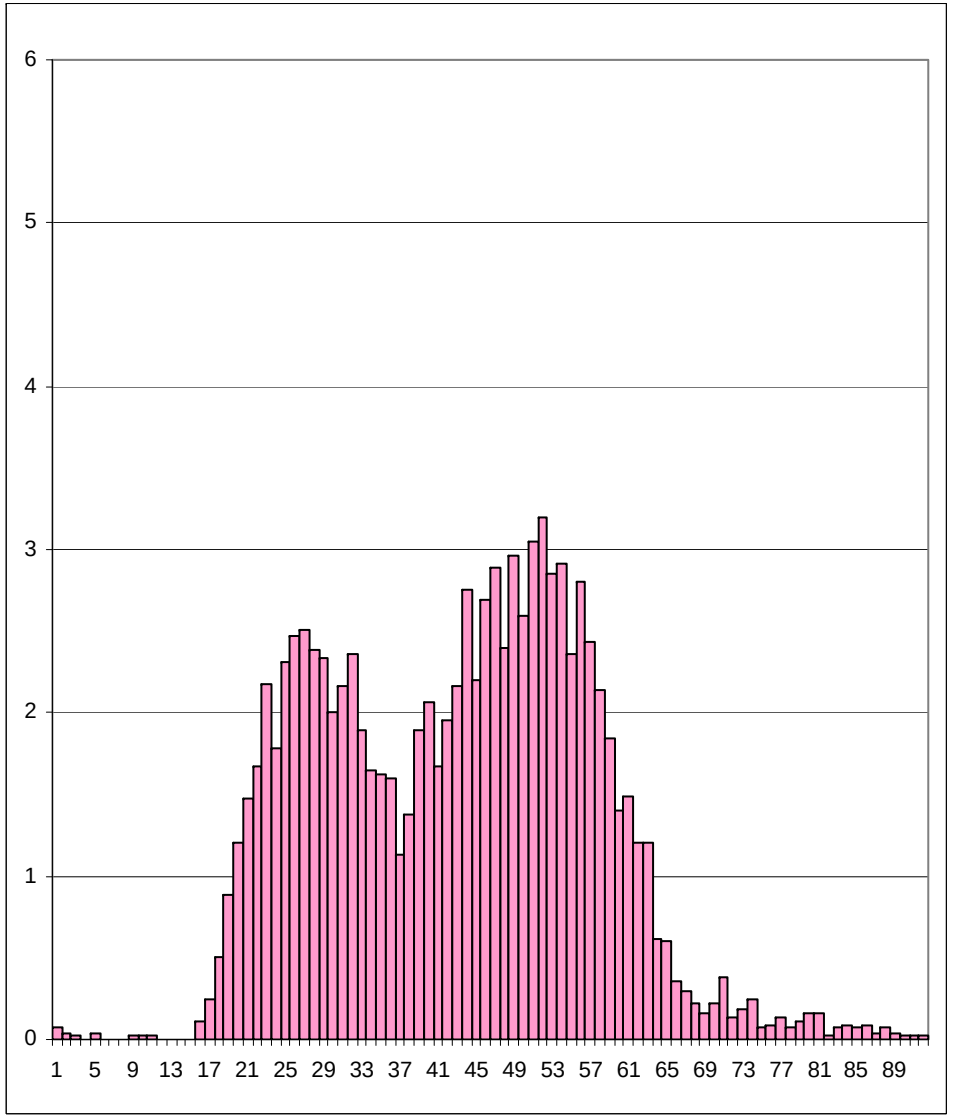
Improvements in surveillance have also allowed for better identification of acute cases of hepatitis C. Sixteen acute cases were confirmed in 2010. Identification of acute cases requires information on hepatitis A and B test results, serum liver enzyme tests and symptoms. One hundred and fifty-eight cases of hepatitis C reported in 2010 matched the acute case definition, but hepatitis A or B laboratory results were not available to rule out other causes of viral hepatitis. Acute cases of hepatitis C are reported in CDC's annual summary of notifiable diseases, while chronic hepatitis C is not.

The age distribution of hepatitis C cases reported in Massachusetts has changed between 2002 and 2010. In 2002 the reported cases were distributed in a bell-shaped curve with the age peak between the ages of 44 and 50 years. In 2010, the reported cases were distributed in a bi-modal curve with one peak at 27 years of age and a second at 52 years.

Hepatitis C Case Distribution by Age: 2002 Versus 2010



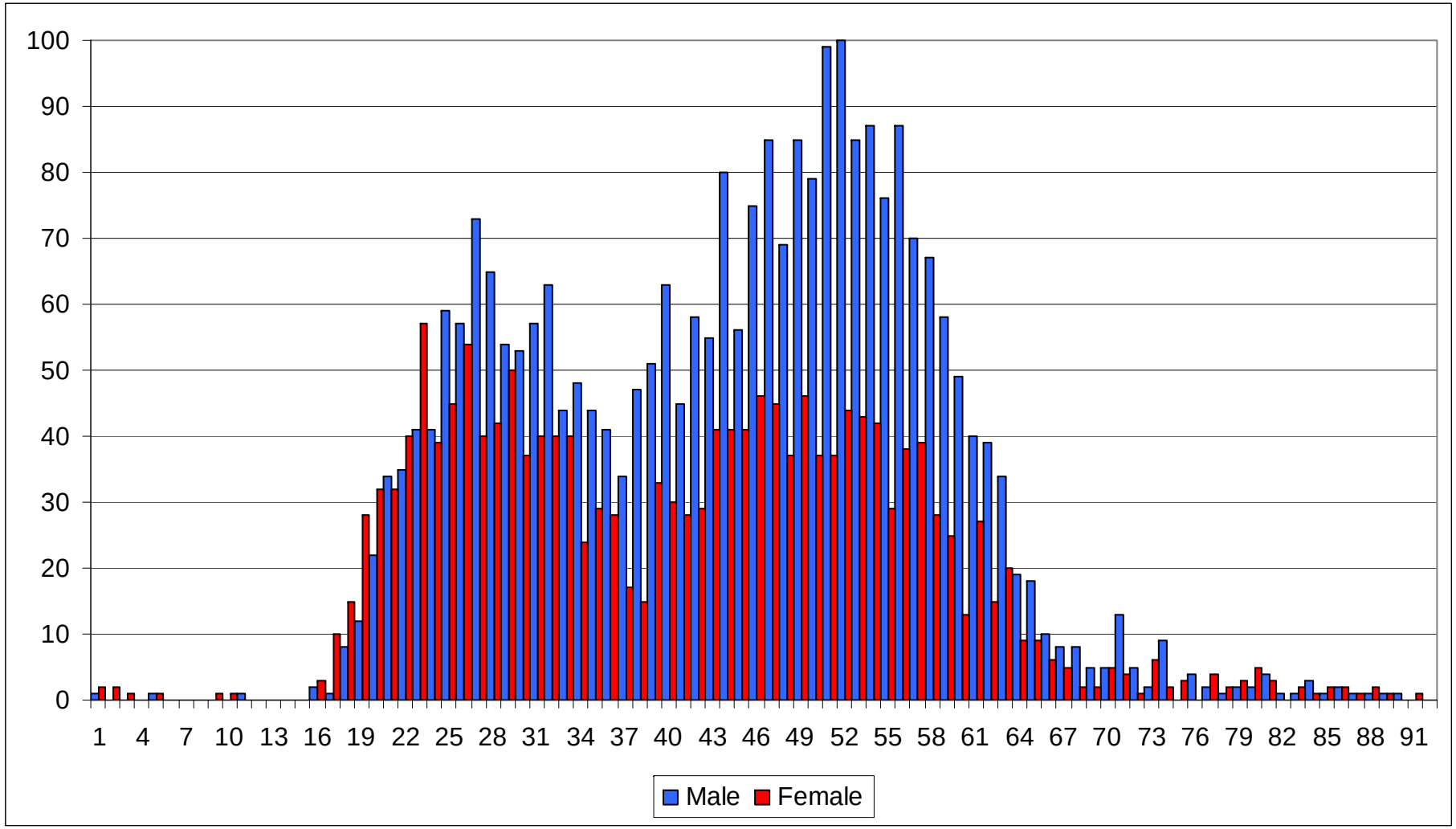
2002: N=6400, excludes 41 missing



2010: N=4494, excludes 25 missing

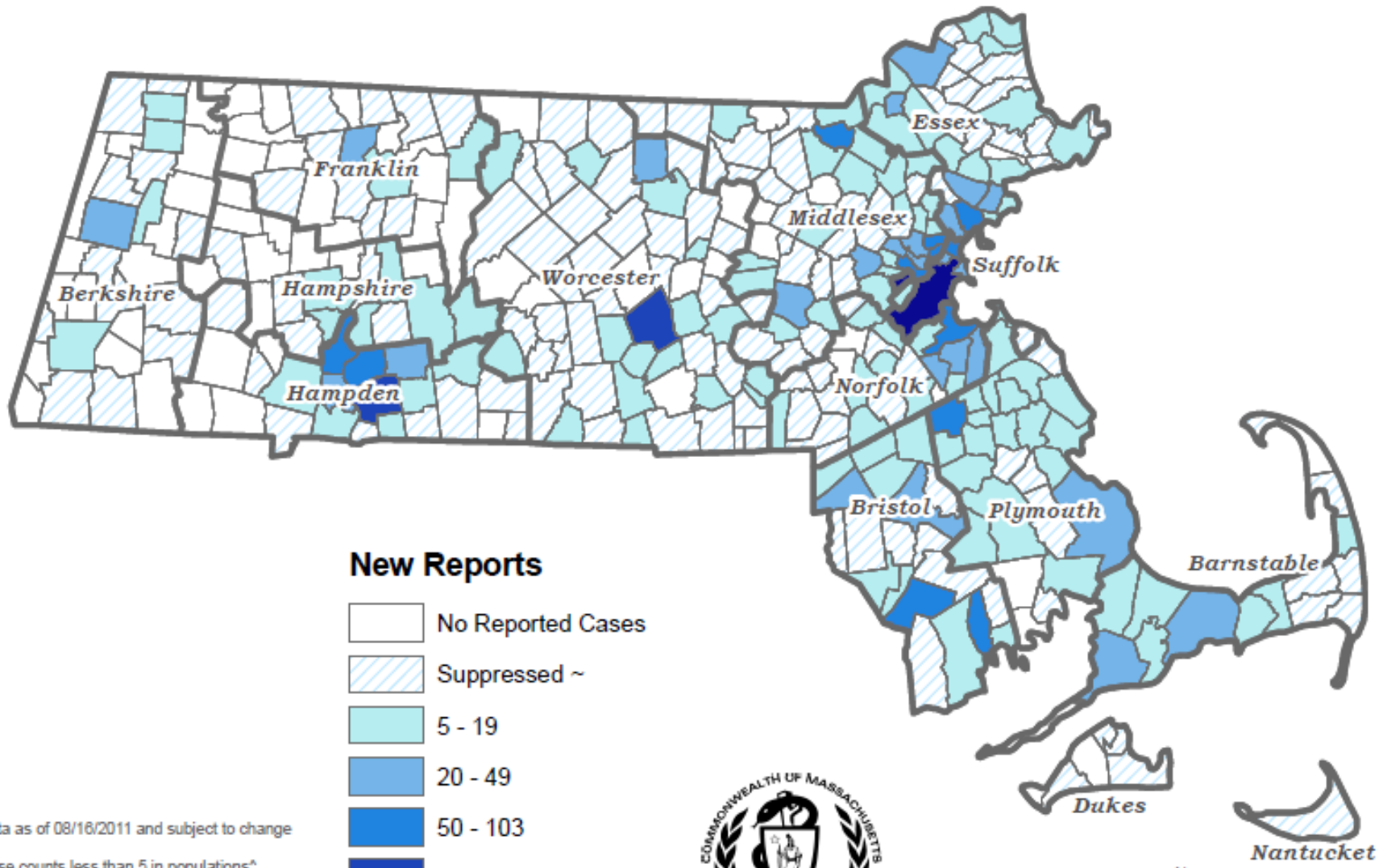
More hepatitis C cases are identified in males than in females in almost all age groups. However, the male to female ratio is closer to one in the 15-to-30 year age group than in the 40-to-60 year age group, with females even predominantly among the younger cases.

Confirmed Chronic Hepatitis C Cases Reported in 2010 by Age and Gender*



*N=4463, excludes 55 missing gender or age and 2 transgender

New Reports of Confirmed Chronic Hepatitis C Cases by Massachusetts City/Town: 2010*



* Data as of 08/16/2011 and subject to change

~ Case counts less than 5 in populations^ less than 50,000 are suppressed to maintain patient confidentiality.

^ Population based on 2010 Census data.

Cases of hepatitis C are reported in communities across Massachusetts, with more cases being identified in people living the urban areas of Boston, Worcester, and Springfield.

- Place Hold

- Place Hold

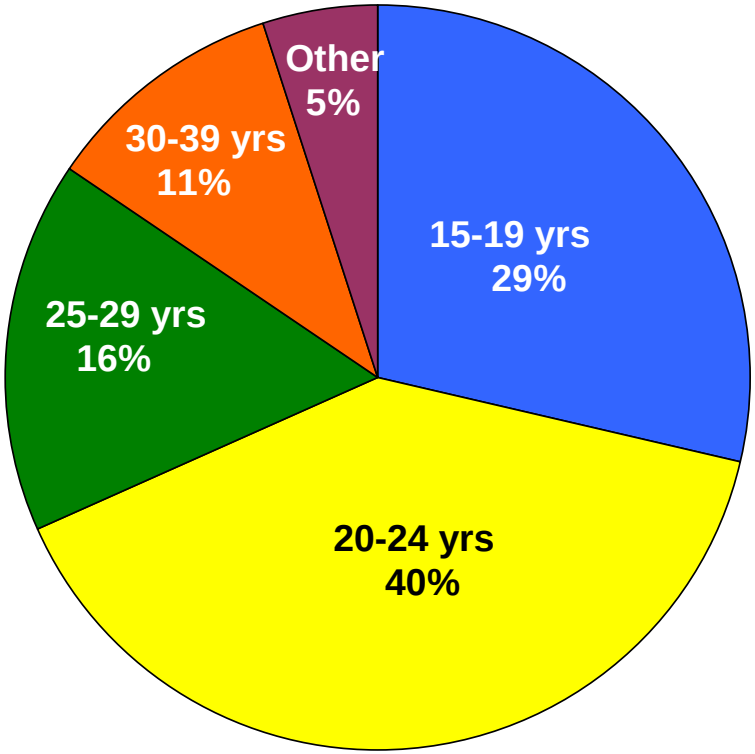
STDs in Adolescents and Young Adults

Compared to older adults, sexually active adolescents and young adults are at higher risk for acquiring STDs for a combination of behavioral, biological and cultural factors. The higher prevalence of STDs among adolescents also may reflect multiple barriers to accessing quality STD prevention services, including lack of insurance or other ability to pay, lack of transportation, discomfort with facilities and services designed for adults, and concerns about confidentiality. (Source: CDC. *Sexually Transmitted Disease Surveillance, 2009.* Atlanta, GA: U.S. Department of Health and Human Services, November 2010.)

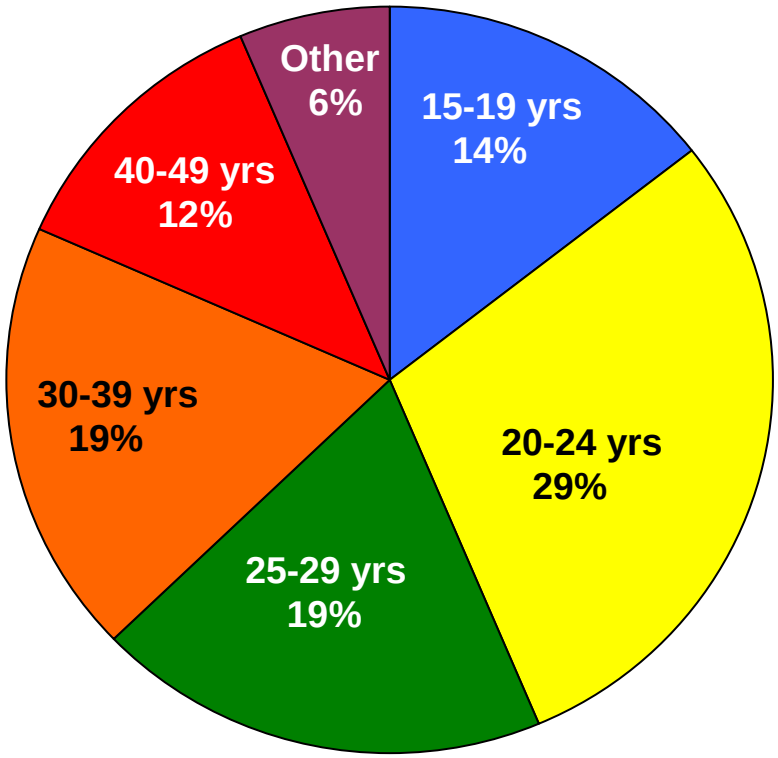
- Place Hold

In 2010, 69% of reported chlamydia infection cases and 43% of reported gonorrhea cases were in adolescents and young adults (ages 15-24).

Selected STDs by Age
Massachusetts, 2010



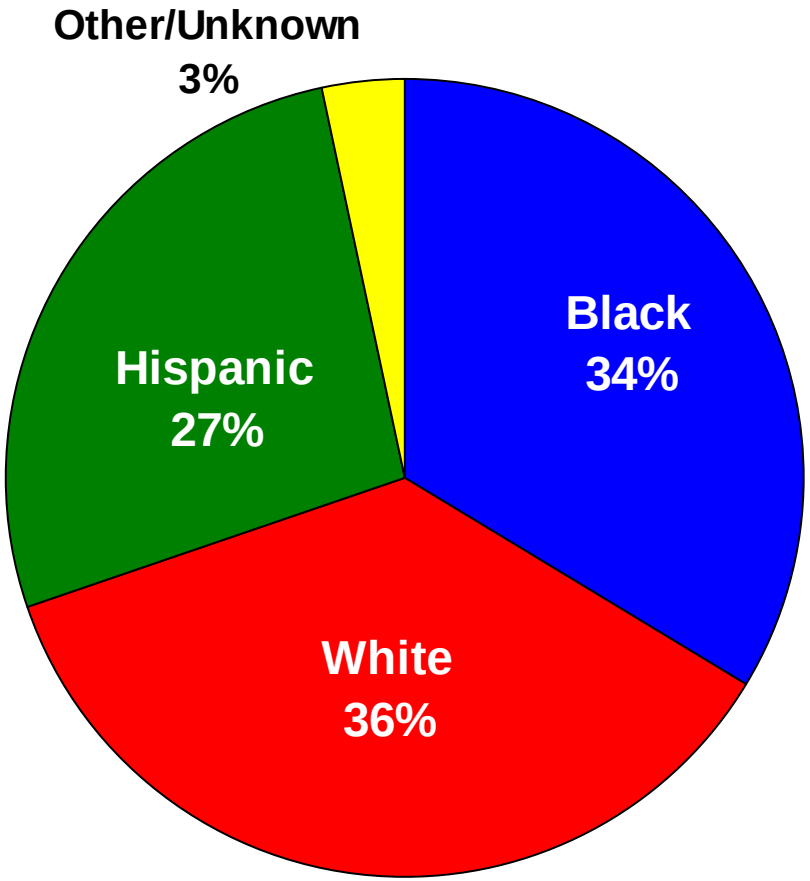
Chlamydia Infection
N = 21,236



Gonorrhea
N = 2,497

Percent Distribution of Newly Diagnosed HIV Infection Cases in Adolescents and Young Adults (ages 15-24) by Race/Ethnicity Massachusetts, 2007-2009

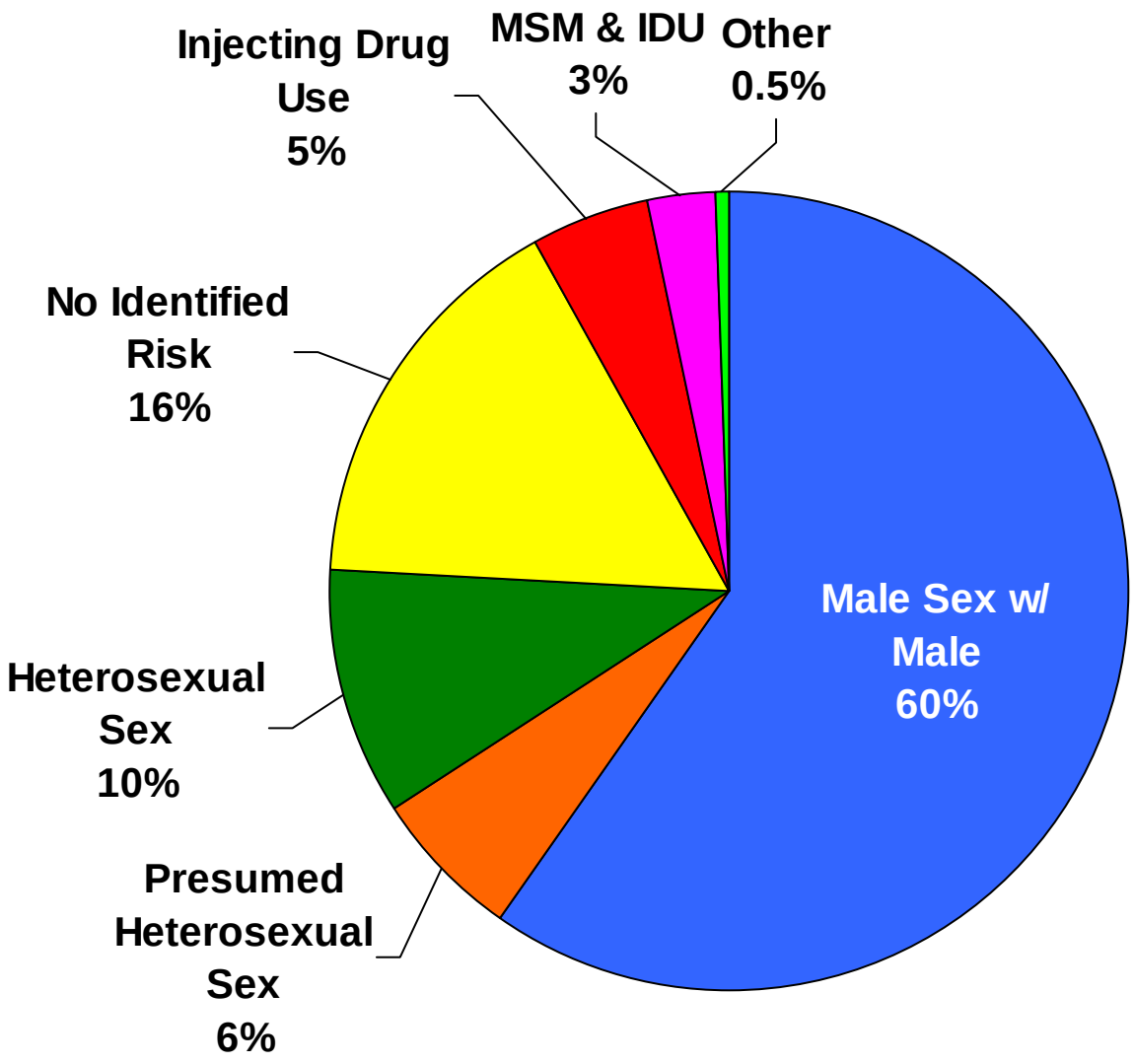
N = 211



From 2007-2009, reported newly diagnosed HIV infections among adolescents and young adults in Massachusetts had the following racial/ethnic distribution: black (non-Hispanic) (34%), white (non-Hispanic) (36%), Hispanic (27%), and other (3%).

Percent Distribution of Newly Diagnosed HIV Cases in Adolescents and Young Adults (Ages 15-24) by Exposure Mode Massachusetts, 2007-2009

N = 211



From 2007-2009, in Massachusetts, the primary modes of exposure for reported, newly diagnosed HIV infection cases in adolescents and young adults were male with male sex (60%), presumed heterosexual sex (6%), heterosexual sex (10%), and injecting drug use (5%).

The Youth Risk Behavior Survey (YRBS) is performed biennially among a national sample of 9th-12th grade students. A review of data provided from the Massachusetts YRBS over the past two decades indicates that three markers of risky youth sexual behavior (ever having had sex, first sex before age 13 years, and four or more lifetime sexual partners) reached all-time lows in 2003 (respectively 41%, 5%, and 10%), and have subsequently shown slight increases of potential concern (up to 46%, 5%, and 13% in 2009). In contrast, two markers of protective sexual behaviors, use of condoms at last sex and being taught about HIV/AIDS in school, have shown declines from previous gains (respectively 58% in 2009 down from 65% in 2005, and 87% in 2009 down from 94% in 2001).

Sexual Behaviors Among Massachusetts High School Students by Gender, 2009

Source: Youth Risk Behavior Surveillance System, *MMWR* 2010; 59(No.SS-5)

	Affirmative Responses (Percent)	
	Males	**Females**
Respondents: All Students		
Lifetime sexual intercourse	**48.0**	**44.6**
Sexual intercourse before age 13	**8.0**	**3.0**
Four or more lifetime sexual partners	**15.2**	**10.6**
Respondents: Students having sexual intercourse in past three months		
Condom use at last sexual intercourse	**65.7**	**50.6**
Substance use at last sexual intercourse	**27.6**	**20.0**
Taught in school about AIDS or HIV	**87.2**	**87.6**

- Place Hold

STDs and Women

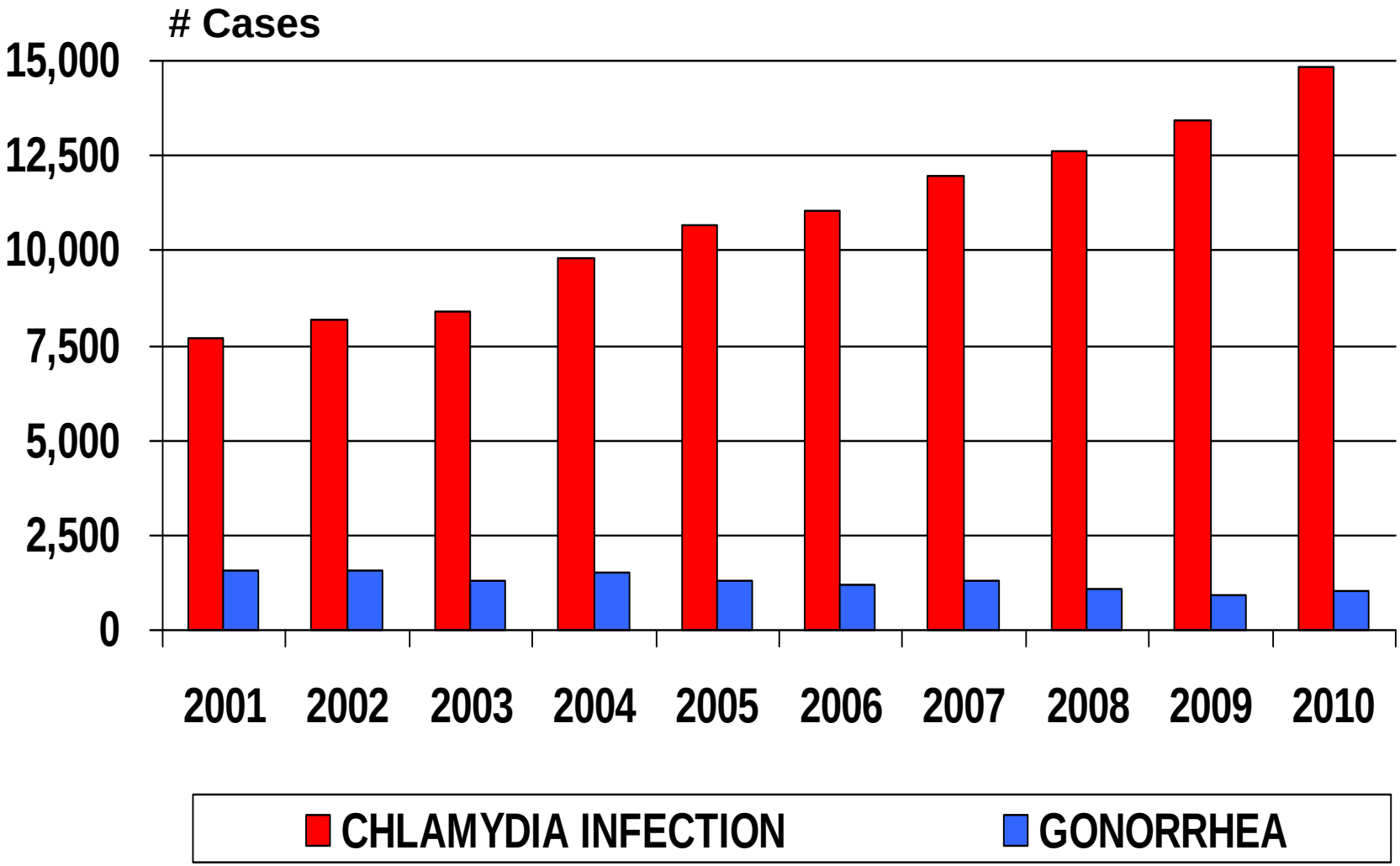
Complications of STDs are greater and more frequent among women than men due to two primary factors. First, biologically, women are more likely than men to become infected if exposed to an STD. Second, STDs are more likely to remain undetected in women, resulting in delayed diagnosis and treatment, and ultimately more untreated infections leading to complications. (Source: *The Hidden Epidemic*, Institute of Medicine, National Academy Press, Washington, D.C., 1997.)

Untreated STDs in women can lead to serious health consequences, including pelvic inflammatory disease, infertility, ectopic pregnancy and cervical cancer.

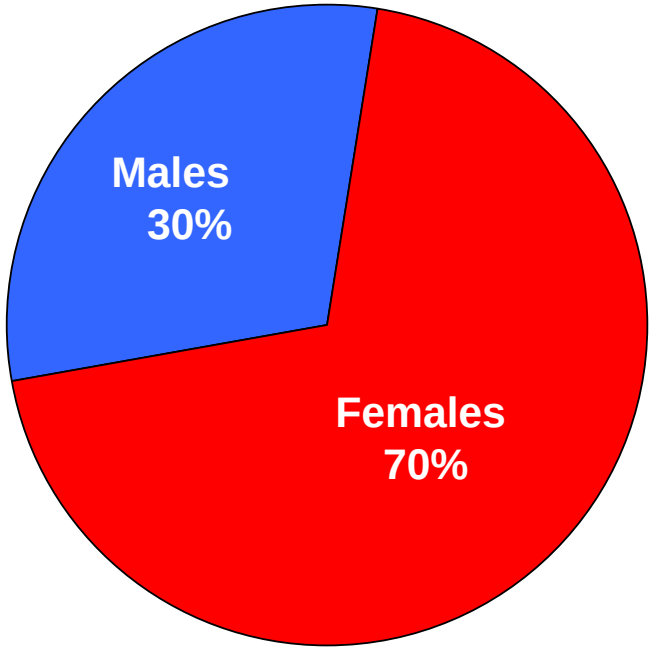
- Place Hold

Unlike gonorrhea, reported chlamydia infection in Massachusetts is more common in women and has been increasing in the past ten years, in part due to increased adoption of recommended routine screening by healthcare providers.

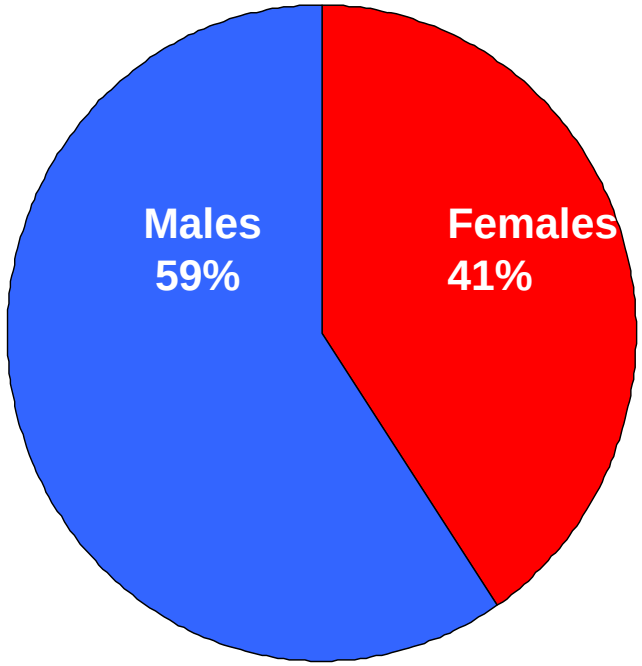
Chlamydia and Gonorrhea Cases in Females Massachusetts, 2001-2010



Distribution of Reported STDs by Gender
Massachusetts, 2010



Chlamydia Infection
N = 21,236



Gonorrhea
N = 2,496

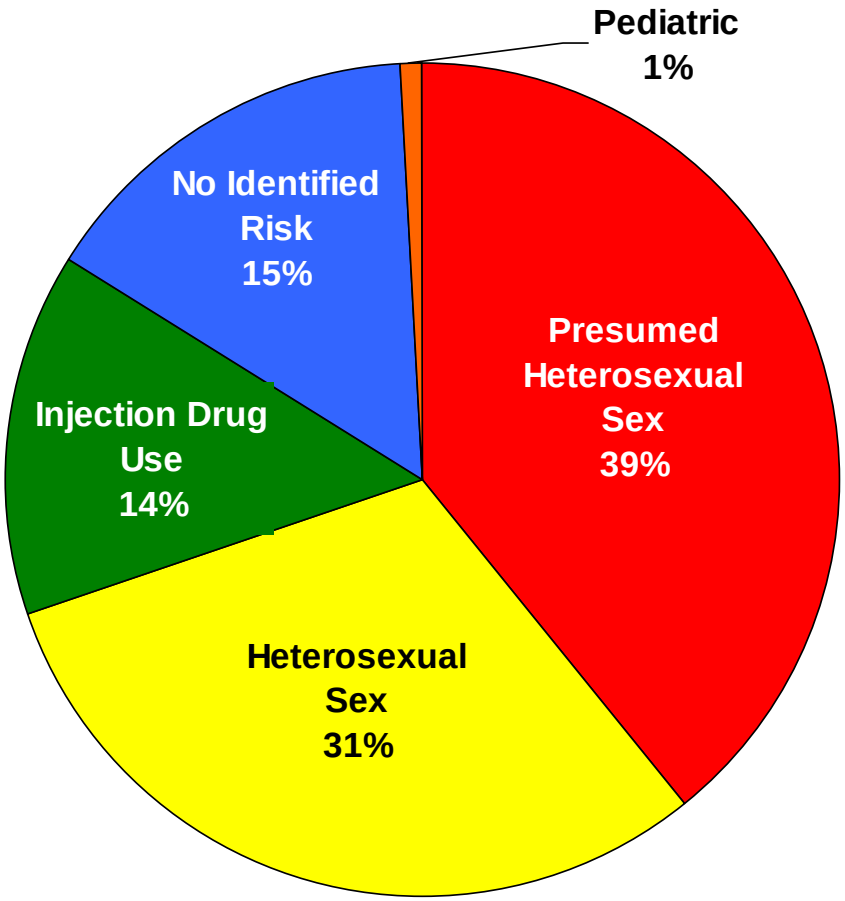
While the male-to-female ratio of gonorrhea cases is about 3 to 2, women are overrepresented among chlamydia cases by a ratio of 2.3 to 1.

The greater number of chlamydia cases in women is attributable to increased screening of women as compared to men.

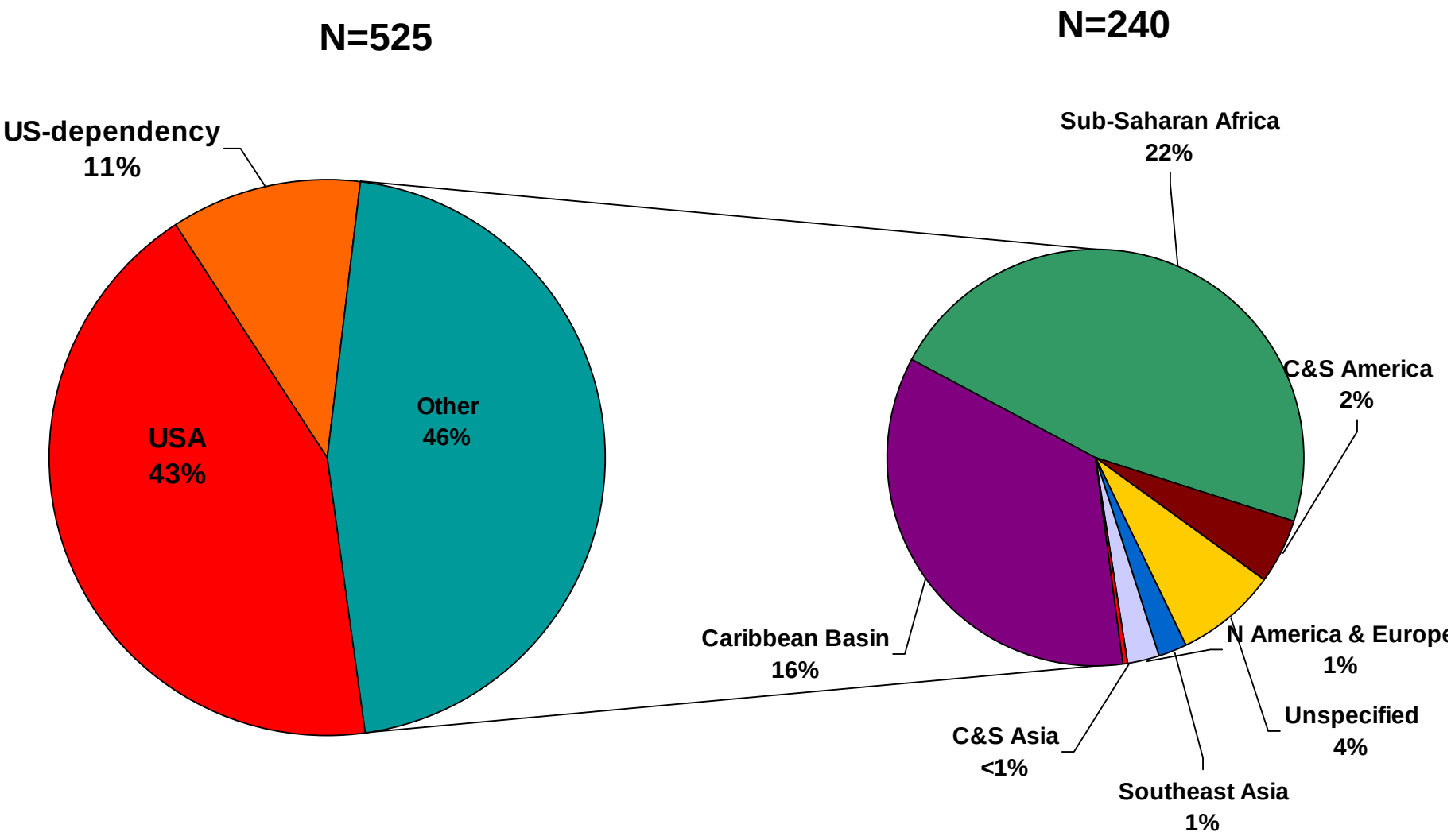
From 2007-2009, the exposure modes for the 525 newly diagnosed HIV cases reported in women in Massachusetts was attributed to presumed heterosexual sex (39%), heterosexual sex (31%), injection drug use (14%), and pediatric exposure (1%).

Newly Diagnosed HIV Infection Cases in Females by Exposure Mode Massachusetts, 2007-2009

N = 525



Newly Diagnosed HIV Infection Cases in Females by Place of Birth Massachusetts, 2007-2009



From 2007-2009, 46% of women reported with HIV infection diagnoses were born outside of the U.S. For men diagnosed from 2007 -2009, only 25% were born outside of the U.S.

Eighty-two percent of women diagnosed with HIV infection, who were born outside of the U.S., were born in regions of the world where heterosexual sex is the predominant mode of transmission of HIV infection.

- Place Hold

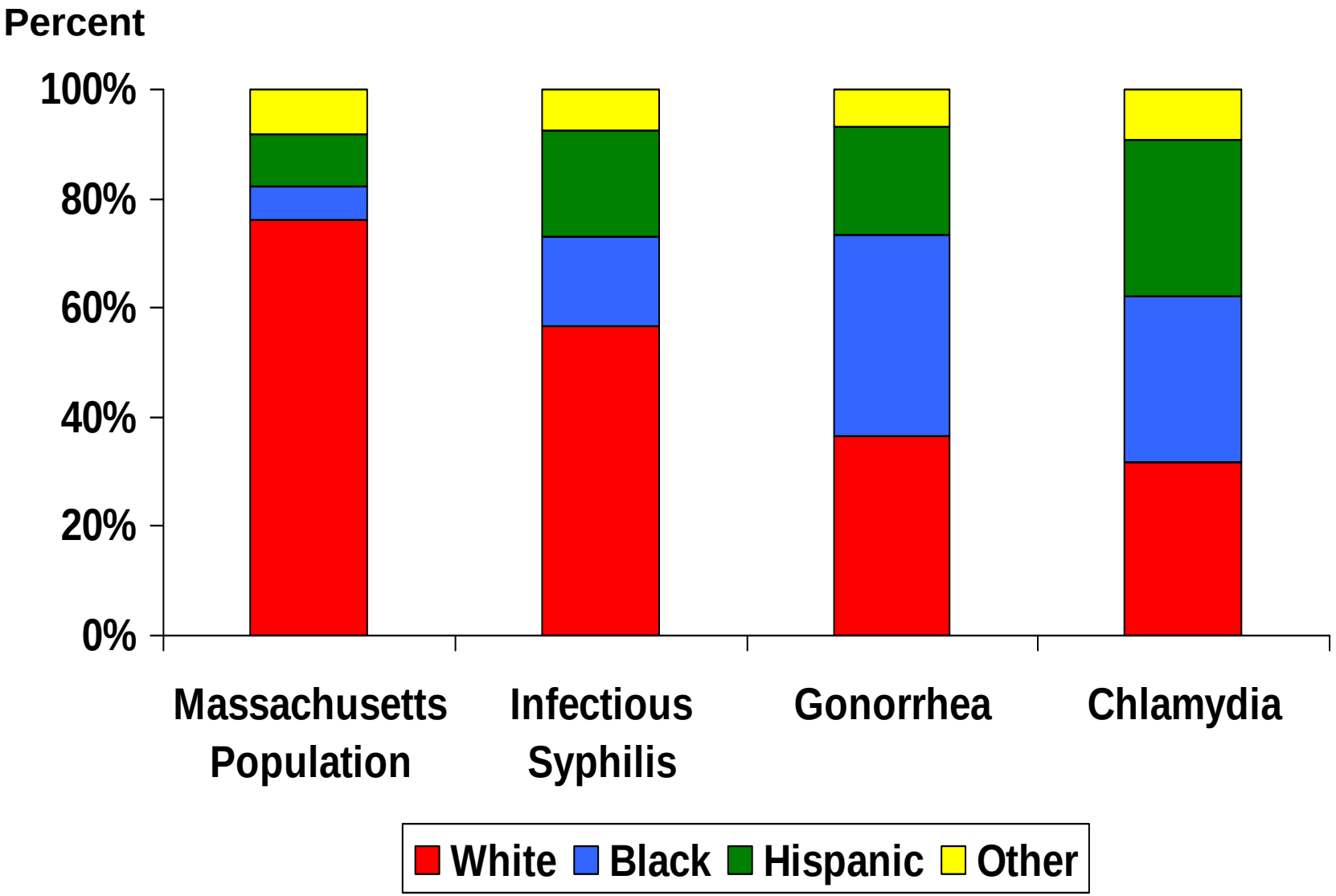
Racial/Ethnic Disparities in STD Rates

As stated in the 2009 Sexually Transmitted Disease Surveillance Report from the Centers for Disease Control and Prevention (CDC), national surveillance data show higher rates of reported STDs among some racial or ethnic minority groups when compared with rates among whites. Race and ethnicity in the United States are risk markers that correlate with other more fundamental determinants of health status such as poverty, access to quality health care, health care seeking behavior, illicit drug use, and living in communities with high prevalence of STDs. Acknowledging the disparity in STD rates by race or ethnicity is one of the first steps in empowering affected communities to organize and focus on this problem." (Source: CDC. *Sexually Transmitted Disease Surveillance, 2009*. Atlanta, GA: U.S. Department of Health and Human Services; November 2010.

- Place Hold

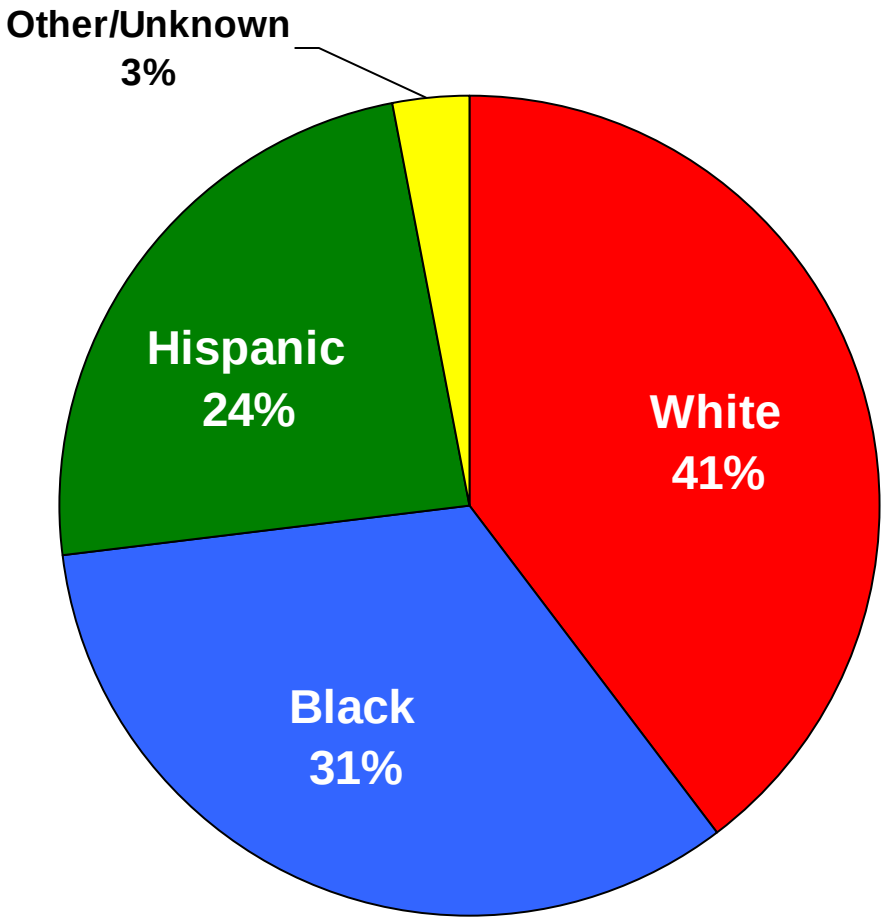
Although communities of color represent only 24% of the total Massachusetts population, these communities have a disproportionate burden of STDs. In 2010, 43% of the reported infectious syphilis cases, 63% of the reported gonorrhea cases, and 68% of the reported chlamydia infection cases occurred in individuals from communities of color.

Racial/Ethnic Distribution of the General Population and Among Those Diagnosed with an STD Massachusetts, 2010



Newly Diagnosed HIV Infection Cases by Race/Ethnicity Massachusetts, 2007-2009

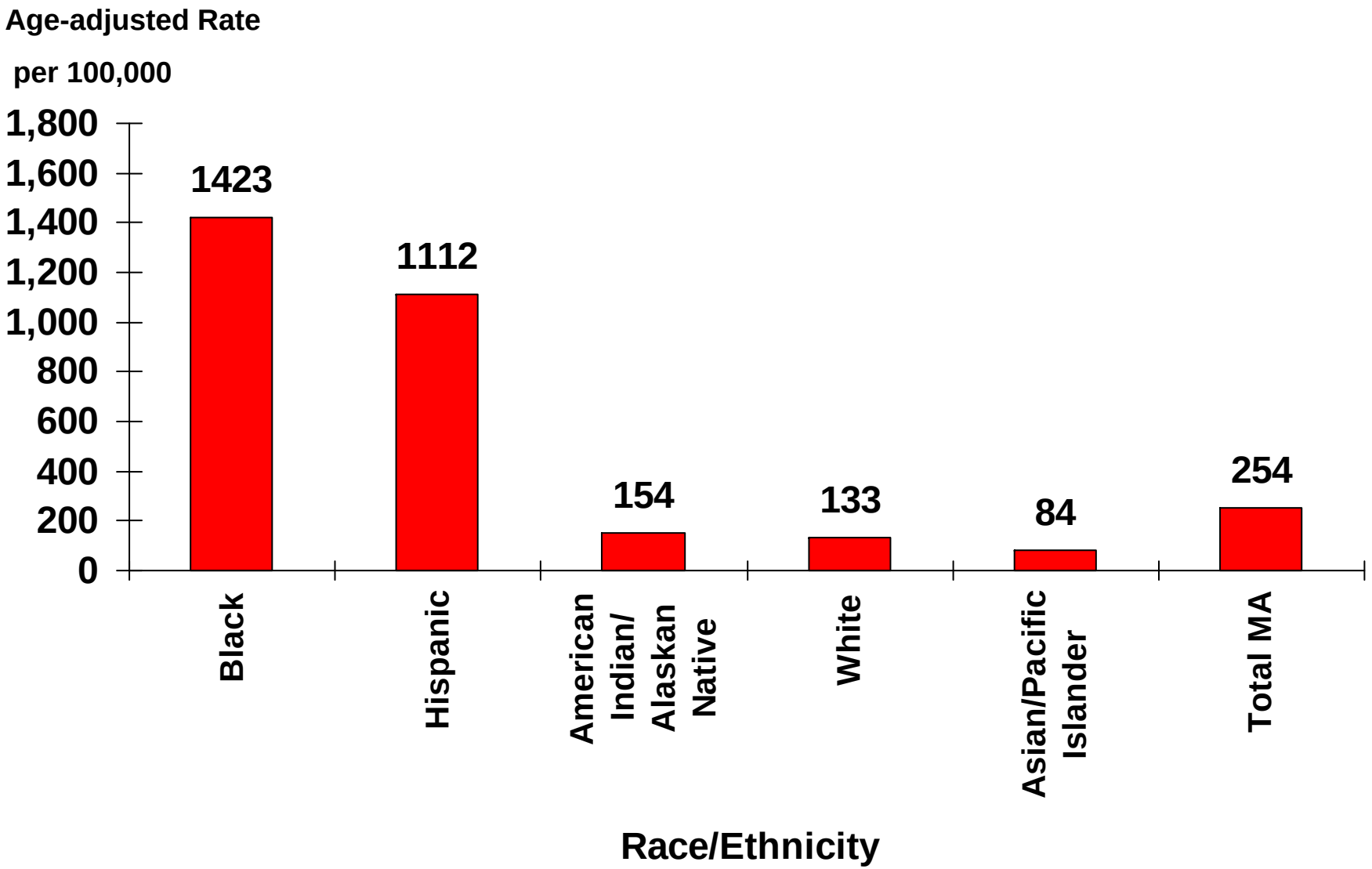
N = 1963



From 2007-2009, the racial/ethnic distribution of reported newly diagnosed HIV infections in Massachusetts was as follows: white (non-Hispanic) (40%), black (non-Hispanic) (33%), Hispanic (24%), and other/unknown (3%).

In Massachusetts, in 2009, the prevalence rate of people living with HIV/AIDS was highest among black (non-Hispanic) and Hispanics. As compared to whites (non-Hispanic), the rate of people living with HIV/AIDS was 10 times higher among blacks and 7 times higher among Hispanics.

People Living with HIV/AIDS by Race/Ethnicity Massachusetts, 2009



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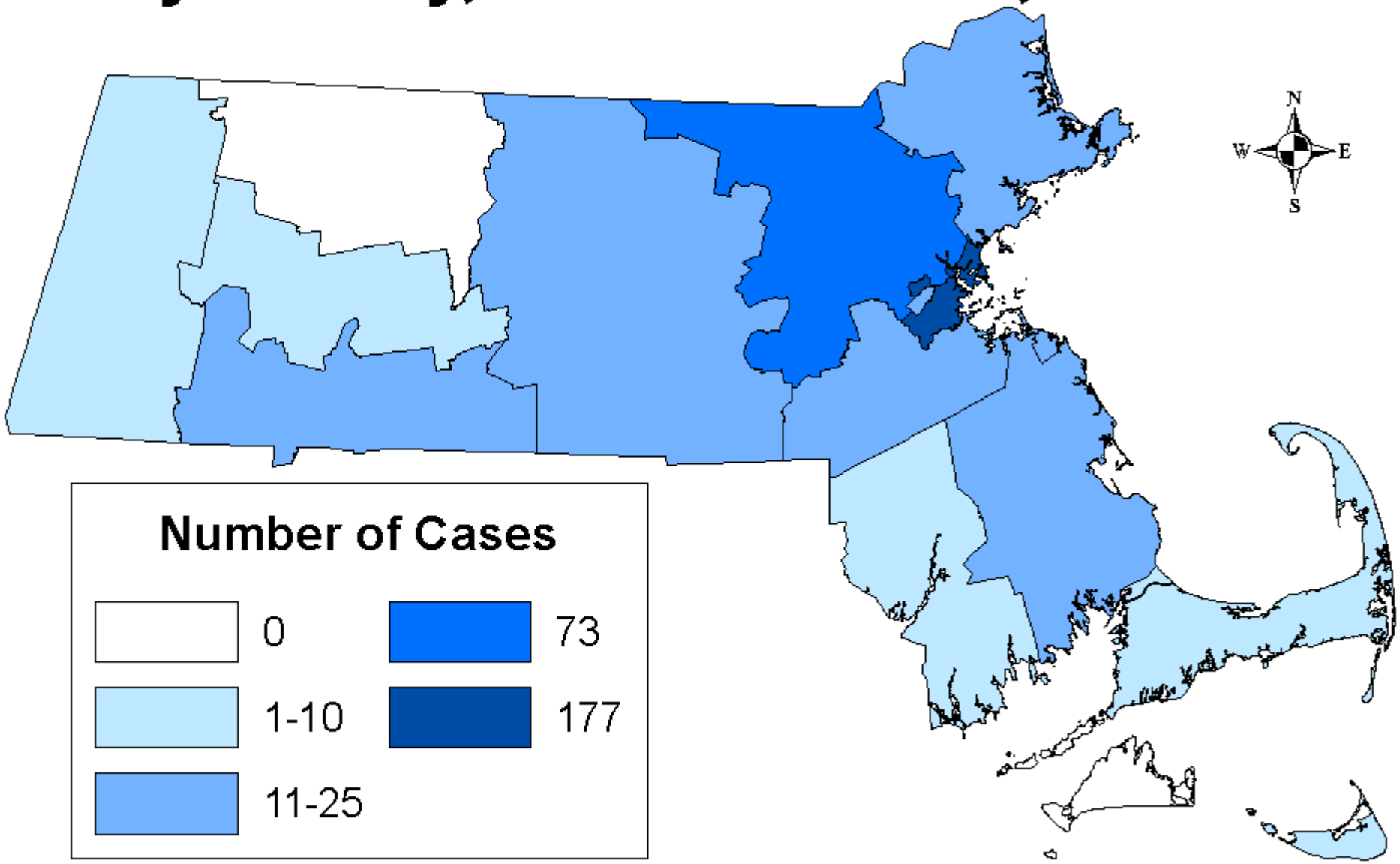
STDs and HIV in Men Who Have Sex With Men

Notifiable disease surveillance data on syphilis and data from the National Gonococcal Isolate Surveillance Project suggest that some STDs in MSM including men who have sex with both men and women, are increasing. Because STDs and the behaviors associated with acquiring them increase the likelihood of acquiring and transmitting HIV infection, the rise in STDs among MSM may be associated with the increase in HIV diagnosis among MSM. (Source: CDC. *Sexually Transmitted Disease Surveillance*, 2008. Atlanta, GA: U.S. Department of Health and Human Services, November 2010.)

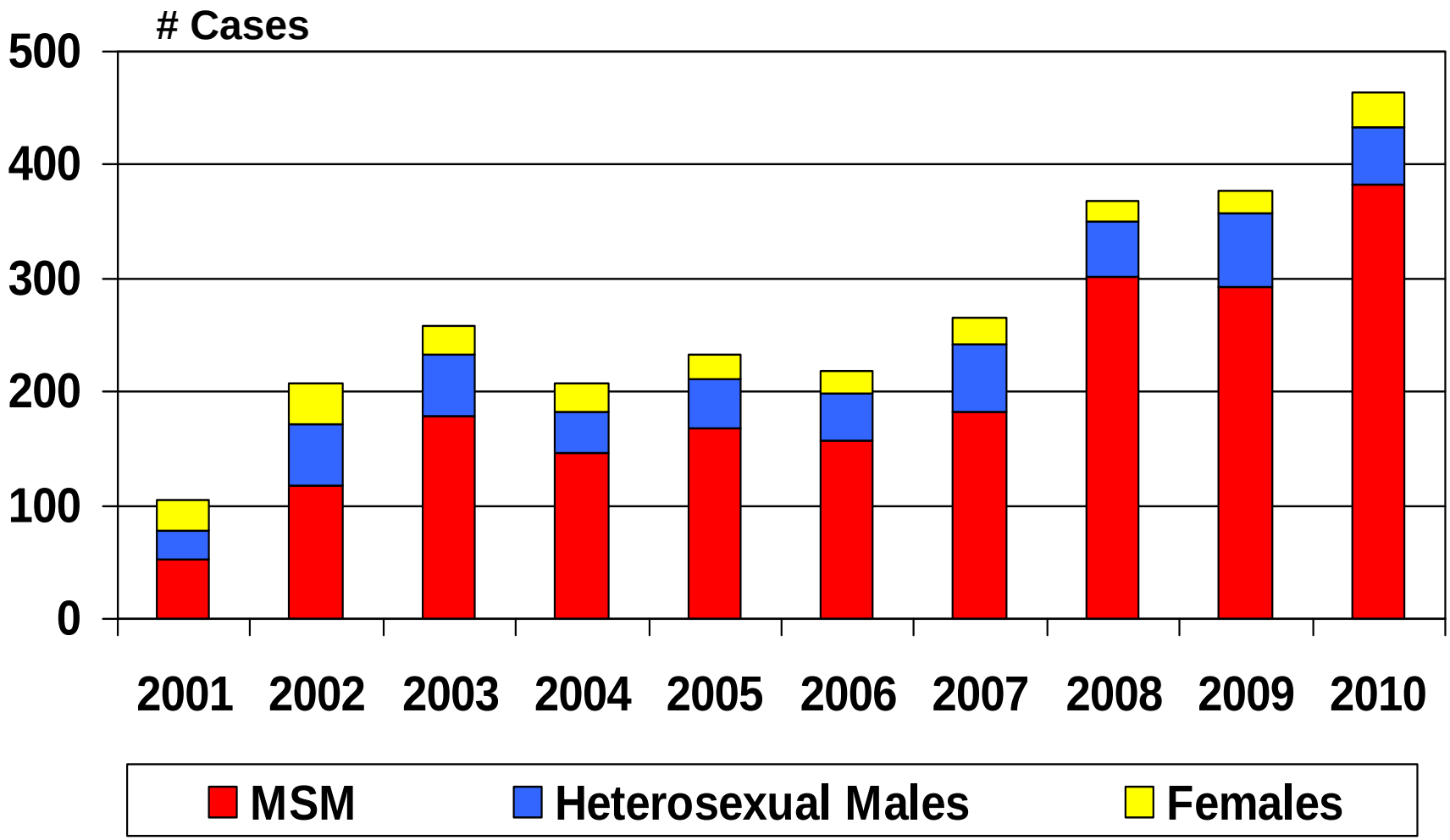
- Place Hold

In 2010, 382 infectious syphilis cases were reported in MSM in Massachusetts, of which 177 (46%) were in Suffolk County.

Reported Infectious Syphilis in MSM by County, Massachusetts, 2010



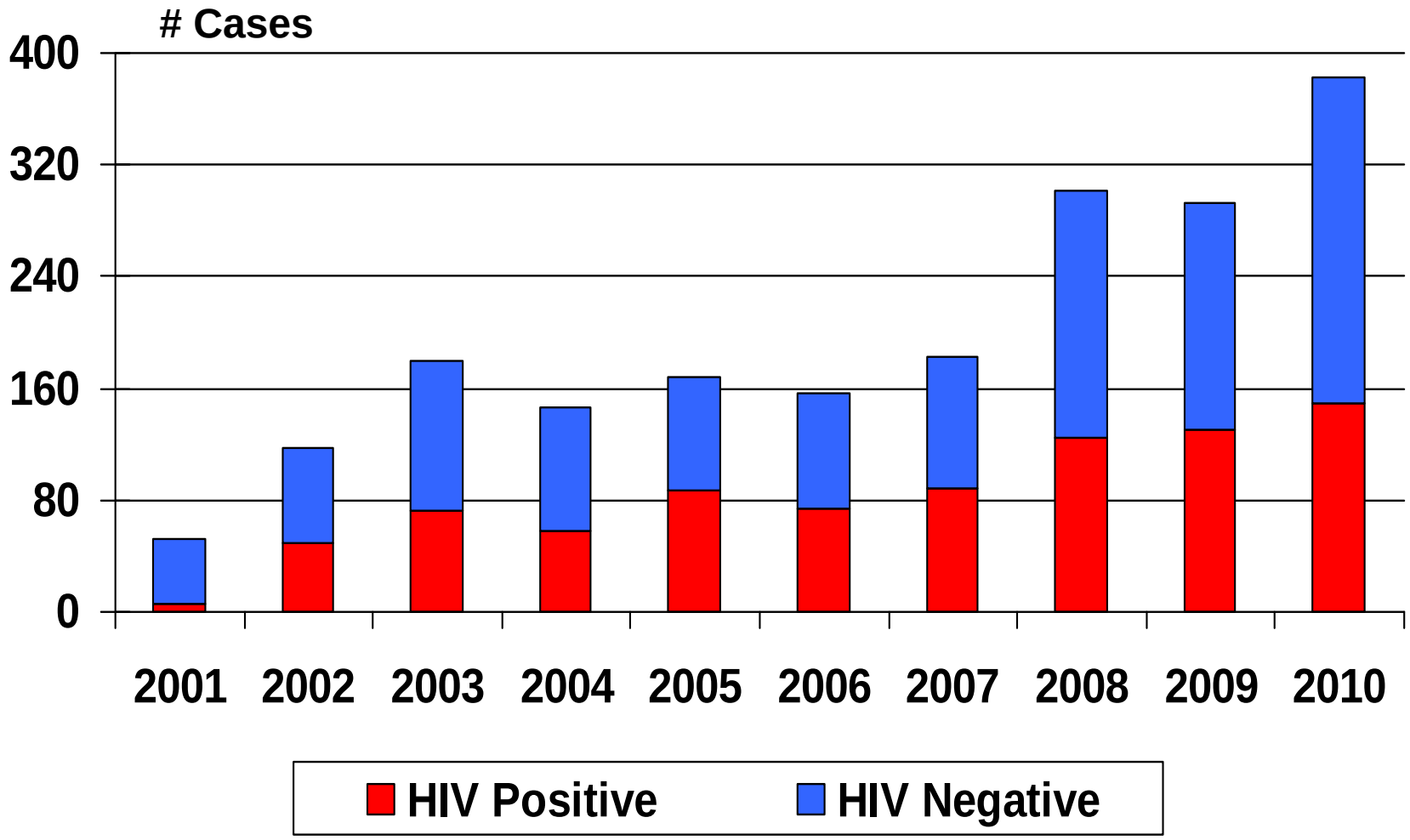
Infectious Syphilis Cases, Massachusetts, 2001-2010 MSM, Heterosexual Males, Females



In the past eight years, MSM accounted for the majority of infectious syphilis cases in Massachusetts, ranging from 50% in 2001 to 82% in 2010.

In 2010, the racial/ethnic breakdown of reported infectious syphilis cases in MSM was white (61%), black (14%), Hispanic (19%), other (6%), and unknown (6%). The median age of the cases was 36 years, three years younger than that of the year before.

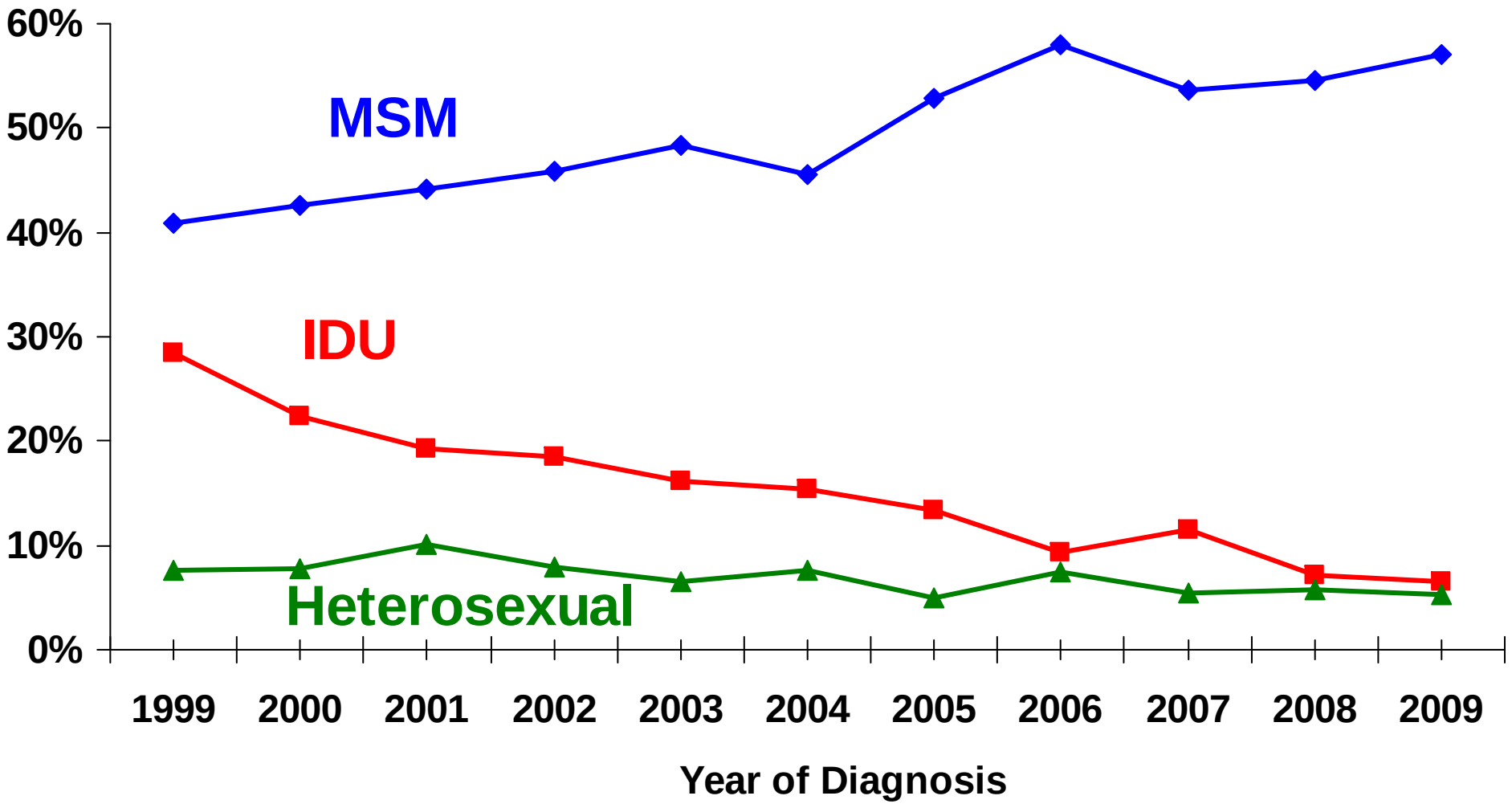
Infectious Syphilis Cases in MSM by HIV Status*
Massachusetts, 2001-2010



*Self reported status

In 2010, 39% of the reported infectious syphilis cases in MSM occurred in individuals reported to be HIV-positive and 61% self-reported to be HIV negative.

Percentage Distribution of Newly Diagnosed HIV Infection Cases in Males by Exposure Mode Massachusetts, 1999-2009



Among males, the proportion of reported HIV infection cases with male to male sex as the reported mode of exposure increased from 40% in 1999 to a high of 58% in 2006, declined slightly to 54% in 2007 and then increased to 57% in 2009.